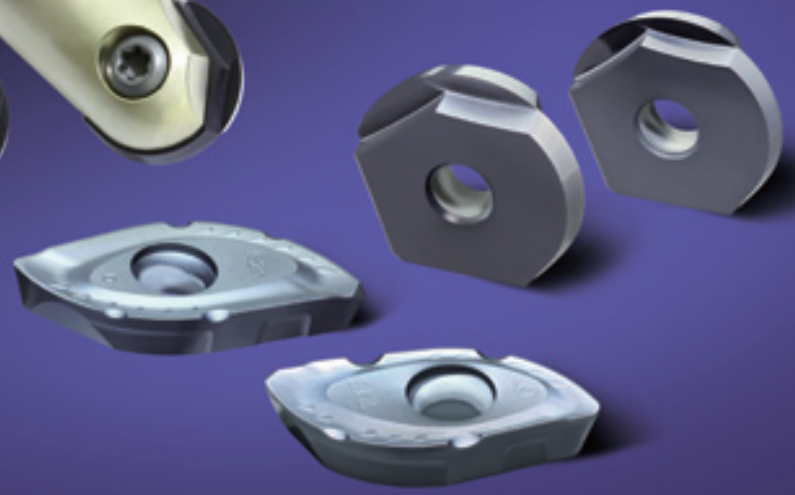




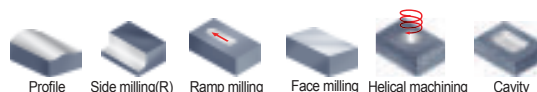
Profile milling tools series

BMR04-025-032-M

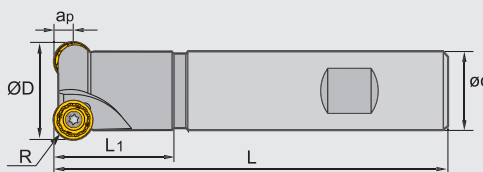
BMR04-025-039-M



Face milling tools



FMR01 P M K S



Specification of tools


Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)
		ØD	ød	L	L1	R	apmax		
FMR01 -025-XP20-RC10-02	▲	25	20	100	30	5	5	2	0.2
-032-XP25-RC10-02	▲	32	25	120	35	5	5	2	0.5
-040-XP32-RC12-03	▲	40	32	120	40	6	6	3	0.7
-050-XP32-RC12-03	▲	50	32	120	40	6	6	3	0.8

▲ Stock available △ Make-to-order

Indexable milling tools
Face milling tools

Spare parts

Diameter ØD	Insert screw	Wrench
Ø25 -Ø32	I60M4×8.4	WT15S
Ø40 -Ø50	I60M3.5×10	

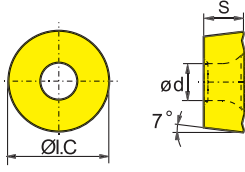


Tools code key
B24-B25

Grade selection guide
B19-B23

Technical data
B234-B240

Selection of inserts



😊 Good working condition 😊 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)			CVD Coating					PVD Coating					Cermet	Cemented carbide											
		ØI.C	S	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	RCKT10T3MO-DM	10.0	3.97	4.4	●							●	★														
	RCKT1204MO-DM	12.0	4.76	4.0	●	●	●	○				●	★	★													
	RCKT1204MO-DR	12.0	4.76	4.0	○	○	○					●	★														
	RCKT1204MO-ER	12.0	4.76	4.0			★																				
	RCKT1204MO-NM	12.0	4.76	4.0			○								○	○		○	○								

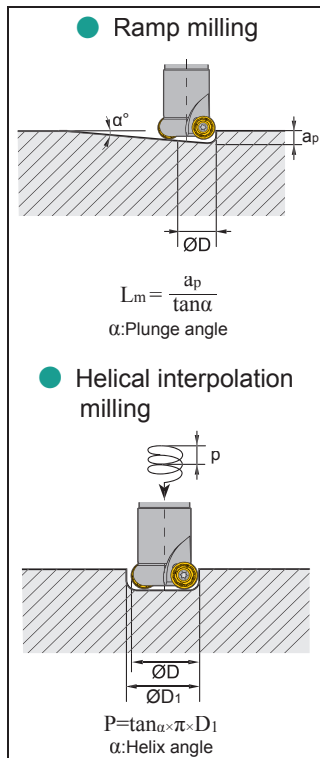
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters				
			V _c (m/min)	f _z (mm/z)			
				-DM	-DR	-NM	
P Low-carbon steel, Soft steel	≤ 180	YBM251 YBC301	270 (220-350)	0.2(0.1-0.5)	0.3 (0.2-0.8)		
		YBM351 YBC302	220 (180-300)	0.25(0.1-0.5)	0.3 (0.2-0.8)		
		YBG202 YBG205 YB9320	270 (200-360)	0.2(0.1-0.5)	0.3 (0.2-0.8)	0.2 (0.1-0.5)	
	180-280 High-carbon steel, Alloy steel	YBM251 YBC301	240 (200-320)	0.2(0.1-0.5)	0.3 (0.2-0.8)		
		YBM351 YBG302	200 (160-280)	0.25(0.1-0.5)	0.3 (0.2-0.8)	0.2 (0.1-0.5)	
		YBG202 YBG205 YB9320	240 (180-350)	0.2(0.1-0.5)	0.3 (0.2-0.8)	0.2 (0.1-0.5)	
280-350 Alloy tool steel	YBM251 YBC301	220 (180-300)	0.2(0.1-0.4)	0.3 (0.2-0.6)			
	YBM351 YBG302	180 (150-250)	0.2(0.1-0.5)	0.3 (0.2-0.8)	0.2 (0.1-0.4)		
	YBG202 YBG205 YB9320	220 (170-340)	0.2(0.1-0.4)	0.3 (0.2-0.6)	0.2 (0.1-0.4)		
M Stainless steel	≤ 270	YBM251	150 (120-240)	0.2(0.1-0.4)	0.3 (0.2-0.6)		
		YBM253 YBM351	150 (100-220)	0.2(0.1-0.4)	0.3 (0.2-0.6)	0.2 (0.1-0.4)	
		YBG202 YBG205 YB9320	160 (110-270)	0.2(0.1-0.4)	0.3 (0.2-0.6)	0.2 (0.1-0.4)	
K Cast iron	180-250	YBG302	210 (120-300)	0.2(0.1-0.5)	0.3 (0.2-0.8)	0.2 (0.1-0.5)	
		YBD152	240 (180-300)	0.2(0.1-0.3)			
S hard-to-cut material	≤ 400	YBS203 YBS303	100 (60-120)			0.15 (0.1-0.3)	

➤ Ramp milling, helical interpolation milling

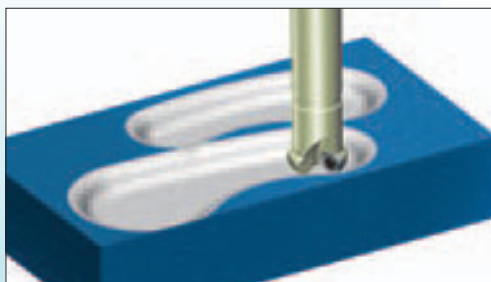
Insert	Diameter ØD(mm)	Ramp milling			Helical interpolation milling	
		Max. cutting depth	Max. cutting depth	Min. length	Min. diameter	Max. diameter
		ap(mm)	α°	Lm(mm)	ØD1(mm)	(mm)
RCKT10**	25	5	14.4	19.5	40	5
	32	5	8.4	34	54	5
RCKT12**	40	6	10.3	33.2	68	6
	50	6	7.1	48	88	6



Reduce the feed rate when plunging and circular milling.
 Attention-drilling lead to long chips.

Indexable milling tools
 Face milling tools

Case for FMR01



Tool type: FMR01-025-XP20-RC10-02

Insert type/grade: RCKT10T3MO-DM/YBG202

Workpiece material: 42CrMo (HRC35)
 Cooling system: Dry cutting
 Machine: Vertical machining center
 Cutting parameters:
 $V_c=200\text{m/min}$
 $a_p=3\text{mm}$
 $f_z=0.2\text{mm/z}$

● Comparison of insert abrasion

ZCC-CT

Similar overseas products



22minutes later

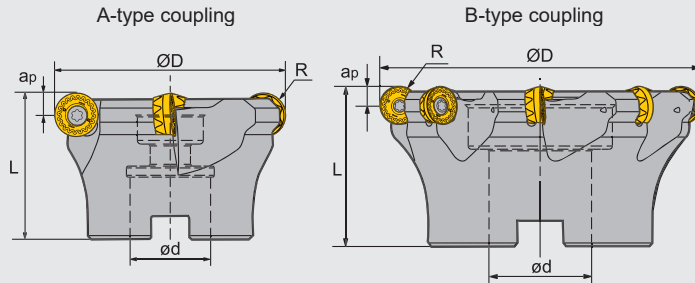


22minutes later

Face milling tools



FMR02 P M K S



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	L	R	apmax			
Coarse pitch	△	50	22	40	6	6	3	A	0.29
	▲	63	27	50	6	6	4	A	0.41
	▲	80	27	50	6	6	5	B	0.81
	△	100	32	50	6	6	6	B	1.25
	△	63	22	40	8	8	4	A	0.35
	△	80	27	50	8	8	5	B	0.74
	▲	100	32	50	8	8	6	B	1.18
	△	125	40	63	8	8	7	B	2.49
	△	80	27	50	10	10	4	A	0.77
	△	100	32	50	10	10	5	B	1.07
	△	125	40	63	10	10	6	B	2.42
	△	160	40	63	10	10	6	B	4.17
Close pitch	△	50	22	40	6	6	5	A	0.27
	△	63	27	50	6	6	6	A	0.38
	△	80	27	50	6	6	7	B	0.79
	△	100	32	50	6	6	8	B	1.23
	△	63	22	40	8	8	5	A	0.34
	△	80	27	50	8	8	7	B	0.72
	△	100	32	50	8	8	8	B	1.17
	△	125	40	63	8	8	9	B	2.47
	△	80	27	50	10	10	5	A	0.74
	△	100	32	50	10	10	6	B	1.07
	△	125	40	63	10	10	7	B	2.39
	△	160	40	63	10	10	8	B	4.06

▲Stock available △Make-to-order

Spare parts

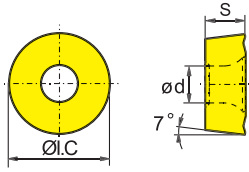
Diameter ØD	Insert	Insert screw		Wrench	
Ø50 -Ø100	RC□□1204MO-□□	I60M3.5×10	WT15IS	--	
Ø63 -Ø125	RC□□1606MO-□□	I60M5×13	--	WT20IT	
Ø125 -Ø160	RC□□2006MO-□□	I43M6×16	--	WT25IT	

Tools code key
B24-B25

Grade selection guide
B19-B23

Technical data
B234-B240

Selection of inserts



😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
M	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
K	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
S	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

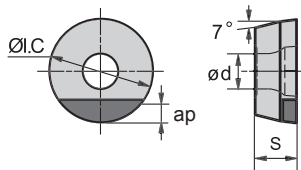
Insert shape	Type	Basic dimensions(mm)			CVD Coating					PVD Coating				Cermet		Cemented carbide											
		ØI.C	S	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	RCKT1204MO-DM	12.0	4.76	4.0	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1606MO-DM	16.0	6.35	5.56	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1204MO-DR	12.0	4.76	4.0	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1606MO-DR	16.0	6.35	5.56	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT2006MO-DR	20.0	6.35	6.55	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1204MO-ER	12.0	4.76	4.0	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1606MO-ER	16.0	6.35	5.56	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT2006MO-ER	20.0	6.35	6.55	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1204MO-NM	12.0	4.76	4.0	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	RCKT1606MO-NM	16.0	6.35	5.56	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Indexable milling tools

Face milling tools

Selection of inserts



😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	Cast iron	Non-ferrous metal
K	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)				PCBN		Cemented carbide		
		ØI.C	S	ød	apmax	BK1041	BK2531	YD051	YD101	YD201
	RCMW1204MOBS01225	12.0	4.76	4.1	2.7	○	○	○	○	○
	RCMW1204MOAS01225	12.0	4.76	4.1	2.7	○	○	○	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



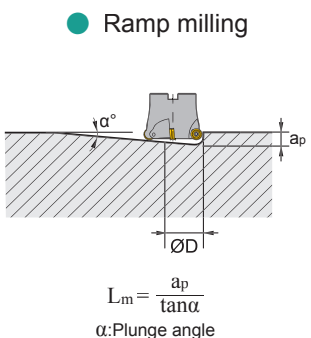
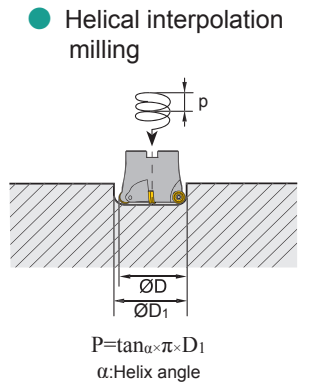
► Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters						
			V _c (m/min)	f _z (mm/z)					
				-DM	-DR	-ER	-PCBN	-NM	
P Low-carbon steel, Soft steel	≤ HB180	YBM251 YBC301	270 (220-350)	0.2(0.1-0.5)	0.3 (0.2-0.8)				
		YBM351 YBG302	220 (180-300)	0.25(0.1-0.5)	0.3 (0.2-0.8)			0.25 (0.1-0.5)	
		YBG202 YBG205 YB9320	270 (200-360)	0.2(0.1-0.5)	0.3 (0.2-0.8)			0.2 (0.1-0.5)	
	High-carbon steel, Alloy steel	HB180-280	YBM251 YBC301	240 (200-320)	0.2(0.1-0.5)	0.3 (0.2-0.8)			
			YBM351 YBG302	200 (160-280)	0.25(0.1-0.5)	0.3 (0.2-0.8)			0.25 (0.1-0.5)
			YBG202 YBG205 YB9320	240 (180-350)	0.2(0.1-0.5)	0.3 (0.2-0.8)			0.2 (0.1-0.5)
	Alloy tool steel	HB280-350	YBM251 YBC301	220 (180-300)	0.2(0.1-0.4)	0.3 (0.2-0.6)			
			YBM351 YBG302	180 (150-250)	0.2(0.1-0.5)	0.3 (0.2-0.8)			0.2 (0.1-0.5)
			YBG202 YBG205 YB9320	220 (170-340)	0.2(0.1-0.4)	0.3 (0.2-0.6)			0.2 (0.1-0.4)
M Stainless steel	≤ HB270	YBM251	150 (120-240)	0.2(0.1-0.4)	0.3 (0.2-0.6)				
		YBM253	150 (100-220)	0.2(0.1-0.4)	0.3 (0.2-0.6)	0.3(0.2-0.6)		0.2 (0.1-0.4)	
		YBM351	150 (100-220)	0.2(0.1-0.4)	0.3 (0.2-0.6)				
		YBG202 YBG205 YB9320	160 (110-270)	0.2(0.1-0.4)	0.3 (0.2-0.6)			0.2 (0.1-0.4)	
K Quenching steel, Cast iron	HB180-250	YBG302	210 (120-300)	0.2(0.1-0.5)	0.3 (0.2-0.8)			0.2 (0.1-0.5)	
		BK2531	150 (100-500)				0.15 (0.1-0.5)		
		BK1041	800 (500-1200)				0.2 (0.1-0.5)		
		YBD152	240 (180-300)	0.2(0.1-0.3)					
YBD252	220 (180-300)		0.2 (0.1-0.3)						
S Difficult-to-machine materials	≤ 400	YBS203 YBS303	100 (60-120)					0.15 (0.1-0.3)	

Indexable milling tools

Face milling tools

➤ Ramp milling, helical interpolation milling

 <p>● Ramp milling</p>	Insert	Diameter ØD(mm)	Ramp milling			Helical interpolation milling	
			Max. cutting depth	Max. cutting depth	Min. length	Min. diameter	Max. diameter
			ap(mm)	α°	Lm(mm)	ØD1(mm)	(mm)
 <p>● Helical interpolation milling</p>	RCKT12**	50	6	7	48.9	88	6
		63	6	5.1	67.5	114	6
		80	6	3.7	94.1	148	6
		100	6	2.7	127.2	188	6
	RCKT16**	63	8	8	56.9	110	8
		80	8	5.6	81.6	144	8
		100	8	4.1	110.8	184	8
		125	8	3.4	136.7	234	8
	RCKT20**	80	10	8	71.2	140	10
		100	10	5.7	100.2	180	10
		125	10	4.2	136.2	230	10
		160	10	3	190.8	300	10

Reduce the feed rate when plunging and circular milling.
Attention-drilling lead to long chips.

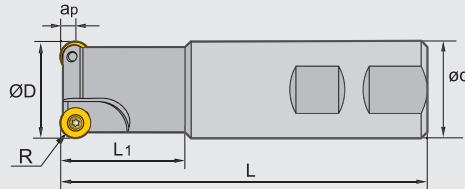
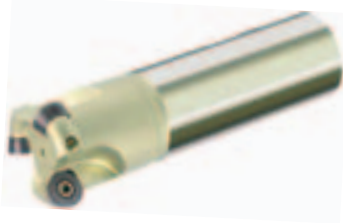
Indexable
milling tools

Face milling tools

Face milling tools



FMR03 P M K S



Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)
		ØD	ød	L	L1	R	ap,max		
FMR03 -016-XP16-RD08-02	▲	16	16	100	25	4	4	2	0.1
-025-XP25-RD08-02	▲	25	25	100	30	4	4	2	0.3
-032-XP32-RD10-02	▲	32	32	120	40	5	5	2	0.7
-040-XP32-RD12-03	▲	40	32	120	40	6	6	3	0.7
-050-XP32-RD12-04	▲	50	32	120	40	6	6	4	0.8


▲ Stock available △ Make-to-order

Indexable milling tools

Face milling tools

Spare parts

Diameter ØD	Insert screw	Wrench
Ø16-Ø25	I60M3×7	WT09IP
Ø32-Ø50	I60M4×10	WT15IP

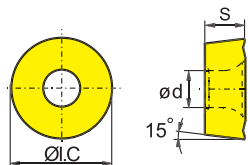


Tools code key **B24-B25**

Grade selection guide **B19-B23**

Technical data **B234-B240**

Selection of inserts



☺ Good working condition 😊 Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
Steel (P)	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺
Stainless steel (M)	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺
Cast iron (K)	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺
Non-ferrous metal (N)	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺
Heat resistant alloy, Ti alloy (S)	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺	☺☺☺☺☺☺

Insert shape	Type	Basic dimensions(mm)			CVD Coating						PVD Coating				Cermet	Cemented carbide											
		Ø.C	S	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	RDKW0803MO	8	3.18	3.4	○							●★	○														
	RDKW10T3MO	10	3.97	4.4	○				●			●★															
	RDKW1204MO	12	4.76	4.4	●	●	●					●★	●														
	RDKT10T3MO-NM	10	3.97	4.4								○						○	○								

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

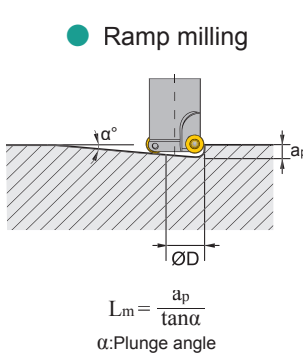
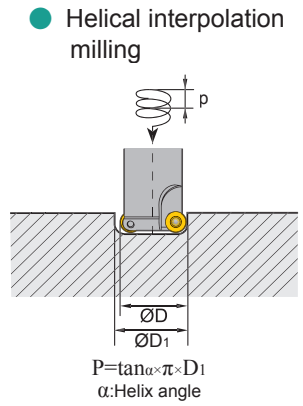
Indexable milling tools

Face milling tools

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters	
			V _c (m/min)	f _z (mm/z)
P Steel	Low-carbon steel, Soft steel	YBM251 YBC301	270 (220-350)	0.2 (0.08-0.45)
		YBM351 YBG302	220 (180-300)	0.25 (0.15-0.45)
		YBG202 YBG205	270 (200-360)	0.2 (0.1-0.45)
	High-carbon steel, Alloy steel	YBM251 YBC301	240 (200-320)	0.2 (0.08-0.45)
		YBM351 YBG302	200 (160-280)	0.25 (0.15-0.45)
		YBG202 YBG205	240 (180-350)	0.2 (0.1-0.45)
	Alloy tool steel	YBM251 YBC301	220 (180-300)	0.2 (0.08-0.45)
		YBM351 YBG302	180 (150-250)	0.25 (0.15-0.45)
		YBG202 YBG205	220 (170-340)	0.2 (0.1-0.45)
M Stainless steel	≤270	YBG205	150 (120-240)	0.2 (0.08-0.45)
		YBM251	150 (120-240)	0.2 (0.08-0.45)
		YBM351	150 (100-220)	0.25 (0.1-0.45)
		YBG202 YBG205	160 (110-270)	0.2 (0.1-0.45)
K Cast iron	180-250	YBG302	210 (120-300)	0.2 (0.1-0.45)
S Difficult-to-machine materials	≤400	YBS203 YBS303	100 (60-120)	0.15 (0.1-0.3)

➤ Ramp milling, helical interpolation milling

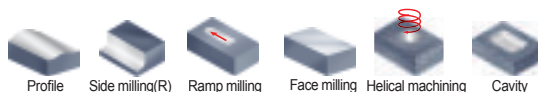
 <p>● Ramp milling</p>	Insert	Diameter ØD(mm)	Ramp milling			Helical interpolation milling	
			Max. cutting depth	Max. cutting depth	Min. length	Min. diameter	Max. diameter
			ap(mm)	α°	Lm(mm)	ØD1(mm)	(mm)
	RD*08**	16	4	12.2	18.5	24	4
		25	4	8.8	25.8	42	4
 <p>● Helical interpolation milling</p>	RD*10**	32	5	8.4	34	54	5
	RD*12**	40	6	10.3	33	68	6
		50	6	7.1	48	88	6

Reduce the feed rate when plunging and circular milling.
Attention-drilling lead to long chips.

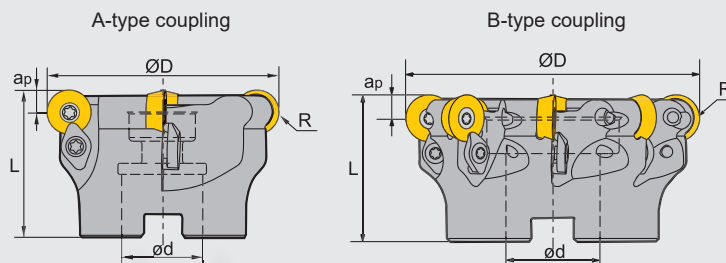
Indexable
milling tools

Face milling tools

Face milling tools



FMR04 P M K



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	L	R	apmax			
FMR04 Coarse pitch	▲	50	22	40	6	6	3	A	0.25
	▲	63	22	40	6	6	4	A	0.37
	▲	80	27	50	6	6	5	B	0.77
	△	63	22	40	8	8	4	A	0.32
	△	80	27	50	8	8	5	B	0.67
	▲	100	32	50	8	8	6	B	1.18
	△	125	40	63	8	8	8	B	2.55
	▲	125	40	63	10	10	6	B	2.33
Close pitch	▲	160	40	63	10	10	7	B	3.83
	△	50	22	40	6	6	5	A	0.23
	△	63	22	40	6	6	6	A	0.48
	△	80	27	50	6	6	7	B	0.78
	△	63	22	40	8	8	5	A	0.3
	△	80	27	50	8	8	7	B	0.66
	△	100	32	50	8	8	8	B	1.18
	△	125	40	63	8	8	10	B	2.51
	△	125	40	63	10	10	8	B	2.45
	△	160	40	63	10	10	10	B	3.98

▲Stock available △Make-to-order

Indexable milling tools

Face milling tools

Spare parts

Diameter ØD	Insert	Insert screw	Clamp	Clamp screw	Wrench	
Ø50-Ø80	RDKW1204MO	I60M3.5×10	WD-204	I60M4×10	WT15IP	--
Ø63-Ø125	RDKW1605MO	I60M5×13	WD-207	I60M5×13	--	WT20IT
Ø125-Ø160	RDKW2006MO	I43M6×16	--	--	--	WT25IT

Tools code key
B24-B25

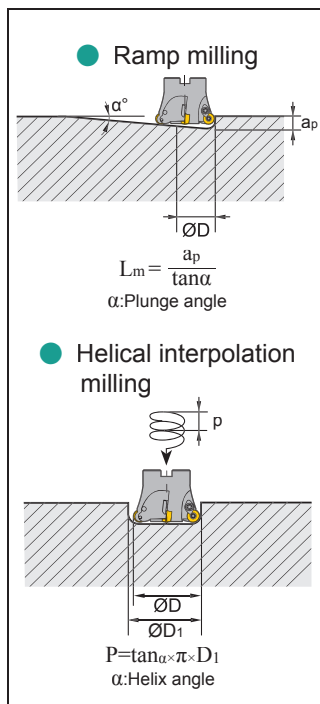
Grade selection guide
B19-B23

Technical data
B234-B240

➤ Ramp milling, helical interpolation milling

Insert	Diameter ØD(mm)	Ramp milling			Helical interpolation milling	
		Max. cutting depth	Max. cutting depth	Min. length	Min. diameter	Max. diameter
		ap(mm)	α°	Lm(mm)	ØD1(mm)	(mm)
RD*12**	50	6	7.1	48	88	6
	63	6	5.1	67	114	6
	80	6	3.6	93	148	6
RD*16**	63	8	8	56.5	110	8
	80	8	5.6	81.5	144	8
	100	8	4.1	110.5	184	8
	125	8	3.4	136.5	234	8
RD*120**	125	10	4.2	136.2	230	10
	160	10	3	190.5	300	10

Reduce the feed rate when plunging and circular milling.
Attention-drilling lead to long chips.



Indexable milling tools

Face milling tools

Case for FMR04



Workpiece material: 42CrMo (HRC35)
Cooling system: Dry cutting
Machine: Vertical machining center
Cutting parameters:
Vc=200m/min
ap=3mm
fz=0.3mm/z



Tool type: FMR04-063-A22-RD12-04

Insert type/grade: RDKW1204MO/YBG202

● Abrasion comparison after 90 minutes cavity milling

ZCC-CT



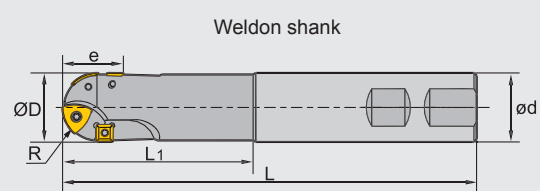
Similar overseas products



Profile milling tools



BMR01 P M K



Specification of tools

Type	Stock	Basic dimensions(mm)						Applicable inserts				Weight (kg)
		R	ØD	e	ød	L	L ₁	Type	Quantity	Type	Quantity	
BMR01 -020-XP20-S	▲	10	20	20	20	125	50	ZDET08T2CYR10	2	SPMT060304	2	0.3
-020-XP20-M	▲	10	20	20	20	150	75	ZDET08T2CYR10	2	SPMT060304	2	0.3
-020-XP20-L	▲	10	20	20	20	200	100	ZDET08T2CYR10	2	SPMT060304	2	0.4
-025-XP25-S	▲	12.5	25	23	25	150	70	ZDET1103CYR12.5	2	SPMT060304	2	0.5
-025-XP25-M	▲	12.5	25	23	25	175	95	ZDET1103CYR12.5	2	SPMT060304	2	0.6
-025-XP25-L	▲	12.5	25	23	25	200	100	ZDET1103CYR12.5	2	SPMT060304	2	0.7
-032-XP32-S	▲	16	32	31	32	175	85	ZDET13T3CYR16	2	SDMT090308	2	0.9
-032-XP32-M	▲	16	32	31	32	200	100	ZDET13T3CYR16	2	SDMT090308	2	1.1
-032-XP32-L	▲	16	32	31	32	250	150	ZDET13T3CYR16	2	SDMT090308	2	1.4
-040-XP40-S	▲	20	40	41	40	175	85	ZPNT2204CY(R20)	3	SPMT120408	2	1.4
-040-XP40-M	▲	20	40	41	40	200	100	ZPNT2204CY(R20)	3	SPMT120408	2	1.7
-040-XP40-L	▲	20	40	41	40	250	150	ZPNT2204CY(R20)	3	SPMT120408	2	2.1
-050-XP40-S	▲	25	50	45	40	200	100	ZPNT2204CY(R25)	3	SPMT120408	2	1.8
-050-XP40-M	▲	25	50	45	40	300	100	ZPNT2204CY(R25)	3	SPMT120408	2	2.8
-063-XP40-S	▲	31.5	63	52	40	200	100	ZPNT2204CY(R31)	4	SPMT120408	2	3.0
-063-XP40-M	▲	31.5	63	52	40	300	100	ZPNT2204CY(R31)	4	SPMT120408	2	3.5

▲ Stock available △ Make-to-order

Indexable milling tools

Profile milling tools

Spare parts

Diameter ØD	Screw	Wrench	
Ø20-Ø25	I43M2.5×5.7	WT07IP	--
Ø32	I43M4×8	--	WT15IS
Ø40-Ø63	I43M5×11	--	WT20IS



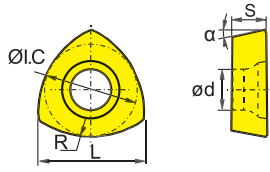
Tools code key **B24-B25**

Grade selection guide **B19-B23**

Technical data **B234-B240**

B MILLING / Indexable Milling Tools

Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

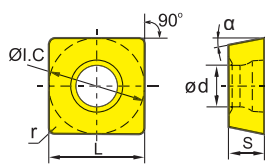
Workpiece material	P	M	K	N	S
Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Heat resistant alloy, Ti alloy	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating						PVD Coating				Cermet	Cemented carbide										
		R	L	$\phi I.C$	S	ϕd	α	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	ZDET08T2CYR10	10	8.4	6.75	2.78	2.8	14°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	ZDET1103CYR12.5	12.5	10.6	8.5	3.18	2.8	14°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	ZDET13T3CYR16	16	13.2	10.5	3.97	4.4	14°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	ZPNT2204CY(R20)	20	16.1	12.7	4.76	5.56	11°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	ZPNT2204CY(R25)	25	16.9	12.7	4.76	5.56	11°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	ZPNT2204CY(R31)	31.5	17.6	12.7	4.76	5.56	11°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Indexable milling tools

Profile milling tools



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P	M	K	N	S
Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Heat resistant alloy, Ti alloy	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating						PVD Coating				Cermet	Cemented carbide										
		r	L	$\phi I.C$	S	ϕd	α	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	SPMT060304	0.4	6.35	6.35	3.18	2.8	11°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	SPMT090308	0.8	9.525	9.525	3.18	4.4	15°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
	SPMT120408	0.8	12.7	12.70	4.76	5.5	11°	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters	
			Vc(m/min)	fz(mm/z)
P Low-carbon steel, Soft steel	≤ 180	YBM251	180(120-220)	0.25(0.1-0.4)
		YBG302	160(120-220)	0.25(0.1-0.4)
	180-280	YBM251	150(100-200)	0.2(0.1-0.4)
		YBG302	120(100-200)	0.2(0.1-0.4)
Alloy tool steel	280-350	YBM251	100(80-150)	0.2(0.1-0.3)
		YBG302	100(80-150)	0.2(0.1-0.3)
M Stainless steel	≤ 270	YBM251	100(80-150)	0.2(0.1-0.3)
		YBG302	100(80-150)	0.2(0.1-0.3)
K Cast iron	180-250	YBG302	150(100-180)	0.3(0.2-0.5)

Profile milling tools



BMR02 P M K



Specification of tools

Type	Stock	Basic dimensions(mm)					Weight (kg)
		R	ØD	ød	L	L ₁	
BMR02 -012-G16-S	▲	6	12	16	110	40	0.1
-012-G16-M	▲	6	12	16	130	50	0.2
-012-G16-L	▲	6	12	16	160	50	0.2
-016-G20-S	▲	8	16	20	140	45	0.3
-016-G20-M	▲	8	16	20	170	65	0.3
-016-G20-L	▲	8	16	20	200	65	0.4
-020-G25-S	▲	10	20	25	160	60	0.5
-020-G25-M	▲	10	20	25	200	80	0.6
-020-G25-L	▲	10	20	25	240	80	0.8

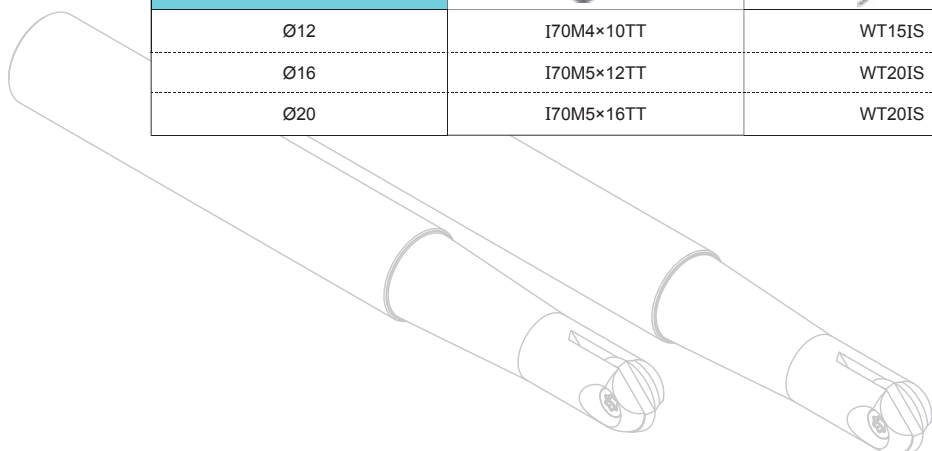
▲Stock available △Make-to-order

Indexable milling tools

Profile milling tools

Spare parts

Diameter ØD	Screw	Wrench
Ø12	I70M4×10TT	WT15IS
Ø16	I70M5×12TT	WT20IS
Ø20	I70M5×16TT	WT20IS



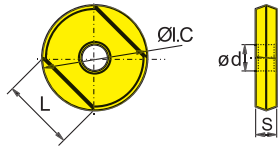
Tools code key B24-B25

Grade selection guide B19-B23

Technical data B234-B240



Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal																					😊	😊
S Heat resistant alloy, Ti alloy																						

Insert shape	Type	Basic dimensions(mm)				CVD Coating				PVD Coating				Cermet		Cemented carbide																				
		$\phi I.C$	L	S	ϕd	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201									
	ROHX1203	12	8.5	3	4																															
	ROHX1604	16	11.3	4	5																															
	ROHX2005	20	14.1	5	5																															

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

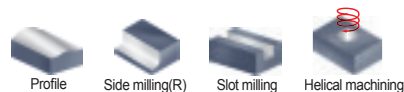
Indexable
milling tools

Profile milling tools

Recommended cutting parameters

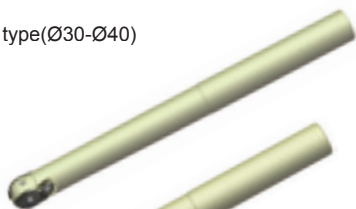
Workpiece material	Hardness HB	Insert grade	Cutting parameters	Diameter			
				$\phi 12$	$\phi 16$	$\phi 20$	
P	Carbon steel	YBG252	Vc(m/min)	100~200	100~200	100~200	
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	
			a_{pmax} (mm)	0.8	1.0	1.25	
			a_{emax} (mm)	0.8	1.0	1.25	
	Alloy steel		HB180~280	Vc(m/min)	80~180	80~180	80~180
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	
			a_{pmax} (mm)	0.8	1.0	1.25	
			a_{emax} (mm)	0.8	1.0	1.25	
	Hardened steel		HRC55~65	Vc(m/min)	60~100	60~100	60~100
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	
			a_{pmax} (mm)	0.4	0.5	0.6	
			a_{emax} (mm)	0.4	0.5	0.6	
M	Stainless steel	HB \leq 270	Vc(m/min)	70~150	70~150	70~150	
		fz(mm/z)	0.1~0.2	0.1~0.25	0.1~0.25		
		a_{pmax} (mm)	0.6	0.8	1.0		
		a_{emax} (mm)	0.6	0.8	1.0		
K	Cast iron	HB180~250	Vc(m/min)	160~300	160~300	160~300	
		fz(mm/z)	0.2~0.3	0.25~0.35	0.25~0.35		
		a_{pmax} (mm)	1.0	1.5	1.8		
		a_{emax} (mm)	1.0	1.5	1.8		

Profile milling tools

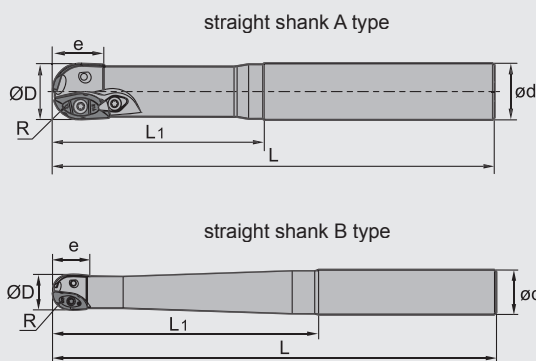


BMR03 P M K

A type(Ø30-Ø40)



B type(Ø16-Ø25)



Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)	Type	Clamp
		R	ØD	ød	L	L ₁	e				
BMR03 -016-G20-S	▲	8	16	20	150	70	16	2	0.3	B	-
-016-G20-M	▲	8	16	20	180	80	16	2	0.4	B	
-020-G25-S	▲	10	20	25	180	80	20	2	0.5	B	
-020-G25-M	▲	10	20	25	200	100	20	2	0.6	B	
-020-G25-L	▲	10	20	25	250	150	20	2	0.7	B	
-020-G25-XL	▲	10	20	25	300	110	20	2	1.0	B	
-025-G25-S	▲	12.5	25	25	180	80	25	2	0.6	B	
-025-G25-M	▲	12.5	25	25	200	100	25	2	0.7	B	
-025-G25-L	▲	12.5	25	25	250	110	25	2	0.8	B	
-025-G25-XL	▲	12.5	25	25	300	120	25	2	1.0	B	
-030-G32-S	△	15	30	32	200	120	30	2	1.0	A	WD-208
-030-G32-M	▲	15	30	32	250	150	30	2	1.3	A	
-030-G32-L	▲	15	30	32	300	200	30	2	1.6	A	
-030-G32-XL	△	15	30	32	350	200	30	2	1.9	A	
-032-G32-S	▲	16	32	32	200	120	32	2	1.1	A	
-032-G32-M	▲	16	32	32	250	150	32	2	1.4	A	
-032-G32-L	▲	16	32	32	300	200	32	2	1.6	A	CBH5R1
-032-G32-XL	△	16	32	32	350	200	32	2	2.0	A	
-040-G40-S	△	20	40	40	200	120	40	2	1.6	A	
-040-G40-M	▲	20	40	40	250	150	40	2	2.0	A	
-040-G40-L	▲	20	40	40	300	200	40	2	2.5	A	CBH5R1
-040-G40-XL	△	20	40	40	350	200	40	2	3.0	A	

▲Stock available △Make-to-order

Tools code key
B24-B25

Grade selection guide
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Indexable milling tools

Profile milling tools

Profile milling tools

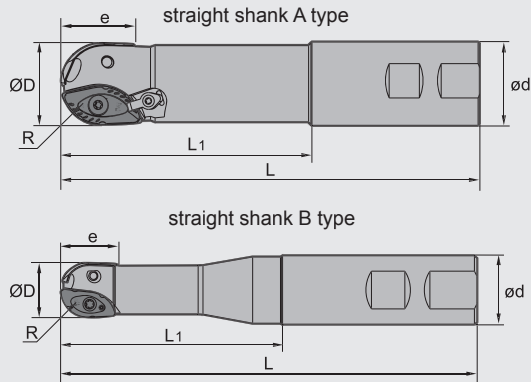


BMR03 P M K

A type(Ø30-Ø50)



B type(Ø16-Ø25)



Specification of tools

Type	Stock	Basic dimensions(mm)							Number of teeth Z	Weight (kg)	Type	Clamp
		R	ØD	ød	L	L1	e					
BMR03 -016-XP20-M	▲	8	16	20	111	60	16	2	0.2	B	--	
-020-XP25-M	▲	10	20	25	127	70	20	2	0.3	B		
-020-XP25-L	▲	10	20	25	150	80	20	2	0.4	B		
-025-XP25-M	▲	12.5	25	25	137	80	25	2	0.4	B		
-025-XP25-L	▲	12.5	25	25	200	100	25	2	0.6	B		
-030-XP32-M	▲	15	30	32	161	100	30	2	0.8	A	WD-208	
-030-XP32-L	▲	15	30	32	250	150	30	2	1.3	A		
-032-XP32-M	▲	16	32	32	161	100	32	2	0.8	A		
-032-XP32-L	▲	16	32	32	250	120	32	2	1.3	A		
-040-XP40-M	▲	20	40	40	175	100	40	2	1.3	A	CBH5R1	
-040-XP40-L	▲	20	40	40	250	120	40	2	2.0	A		
-050-XP50-M	▲	25	50	50	200	100	50	2	2.5	A		
-050-XP50-L	▲	25	50	50	250	150	50	2	3.1	A		

▲ Stock available △ Make-to-order

Tools code key
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Profile milling tools

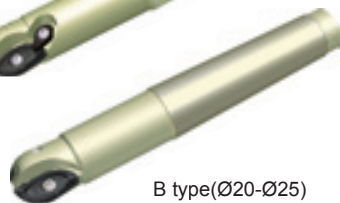


BMR03 P M K

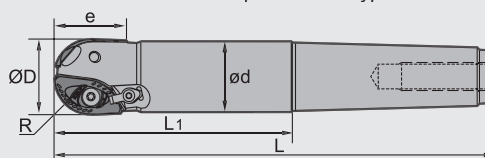
A type(Ø30-Ø50)



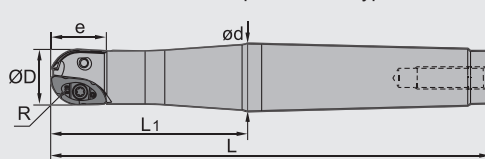
B type(Ø20-Ø25)



Morse taper shank A type



Morse taper shank B type



Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)	Type	Clamp
		R	ØD	ød	L	L1	e				
BMR03 -020-MT3-M	▲	10	20	18.7	156	70	20	2	0.4	B	-
-020-MT3-L	△	10	20	18.7	186	100	20	2	0.4	B	
-025-MT3-M	▲	12.5	25	23.5	156	70	25	2	0.4	B	
-025-MT3-L	△	12.5	25	23.5	186	100	25	2	0.4	B	
-030-MT4-M	▲	15	30	28.2	189	70	30	2	0.8	A	WD-208
-030-MT4-L	△	15	30	28.2	229	120	30	2	1.0	A	
-032-MT4-M	▲	16	32	29.2	179	70	32	2	0.9	A	
-032-MT4-L	△	16	32	29.2	209	100	32	2	0.9	A	
-040-MT4-M	▲	20	40	36.9	199	100	40	2	1.0	A	CBH5R1
-040-MT5-L	▲	20	40	36.9	226	90	40	2	1.8	A	
-040-MT5-XL	▲	20	40	36.9	256	120	40	2	2.0	A	
-050-MT5-M	▲	25	50	46.8	236	100	50	2	2.2	A	
-050-MT5-L	▲	25	50	46.8	286	150	50	2	2.9	A	

▲Stock available △Make-to-order

Indexable milling tools

Profile milling tools

Tools code key
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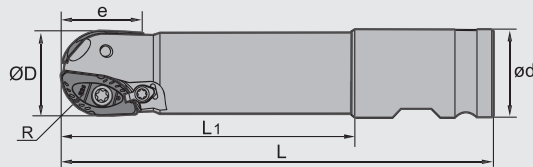
Profile milling tools



BMR03 P M K



Compound shank



Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)	Clamp
		R	ØD	ød	L	L1	e			
BMR03 -040-XPX-M	▲	20	40	50.8	250	170	40	2	1.3	CBH5R1
-040-XPX-L	▲	20	40	50.8	300	220	40	2	3.1	
-040-XPX-XL	▲	20	40	50.8	350	270	40	2	3.5	
-050-XPX-M	▲	25	50	50.8	250	170	50	2	3.1	
-050-XPX-L	▲	25	50	50.8	300	200	50	2	3.8	
-050-XPX-XL	▲	25	50	50.8	350	270	50	2	4.4	

▲Stock available △Make-to-order

Indexable milling tools

Profile milling tools

Spare parts

Diameter ØD	Clamp	Screw	Wrench	
Ø16	--	I60M2.5×6.5	--	WT07P
Ø20	--	I60M3.5×08TT		WT10IP
Ø25	--	I60M4×10		WT15S
Ø30	WD-208	I60M5×13	WT20IT	--
Ø32	WD-208	I60M5×13		
Ø40	CBH5R1	I43M6×16	WT25IT	
Ø50	CBH5R1	I43M8×21	WT25IT	
		I43M6×16	WT30IT	

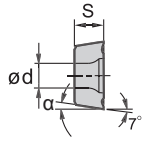
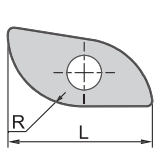


Tools code key
B24-B25

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Selection of inserts



😊 Good working condition 😐 Normal working condition ☹️ Bad working condition

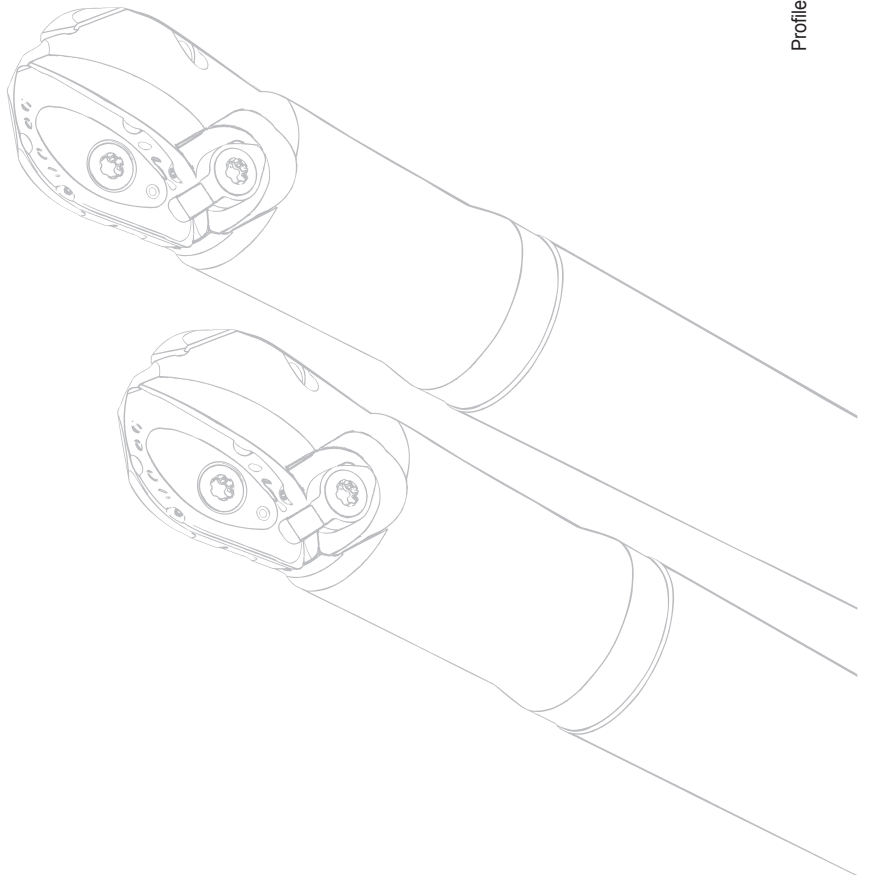
Workpiece material	Steel (P)	Stainless steel (M)	Cast iron (K)	Non-ferrous metal (N)	Heat resistant alloy, Ti alloy (S)
Steel (P)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Stainless steel (M)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Cast iron (K)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Non-ferrous metal (N)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Heat resistant alloy, Ti alloy (S)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating							PVD Coating				Cermet		Cemented carbide													
		R	ød	S	α	L	Applicable tools	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201					
	XPHT16R0803-GM	8	3.1	3.18	9°	16	ø16												★															
	XPHT20R10T3-GM	10	4.0	3.97	9°	20	ø20													★														
	XPHT25R1204-GM	12.5	4.7	4.76	9°	25	ø25														★													
	XPHT30R1506-GM	15	5.8	6.35	11°	30	ø30															★												
	XPHT32R1606-GM	16	5.8	6.35	9°	32	ø32																★											
	XPHT40R2007-GM	20	6.7	7.94	9°	40	ø40																	★										
	XPHT50R2507-GM	25	9.2	7.94	9°	50	ø50																		★									

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Indexable milling tools

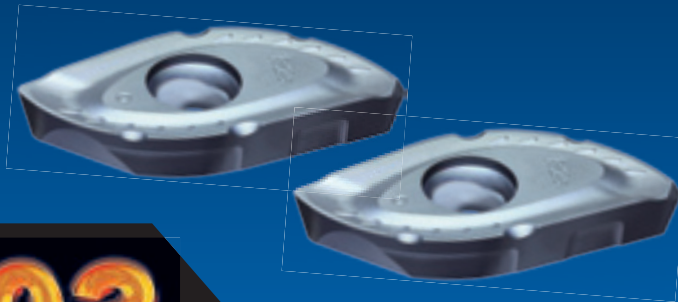
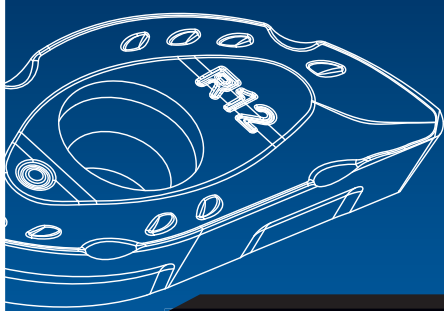
Profile milling tools



Tools code key
B24-B25

Grade selection guide
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Technical data
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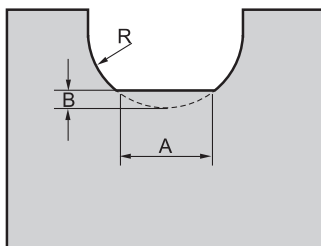
BMRO3

series ball nose end milling tools

- The unique chipbreaker and big rake angle can effectively control the curling and flowing direction of chips and reduce the cutting force, improving workpiece surface quality and tool life.
- After precise grinding of periphery and locating surface, the insert can sufficiently ensure the shape accuracy of cutting edge and the precision of installation and location, improving installation security and workpiece precision after machining.
- The concave structure of the flank can effectively enhance the strength of cutting edge and prevent scraping between the clearance face and workpiece surface. Therefore, it improves the workpiece surface quality and prolongs the life of insert.
- The designs of cutting edge over center and a large negative rake angle make it possible to cut vertically, thus anti-breakage capability is enhanced.
- The rough ball nose milling cutters with large diameter adopt the top and hole clamping style, so insert clamping becomes more firm and stable. The machining is also highly efficient even under poor conditions such as long overhang and large vibration, etc.
- The adapter types include straight shank, Weldon shank, Morse taper shank and combination shank.



Slot shape after machining



R	A	B
08	1.7	0.09
10	2.2	0.12
12.5	3.0	0.18
15	3.9	0.20
16	3.5	0.22
20	3.6	0.24
25	3.8	0.26

Cautions:

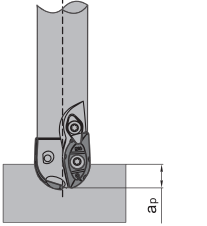
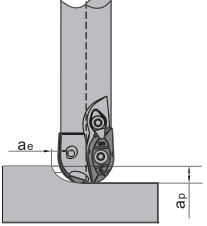
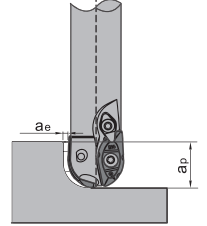
The insert edge should correspond to the locating face of insert pocket in the tool. Don't install the wrong side up.

Before screwing down the insert, confirm the good connection between insert and insert pocket.

Select and adjust the cutting parameters according to machine power and machining conditions.

If vibration occurs in the machining process, cutting speed should be reduced properly.

▶ Recommended cutting parameters Diameter Ø16

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	4	4	8	16	
	ae(mm)	--	3	4	1.5	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	4	4	8	16	
	ae(mm)	--	3	4	1.5	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	ap(mm)	4	4	8	16	
	ae(mm)	--	3	4	1.5	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	ap(mm)	4	4	8	--	
	ae(mm)	--	2	3	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	4	4	8	16	
	ae(mm)	--	3	4	1.5	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	4	4	8	16	
	ae(mm)	--	3	4	1.5	

Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

2. Wind cooling to be preferred.

Indexable
milling tools

Profile milling tools



MILLING / Indexable Milling Tools

➤ Recommended cutting parameters Diameter Ø20

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	5	5	10	20	
	ae(mm)	--	4	5	2	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	5	5	10	20	
	ae(mm)	--	4	5	2	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	ap(mm)	5	5	10	20	
	ae(mm)	--	4	5	2	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	ap(mm)	5	5	10	--	
	ae(mm)	--	4	5	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	5	5	10	20	
	ae(mm)	--	4	5	2	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	5	5	10	20	
	ae(mm)	--	4	5	2	

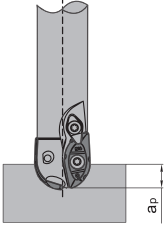
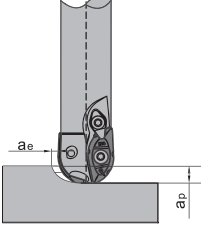
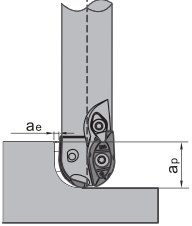
Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

2. Wind cooling to be preferred.

Indexable milling tools

Profile milling tools

▶ Recommended cutting parameters Diameter Ø25

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	a _p (mm)	6	6	12.5	25	
	a _e (mm)	--	5	6.5	3	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	a _p (mm)	6	6	12.5	25	
	a _e (mm)	--	5	6.5	3	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	a _p (mm)	6	6	12.5	25	
	a _e (mm)	--	5	6.5	3	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	a _p (mm)	6	6	12.5	--	
	a _e (mm)	--	5	6.5	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	a _p (mm)	6	6	12.5	25	
	a _e (mm)	--	5	6.5	3	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	a _p (mm)	6	6	12.5	25	
	a _e (mm)	--	5	6.5	3	

Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

2. Wind cooling to be preferred.

Indexable
milling tools

Profile milling tools



MILLING / Indexable Milling Tools

➤ Recommended cutting parameters Diameter Ø30, Ø32

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	a _p (mm)	10	10	16	28	
	a _e (mm)	--	6	9	6	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	a _p (mm)	10	10	16	28	
	a _e (mm)	--	6	9	6	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	a _p (mm)	10	10	16	28	
	a _e (mm)	--	6	9	6	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	a _p (mm)	10	10	16	--	
	a _e (mm)	--	6	9	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	a _p (mm)	10	10	16	28	
	a _e (mm)	--	6	9	6	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	a _p (mm)	10	10	16	28	
	a _e (mm)	--	6	9	6	

Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

2. Wind cooling to be preferred.

Indexable milling tools

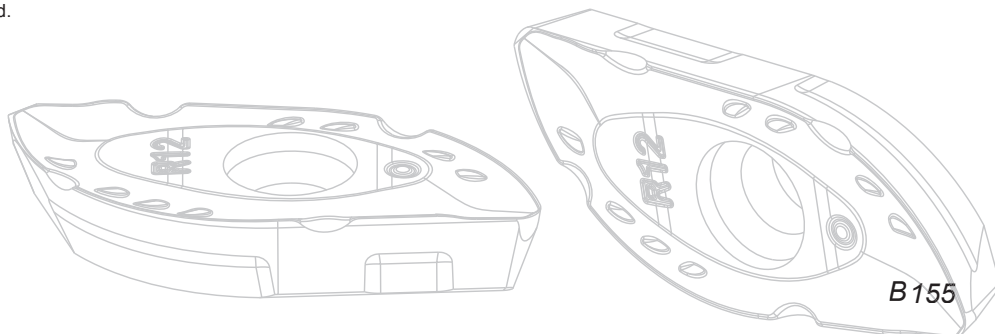
Profile milling tools

▶ Recommended cutting parameters Diameter Ø40

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	12	10	20	35	
	ae(mm)	--	8	12	8	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	12	10	20	35	
	ae(mm)	--	8	12	8	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	ap(mm)	12	10	20	35	
	ae(mm)	--	8	12	8	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	ap(mm)	12	10	20	--	
	ae(mm)	--	8	12	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	12	10	20	35	
	ae(mm)	--	8	12	8	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	12	10	20	35	
	ae(mm)	--	8	12	8	

Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

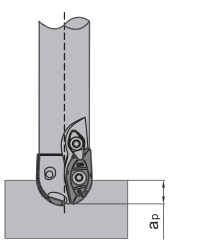
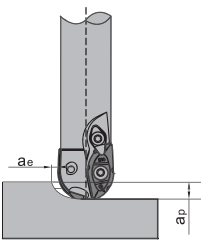
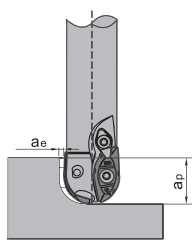
2. Wind cooling to be preferred.



Indexable
milling tools

Profile milling tools

▶ Recommended cutting parameters Diameter Ø50

Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	15	10	25	40	
	ae(mm)	--	10	15	10	
Alloy steel Hardness 150~280HB	Vc(m/min)	100~150	100~150	100~150	100~150	
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	ap(mm)	15	10	25	40	
	ae(mm)	--	10	15	10	
Die steel Hardness 150~255HB	Vc(m/min)	80~120	80~120	80~120	80~120	
	Fz(mm/z)	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.3	
	ap(mm)	15	10	25	40	
	ae(mm)	--	10	15	10	
Hardened steel Hardness 40~50HRC	Vc(m/min)	80~100	80~100	80~100	--	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	--	
	ap(mm)	15	10	25	--	
	ae(mm)	--	10	15	--	
Gray cast iron Hardness 160~260HB	Vc(m/min)	250~300	250~300	250~300	250~300	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	15	10	25	40	
	ae(mm)	--	10	15	10	
Nodular cast iron Hardness 170~300HB	Vc(m/min)	200~250	200~250	200~250	200~250	
	Fz(mm/z)	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	
	ap(mm)	15	10	25	40	
	ae(mm)	--	10	15	10	

Note: 1. Parameters in the table shall be adjusted according to the rigidity of the machine or workpiece.

2. Wind cooling to be preferred.

Indexable
milling tools

Profile milling tools

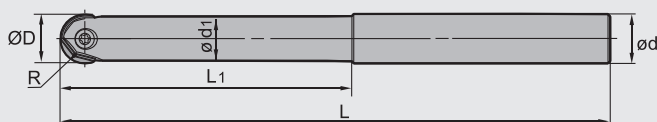
Profile milling tools



BMR04 P M K



Straight shank with straight neck



➤ Specification of tools

Type	Stock	Basic dimensions(mm)						Weight (kg)
		R	ØD	ød	ød ₁	L ₁	L	
BMR04 -012-G12-M	▲	6	12	12	11	35	125	0.1
-012-G12-L	△	6	12	12	11	45	150	0.1
-016-G16-M	▲	8	16	16	14	40	150	0.2
-016-G16-L	△	8	16	16	14	55	180	0.3
-020-G20-M	▲	10	20	20	18	65	180	0.4
-020-G20-L	△	10	20	20	18	100	250	0.6
-025-G25-M	▲	12.5	25	25	23	70	200	0.7
-025-G25-L	△	12.5	25	25	23	100	250	0.9
-030-G32-M	▲	15	30	32	27	130	250	1.2
-030-G32-L	△	15	30	32	27	150	300	1.5
-032-G32-M	▲	16	32	32	29	80	250	1.4
-032-G32-L	△	16	32	32	29	109	300	1.7

▲ Stock available △ Make-to-order

Indexable milling tools

Profile milling tools

Tools code key
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Technical data
B234-B240

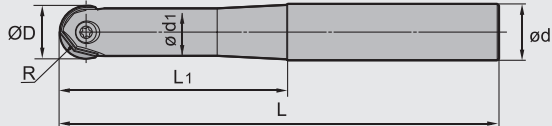
Profile milling tools



BMR04 P M K



Straight shank with taper neck



Specification of tools

Type	Stock	Basic dimensions(mm)						Weight (kg)
		R	ØD	ød	ød ₁	L ₁	L	
BMR04 -012-G16-M	▲	6	12	16	11	50	125	0.2
-012-G16-L	△	6	12	16	11	60	150	0.2
-016-G20-M	▲	8	16	20	14	60	150	0.3
-016-G20-L	△	8	16	20	14	80	180	0.3
-020-G25-M	▲	10	20	25	18	75	180	0.6
-020-G25-L	△	10	20	25	18	85	200	0.6
-025-G32-M	▲	12.5	25	32	23	90	200	1.0
-025-G32-L	△	12.5	25	32	23	110	250	1.3
-030-G40-M	▲	15	30	40	27	110	250	2.0
-030-G40-L	△	15	30	40	27	125	300	2.4
-032-G40-M	▲	16	32	40	29	110	250	2.0
-032-G40-L	△	16	32	40	29	125	300	2.4

▲ Stock available △ Make-to-order

Indexable milling tools

Profile milling tools

Tools code key

B24-B25




Grade selection guide


B19-B23

Technical data

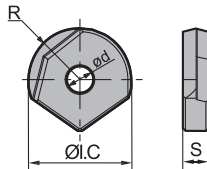
B234-B240

▶▶ Spare parts

Diameter	Screw	Wrench	
			
Ø12	I70M4×10TT	WT15IP	--
Ø16	I70M5×12TT	WT20IP	--
Ø20	I70M5×16TT	WT20IP	--
Ø25	I70M6×20TT	WT20IP	--
Ø30	I70M8×25TT	--	WT30IT
Ø32	I70M8×25TT	--	WT30IT


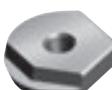


▶▶ Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)				Applicable insert ØD	CVD Coating					PVD Coating					Cermet		Cemented carbide									
		R	Ø.C	S	Ød		YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101	YD201
	ZOHX1203-GF	6	12	3	4	Ø12																						
	ZOHX1604-GF	8	16	4	5	Ø16																						
	ZOHX2005-GF	10	20	5	5	Ø20																						
	ZOHX2506-GF	12.5	25	6	6	Ø25																						
	ZOHX3007-GF	15	30	7	8	Ø30																						
	ZOHX3207-GF	16	32	7	8	Ø32																						
	ZOHX1203-GM	6	12	3	4	Ø12																						
	ZOHX1604-GM	8	16	4	5	Ø16																						
	ZOHX2005-GM	10	20	5	5	Ø20																						
	ZOHX2506-GM	12.5	25	6	6	Ø25																						
	ZOHX3007-GM	15	30	7	8	Ø30																						
	ZOHX3207-GM	16	32	7	8	Ø32																						

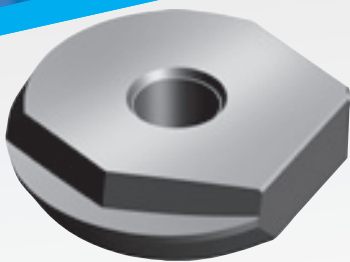
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Indexable milling tools
Profile milling tools



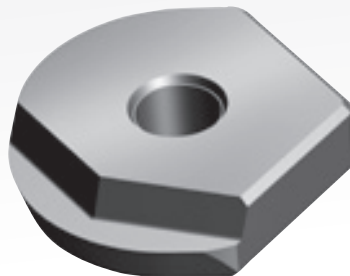
BMR04

Series ball nose finishing end milling tools



-GF

With positive rake angle and double clearance angle, the design of curved cutting edge combines sharpness and strength. The edge with high precision is applicable under stable machining conditions and in conditions requiring high workpiece profile precision.



-GM

0° rake angle, only one clearance angle, high edge strength, suitable for conditions requiring high cutting efficiency.

The inserts are a combination of ultra-fine cemented carbide substrate and nano coating grade YBG252. With excellent cutting performance, they are suitable for semi-finish to finish machining.

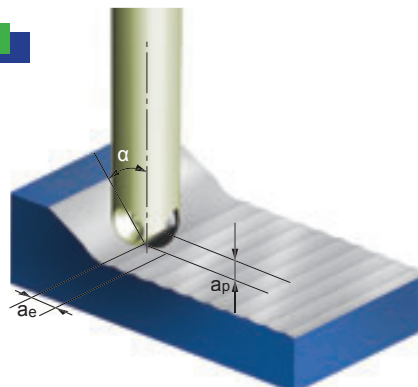
Calculation of cutting speed for BMR02/04 series ball nose end mills

1. When the tool axial line is vertical to the surface being machined,

$$N = \frac{1000 V_c}{\pi D c} \text{ (r/min)}$$

$$Dc = 2\sqrt{a_p(D - a_p)}$$

N: rotating speed
 Vc: actual cutting speed
 Dc: effective cutting diameter
 D: tool nominal diameter
 a_p: axial cutting depth



2. When there is an inclined angle between the tool axial line and the surface being machined, the recommended cutting speed should be multiplied by a factor in the table below to obtain the cutting speed used for programming.

Diameter(mm)		Ø12		Ø16		Ø20		Ø25		Ø30		Ø32	
Cutting depth a _p (mm)		0.2	0.5	0.2	0.5	0.5	1	0.5	1	0.5	1.5	0.5	1.5
Inclined angle α	15°	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.01	1.00	1.00	1.00	1.00
	30°	1.04	1.01	1.05	1.01	1.02	1.04	1.03	1.04	1.04	1.01	1.04	1.00
	45°	1.16	1.07	1.18	1.10	1.12	1.06	1.14	1.08	1.16	1.06	1.16	1.06
	60°	1.42	1.24	1.47	1.30	1.34	1.21	1.38	1.25	1.42	1.21	1.43	1.22
	75°	2.02	1.60	2.14	1.73	1.83	1.53	1.93	1.62	2.01	1.53	2.04	1.55
	90°	3.92	2.50	4.48	2.87	3.20	2.29	3.57	2.55	3.9	2.29	4.03	2.37

Recommended cutting parameters

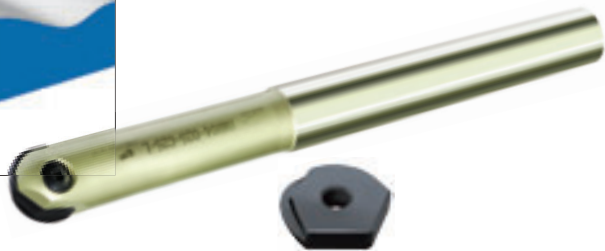
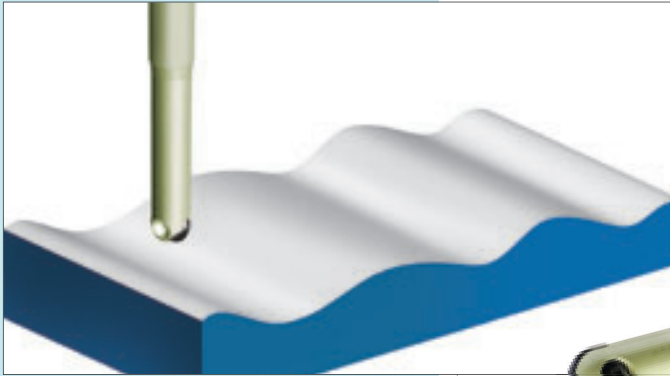
Workpiece material	Hardness HB	Insert grade	Cutting parameters	Tool specification					
				Ø12	Ø16	Ø20	Ø25	Ø30	Ø32
P	Carbon steel	YBG252	Vc(m/min)	100~200	100~200	100~200	100~200	100~200	100~200
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
			a _p max(mm)	0.8	1.0	1.25	1.5	2.0	2.0
			a _e max(mm)	0.8	1.0	1.25	1.5	2.0	2.0
	Alloy steel		Vc(m/min)	80~180	80~180	80~180	80~180	80~180	80~180
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
			a _p max(mm)	0.8	1.0	1.25	1.5	2.0	2.0
			a _e max(mm)	0.8	1.0	1.25	1.5	2.0	2.0
	Hardened steel		Vc(m/min)	60~100	60~100	60~100	60~100	60~100	60~100
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
			a _p max(mm)	0.4	0.5	0.6	0.8	1.0	1.0
			a _e max(mm)	0.4	0.5	0.6	0.8	1.0	1.0
M	Stainless steel	Vc(m/min)	70~150	70~150	70~150	70~150	70~150	70~150	
		fz(mm/z)	0.1~0.2	0.1~0.25	0.1~0.25	0.2~0.3	0.2~0.3	0.2~0.3	
		a _p max(mm)	0.6	0.8	1.0	1.25	1.5	1.5	
		a _e max(mm)	0.6	0.8	1.0	1.25	1.5	1.5	
K	Cast iron	Vc(m/min)	160~300	160~300	160~300	160~300	160~300	160~300	
		fz(mm/z)	0.2~0.3	0.25~0.35	0.25~0.35	0.3~0.4	0.3~0.4	0.3~0.4	
		a _p max(mm)	1.0	1.5	1.8	2.0	2.5	2.5	
		a _e max(mm)	1.0	1.5	1.8	2.0	2.5	2.5	

B

MILLING

Indexable Milling Tools

Case for BMR04



Workpiece material: 42CrMo (HRC35)
Cooling system: Dry cutting
Machine: Vertical machining center
Cutting parameters:
Vc=150m/min
ap=0.1mm
fz=0.2mm/Z

Tool type: BMR04-020-G25-M

Insert type/grade: ZOHX2005-GM/YBG252

● Abrasion comparison of inserts after milling curved face

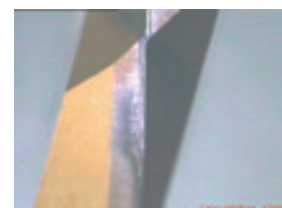
ZCC-CT

Other company product

After 60 minutes
of cutting



Abrasion on the
clearance face 0.08

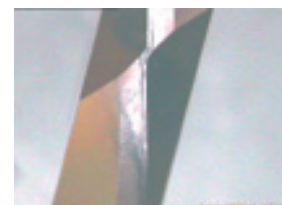


Abrasion on the
clearance face 0.10

After 120 minutes
of cutting



Abrasion on the
clearance face 0.12



Abrasion on the
clearance face 0.16

Indexable
milling tools

Profile milling tools