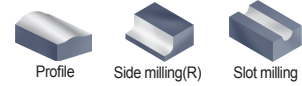
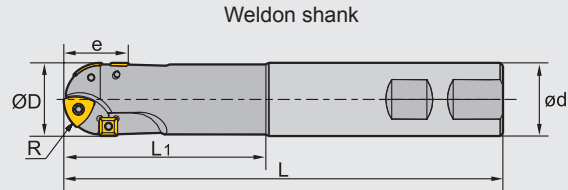
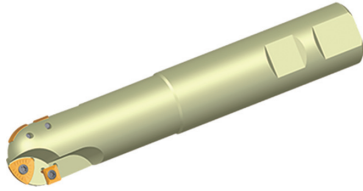


## Profile milling tools



**BMR01** P M K



### Specification of tools




Type	Stock	Basic dimensions(mm)						Applicable inserts				Weight (kg)
		R	ØD	e	ød	L	L1	Type	Quantity	Type	Quantity	
<b>BMR01</b> -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

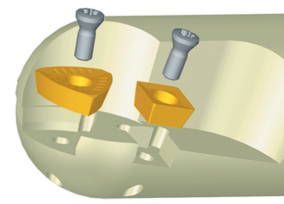
▲ Stock available    △ Make-to-order

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

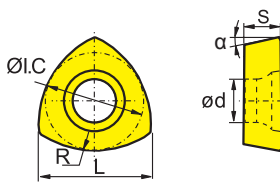


Tools code key B24-B25

Grade selection guide B19-B23

Technical data B234-B240

### Selection of inserts

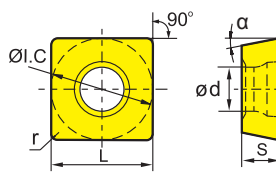


😊 Good working condition   🙄 Normal working condition   😞 Bad working condition

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

Insert shape	Type	Basic dimensions(mm)						CVD Coating						PVD Coating						Cermet	Cemented carbide								
		R	L	ØI.C	S	ød	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



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

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

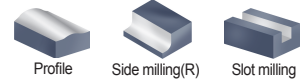
Insert shape	Type	Basic dimensions(mm)						CVD Coating						PVD Coating						Cermet	Cemented carbide							
		r	L	ØI.C	S	ød	α	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101
	SPMT060304	0.4	6.35	6.35	3.18	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

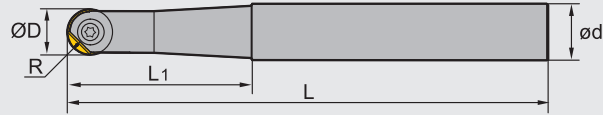
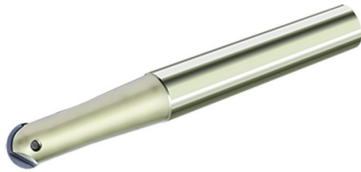
### Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters	
			Vc(m/min)	fz(mm/z)
<b>P</b> 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)
<b>M</b> Stainless steel	≤ 270	YBM251	100(80-150)	0.2(0.1-0.3)
		YBG302	100(80-150)	0.2(0.1-0.3)
<b>K</b> Cast iron	180-250	YBG302	150(100-180)	0.3(0.2-0.5)

Profile milling tools



**BMR02** P M K



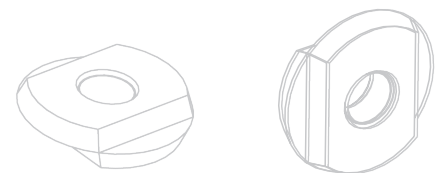
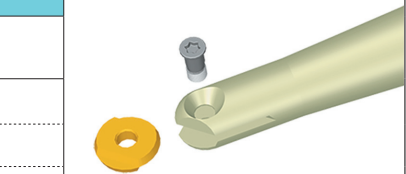
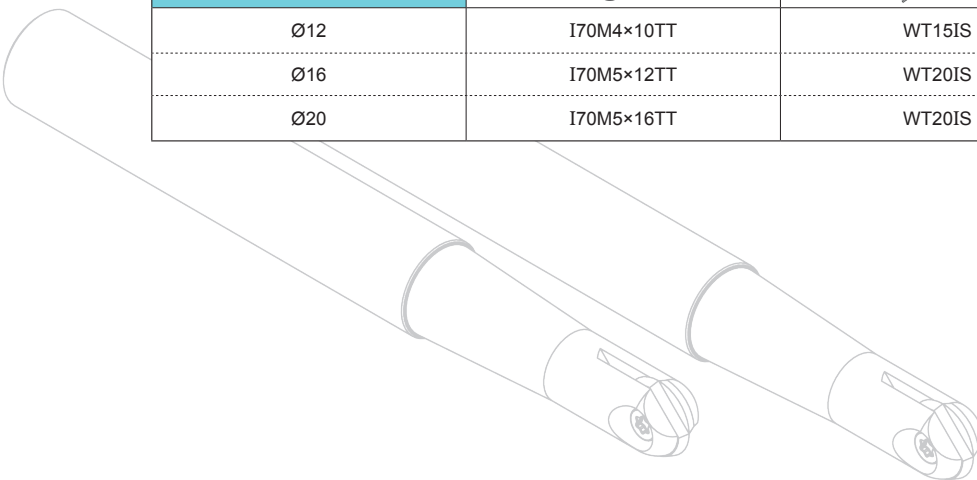
Specification of tools

Type	Stock	Basic dimensions(mm)					Weight (kg)
		R	ØD	ød	L	L <sub>1</sub>	
<b>BMR02</b> -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

Spare parts

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



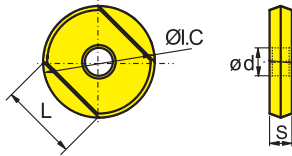
Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools  
Profile milling tools

### 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	L	S	ød	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

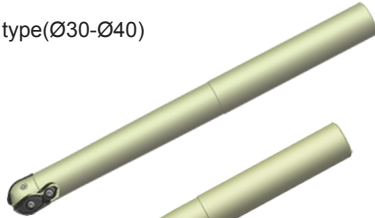
Workpiece material	Hardness HB	Insert grade	Cutting parameters	Diameter			
				Ø12	Ø16	Ø20	
<b>P</b> Carbon steel	HB ≤ 180	YBG252	Vc(m/min)	100~200	100~200	100~200	
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	
			apmax(mm)	0.8	1.0	1.25	
			ae_max(mm)	0.8	1.0	1.25	
			Vc(m/min)	80~180	80~180	80~180	
			fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	
	Alloy steel		HB180~280	apmax(mm)	0.8	1.0	1.25
				ae_max(mm)	0.8	1.0	1.25
				Vc(m/min)	60~100	60~100	60~100
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3
				apmax(mm)	0.4	0.5	0.6
				ae_max(mm)	0.4	0.5	0.6
<b>M</b> Stainless steel	HB ≤ 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		
		apmax(mm)	0.6	0.8	1.0		
		ae_max(mm)	0.6	0.8	1.0		
<b>K</b> 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		
		apmax(mm)	1.0	1.5	1.8		
		ae_max(mm)	1.0	1.5	1.8		

## Profile milling tools

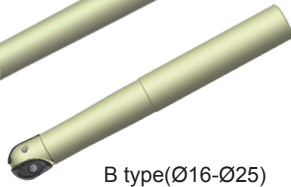


### BMR03 P M K

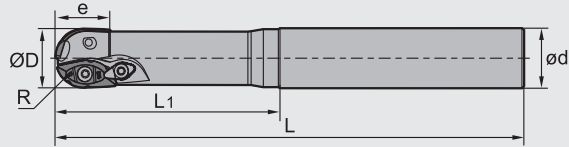
A type(Ø30-Ø40)



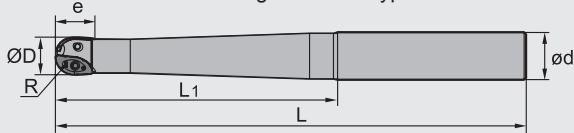
B type(Ø16-Ø25)



straight shank A type



straight shank B type



### ➤ Specification of tools

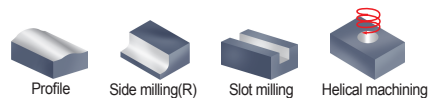
Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)	Type	Clamp
		R	ØD	ød	L	L1	e				
<b>BMR03</b> -016-G20-S	▲	8	16	20	150	70	16	2	0.3	B	-
-016-G20-M	▲	8	16	20	180	80	16	2	0.4	B	
-020-G25-S	▲	10	20	25	180	80	20	2	0.5	B	
-020-G25-M	▲	10	20	25	200	100	20	2	0.6	B	
-020-G25-L	▲	10	20	25	250	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	
-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	
-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	CBH5R1
-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	
-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 B19-B23    Technical data B234-B240

Indexable milling tools  
Profile milling tools

## Profile milling tools

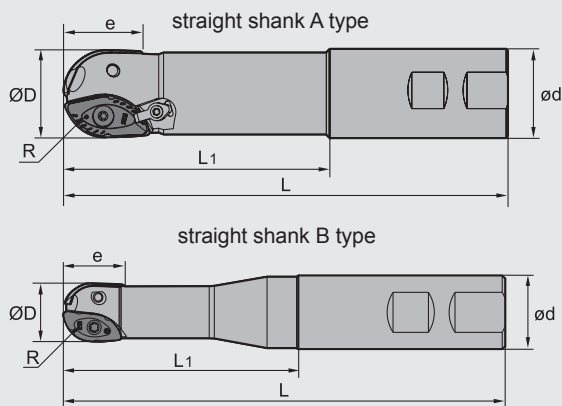


### BMR03 P M K

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	L <sub>1</sub>	e				
<b>BMR03</b> -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

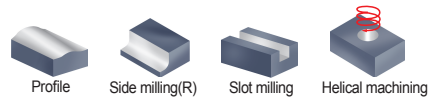
Indexable milling tools  
Profile milling tools

Tools code key → B24-B25

Grade selection guide → B19-B23

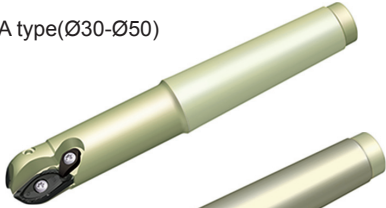
Technical data → B234-B240

Profile milling tools

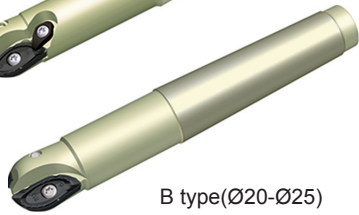


**BMR03** P M K

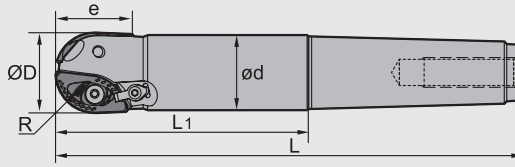
A type(Ø30-Ø50)



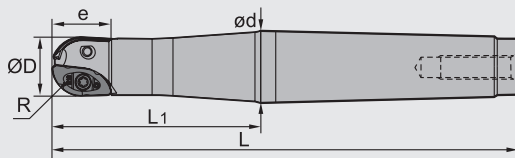
B type(Ø20-Ø25)



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				
<b>BMR03</b> -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

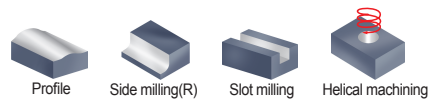
Profile milling tools

Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

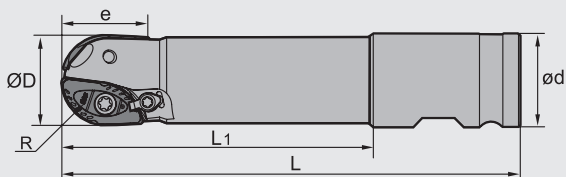
### Profile milling tools



## 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	L <sub>1</sub>	e			
<b>BMR03</b> -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	



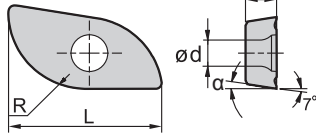
Tools code key **B24-B25**

Grade selection guide **B19-B23**

Technical data **B234-B240**



## Selection of inserts



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

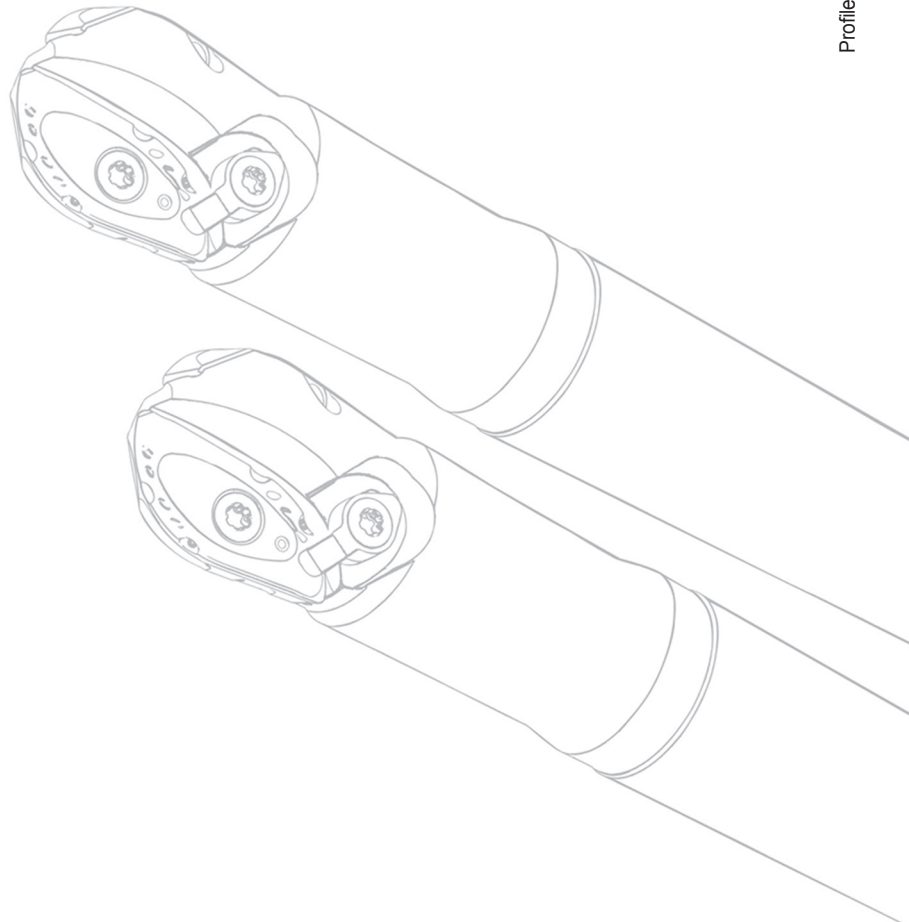
Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
N Non-ferrous metal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

Insert shape	Type	Basic dimensions(mm)						CVD Coating						PVD Coating						Cermet		Cemented carbide								
		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

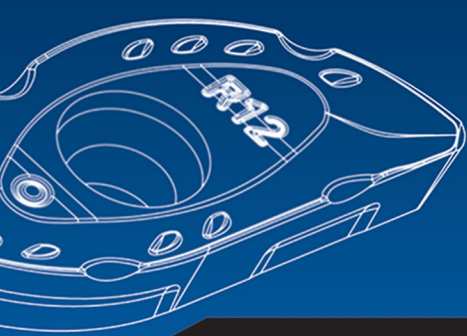
Profile milling tools



Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240



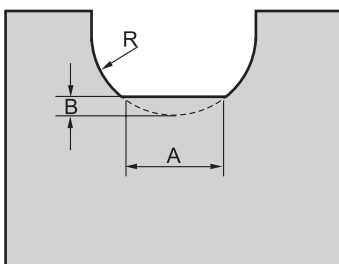
# BMRO3

## 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:**

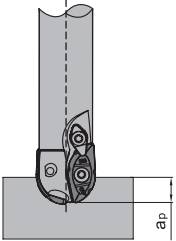
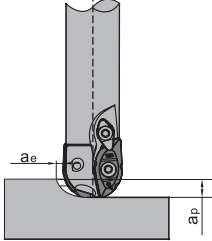
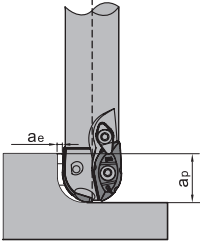
The insert edge should correspond to the locating face of insert pocket in the tool. Don't install the wrong side up.

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	
	a <sub>p</sub> (mm)	4	4	8	16	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	4	4	8	16	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	4	4	8	16	
	a <sub>e</sub> (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	--	
	a <sub>p</sub> (mm)	4	4	8	--	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	4	4	8	16	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	4	4	8	16	
	a <sub>e</sub> (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.

### ▶ 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	--	
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	
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.

► 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	
	ap(mm)	6	6	12.5	25	
	ae(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	
	ap(mm)	6	6	12.5	25	
	ae(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	
	ap(mm)	6	6	12.5	25	
	ae(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	--	
	ap(mm)	6	6	12.5	--	
	ae(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	
	ap(mm)	6	6	12.5	25	
	ae(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	
	ap(mm)	6	6	12.5	25	
	ae(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.

### ▶ 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	
	ap(mm)	10	10	16	28	
	ae(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	
	ap(mm)	10	10	16	28	
	ae(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	
	ap(mm)	10	10	16	28	
	ae(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	--	
	ap(mm)	10	10	16	--	
	ae(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	
	ap(mm)	10	10	16	28	
	ae(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	
	ap(mm)	10	10	16	28	
	ae(mm)	--	6	9	6	

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

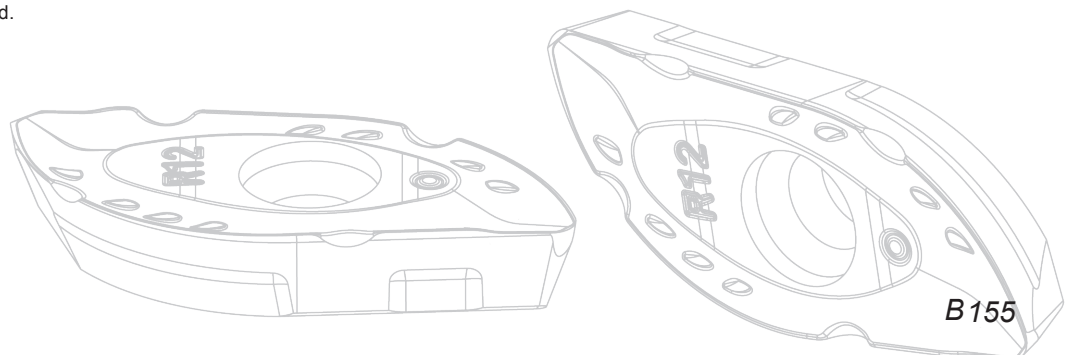
2. Wind cooling to be preferred.

## ▶ 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	
	a <sub>p</sub> (mm)	12	10	20	35	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	12	10	20	35	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	12	10	20	35	
	a <sub>e</sub> (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	--	
	a <sub>p</sub> (mm)	12	10	20	--	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	12	10	20	35	
	a <sub>e</sub> (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	
	a <sub>p</sub> (mm)	12	10	20	35	
	a <sub>e</sub> (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.



### ▶ Recommended cutting parameters Diameter Ø50

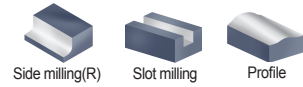
Operations						
Workpiece material	Cutting parameters	Machining of slot	Side milling (slight)		Side milling (deep)	Insert grade
Medium carbon steel Hardness 150~250HB	Vc(m/min)	150~220	150~220	150~220	150~220	YBG302
	Fz(mm/z)	0.1~0.4	0.1~0.4	0.1~0.4	0.1~0.4	
	$a_p$ (mm)	15	10	25	40	
	$a_e$ (mm)	--	10	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	
	$a_p$ (mm)	15	10	25	40	
	$a_e$ (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	
	$a_p$ (mm)	15	10	25	40	
	$a_e$ (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	--	
	$a_p$ (mm)	15	10	25	--	
	$a_e$ (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	
	$a_p$ (mm)	15	10	25	40	
	$a_e$ (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	
	$a_p$ (mm)	15	10	25	40	
	$a_e$ (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.



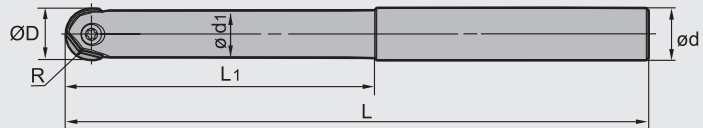
Profile milling tools



**BMR04** P M K



Straight shank with straight neck



Specification of tools

Type	Stock	Basic dimensions(mm)						Weight (kg)
		R	ØD	ød	ød <sub>1</sub>	L <sub>1</sub>	L	
<b>BMR04</b> -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

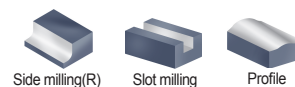
Indexable milling tools  
Profile milling tools

Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

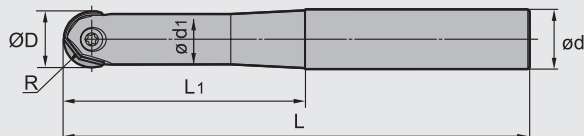
## Profile milling tools



**BMR04** P M K



Straight shank with taper neck



### Specification of tools

Type	Stock	Basic dimensions(mm)						Weight (kg)
		R	ØD	ød	ød1	L1	L	
<b>BMR04</b> -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

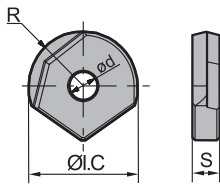
Technical data B234-B240

## ➤ 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

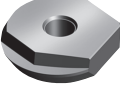
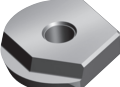


## ➤ Selection of inserts



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

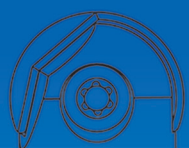
Workpiece material	P	M	K	N	S	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊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

Insert shape	Type	Basic dimensions(mm)				Applicable insert ØD	CVD Coating						PVD Coating						Cermet		Cemented carbide								
		R	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	
	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

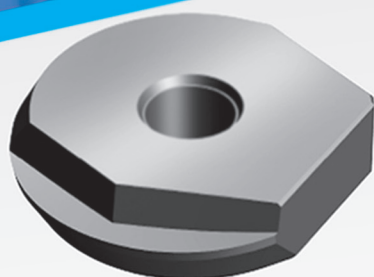
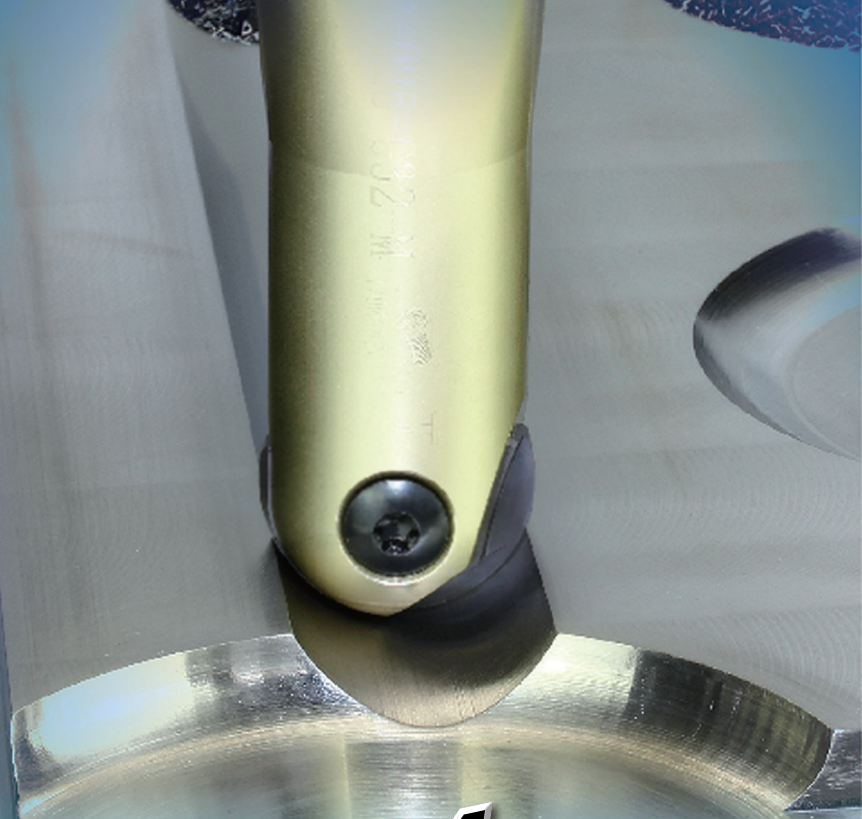
Indexable milling tools

Profile milling tools



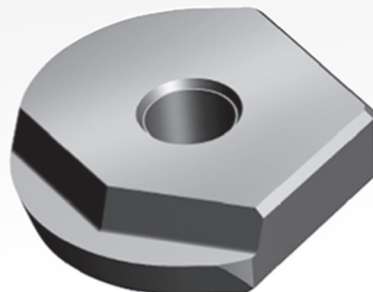
# BMR04

## 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.

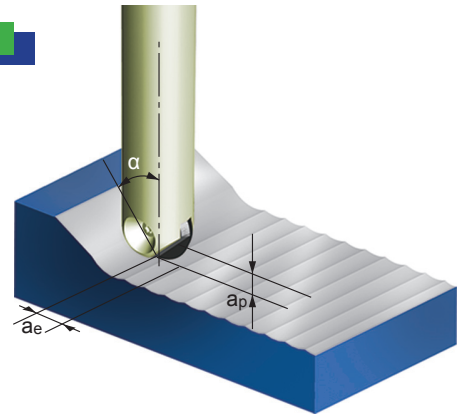
## Calculation of cutting speed for BMR02/04 series ball nose end mills

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

$$N = \frac{1000 Vc}{\pi Dc} \text{ (r/min)}$$

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

N: rotating speed  
 Vc: actual cutting speed  
 Dc: effective cutting diameter  
 D: tool nominal diameter  
 ap: 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.

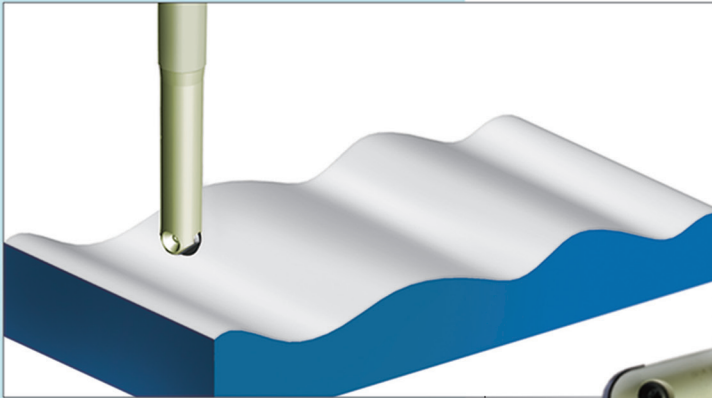
Diameter(mm)		Ø12		Ø16		Ø20		Ø25		Ø30		Ø32	
Cutting depth ap(mm)		0.2	0.5	0.2	0.5	0.5	1	0.5	1	0.5	1.5	0.5	1.5
Inclined angle α	15°	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.01	1.00	1.00	1.00	1.00
	30°	1.04	1.01	1.05	1.01	1.02	1.04	1.03	1.04	1.04	1.01	1.04	1.00
	45°	1.16	1.07	1.18	1.10	1.12	1.06	1.14	1.08	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	
<b>P</b>	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	
			apmax(mm)	0.8	1.0	1.25	1.5	2.0	2.0	
			ae max(mm)	0.8	1.0	1.25	1.5	2.0	2.0	
	Alloy steel		HB180~280	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
				apmax(mm)	0.8	1.0	1.25	1.5	2.0	2.0
				ae max(mm)	0.8	1.0	1.25	1.5	2.0	2.0
Hardened steel	HRC55~65	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		
		apmax(mm)	0.4	0.5	0.6	0.8	1.0	1.0		
		ae max(mm)	0.4	0.5	0.6	0.8	1.0	1.0		
<b>M</b>	Stainless steel	YBG252	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	
			apmax(mm)	0.6	0.8	1.0	1.25	1.5	1.5	
			ae max(mm)	0.6	0.8	1.0	1.25	1.5	1.5	
<b>K</b>	Cast iron		YBG252	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
				apmax(mm)	1.0	1.5	1.8	2.0	2.5	2.5
				ae max(mm)	1.0	1.5	1.8	2.0	2.5	2.5

Indexable milling tools  
Profile milling tools

### Case for BMR04



Workpiece material: 42CrMo (HRC35)  
 Cooling system: Dry cutting  
 Machine: Vertical machining center  
 Cutting parameters:  
 $V_c=150\text{m/min}$   
 $a_p=0.1\text{mm}$   
 $f_z=0.2\text{mm/Z}$

Tool type: BMR04-020-G25-M

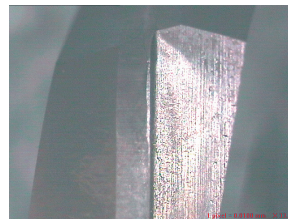
Insert type/grade: ZOHX2005-GM/YBG252

### ● Abrasion comparison of inserts after milling curved face

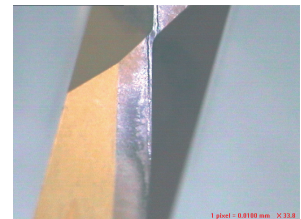
ZCC-CT

Other company product

After 60 minutes of cutting

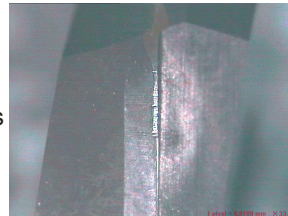


Abrasion on the clearance face 0.08

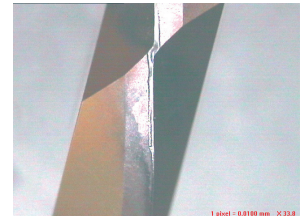


Abrasion on the clearance face 0.10

After 120 minutes of cutting



Abrasion on the clearance face 0.12



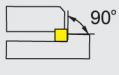
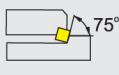
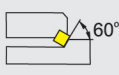
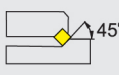
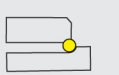
Abrasion on the clearance face 0.16

Indexable milling tools

Profile milling tools

Side and face milling tools code key

Cutter style	
<b>FM</b>	Face milling
<b>EM</b>	Square shoulder milling
<b>HM</b>	Helical end milling
<b>SM</b>	Side and face milling
<b>BM</b>	Profile milling
<b>CM</b>	Chamfer milling
<b>XM</b>	Special milling
<b>TM</b>	T-slot milling
<b>AM</b>	Aluminum alloy high speed milling

Approach angle		
<b>P</b>	90°	
<b>E</b>	75°	
<b>D</b>	60°	
<b>A</b>	45°	
<b>R</b>		

**Sequence number of series**

**Cutting diameter ØD (mm)**

**Cutting width of milling tools**

**Coupling structure and demension**

<b>A</b>	A type of coupling	<b>D</b>	D type of coupling
<b>B</b>	B type of coupling	<b>K</b>	Mounting by keyway
<b>C</b>	C type of coupling		

**SM P 03 - 160 × 16 - K40**

**- M P 12 - 12 L**

Insert shape	
<b>C</b>	Diamond with 80°
<b>D</b>	Diamond with 55°
<b>R</b>	Round
<b>S</b>	Square
<b>T</b>	Regular triangle
<b>V</b>	Diamond with 35°
<b>M</b>	Diamond with 86°

Insert clearance angle	
<b>N</b>	0°
<b>B</b>	5°
<b>C</b>	7°
<b>P</b>	11°
<b>D</b>	15°
<b>E</b>	20°

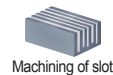
Diameter of IC	Length of cutting edge					
	Insert shape					
	C	D	R	S	T	V
5.556	—	—	—	—	09	—
6.350	06	07	—	—	11	—
9.525	09	11	09	09	16	16
12.700	12	15	12	12	22	22
15.875	16	19	15	15	27	—
19.050	19	—	19	19	33	—
25.400	25	—	25	25	44	—

**Cutting direction**  
(R: Right L: Left)

**Number of teeth**

Indexable milling tools  
Side and face milling tools

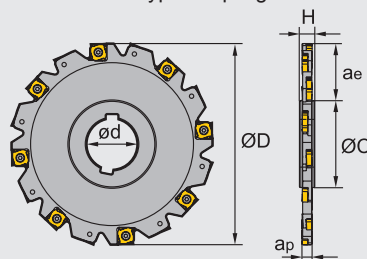
## Side and face milling tools



### SMP01 P M K



K-type coupling



### Specification of tools

Type	Stock	Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)	
		ØD	ød	øc	H	ap	aemax					
<b>SMP01</b> Mounting by keyway	-100×4-K27-SN12-10	△	100	27	45	12	4	25	XSEQ1202	10	K	0.2
	-125×4-K40-SN12-12	△	125	40	56	12	4	32		12	K	0.3
	-160×4-K40-SN12-16	△	160	40	67	12	4	44		16	K	0.5
	-100×5-K27-SN12-10	△	100	27	45	12	5	25	XSEQ1203	10	K	0.2
	-125×5-K40-SN12-12	△	125	40	56	12	5	32		12	K	0.3
	-160×5-K40-SN12-16	△	160	40	67	12	5	44		16	K	0.6
	-100×6-K27-SN12-10	△	100	27	45	12	6	25	XSEQ12T3	10	K	0.3
	-125×6-K40-SN12-12	△	125	40	56	12	6	32		12	K	0.4
	-160×6-K40-SN12-16	△	160	40	67	12	6	44		16	K	0.7
	-200×6-K50-SN12-18	△	200	50	71	12	6	62	XSEQ1204	18	K	1.1
	-250×6-K50-SN12-24	△	250	50	71	12	6	87		24	K	1.7
	-100×7-K27-SN12-10	△	100	27	45	12	7	25		10	K	0.3
	-125×7-K40-SN12-12	△	125	40	56	12	7	32	XSEQ1204	12	K	0.4
	-160×7-K40-SN12-16	△	160	40	67	12	7	44		16	K	0.8
	-200×7-K50-SN12-18	△	200	50	71	12	7	62		18	K	1.2
	-250×7-K50-SN12-24	△	250	50	71	12	7	87	XSEQ12T4	24	K	1.9
	-100×8-K27-SN12-10	△	100	27	45	12	8	25		10	K	0.3
	-125×8-K40-SN12-12	△	125	40	56	12	8	32		12	K	0.5
	-160×8-K40-SN12-16	△	160	40	67	12	8	44	XSEQ12T4	16	K	0.9
	-200×8-K50-SN12-18	△	200	50	71	12	8	62		18	K	1.4
-250×8-K50-SN12-24	△	250	50	71	12	8	87	24		K	2.2	

▲Stock available    △Make-to-order

Indexable milling tools

Side and face milling tools

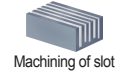
Tools code key → B24-B25

Grade selection guide → B19-B23

Technical data → B234-B240



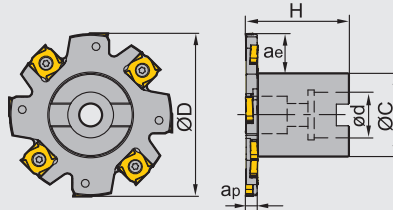
Side and face milling tools



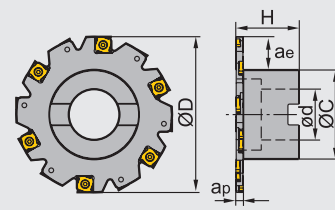
**SMP01** P M K



A-type coupling



B-type coupling



Specification of tools

Type	Stock		Basic dimensions(mm)							Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
	R	L	ØD	ød	øc	H	ap	aemax					
<b>SMP01</b> Arbor mounting	-063×4-A22-SN12-06	△	△	63	22	32	40	4	14	XSEQ1202	6	A	0.2
	-080×4-A22-SN12-08	△	△	80	22	40	50	4	18		8	A	0.4
	-100×4-A27-SN12-10	△	△	100	27	48	50	4	23		10	A	0.6
	-063×5-A22-SN12-06	△	△	63	22	32	40	5	14	XSEQ1203	6	A	0.2
	-080×5-A22-SN12-08	△	△	80	22	40	50	5	18		8	A	0.4
	-100×5-A27-SN12-10	△	△	100	27	48	50	5	23		10	A	0.7
	-063×6-A22-SN12-06	△	△	63	22	32	40	6	14	XSEQ12T3	6	A	0.2
	-080×6-A22-SN12-08	△	△	80	22	40	50	6	18		8	A	0.5
	-100×6-A27-SN12-10	△	△	100	27	48	50	6	23		10	A	0.7
	-125×6-B32-SN12-12	△	△	125	32	70	50	6	30	XSEQ12T4	12	B	1.0
	-160×6-B40-SN12-16	△	△	160	40	70	50	6	41		16	B	1.3
	-063×7-A22-SN12-06	△	△	63	22	32	40	7	14		XSEQ1204	6	A
	-080×7-A22-SN12-08	△	△	80	22	40	50	7	18	8		A	0.5
	-100×7-A27-SN12-10	△	△	100	27	48	50	7	23	10		A	0.7
	-125×7-B32-SN12-12	△	△	125	32	70	50	7	30	XSEQ12T4	12	B	1.1
	-160×7-B40-SN12-16	△	△	160	40	70	50	7	41		16	B	1.4
	-063×8-A22-SN12-06	△	△	63	22	32	40	8	14		XSEQ12T4	6	A
	-080×8-A22-SN12-08	△	△	80	22	40	50	8	18	8		A	0.5
	-100×8-A27-SN12-10	△	△	100	27	48	50	8	23	10		A	0.8
	-125×8-B32-SN12-12	△	△	125	32	70	50	8	30	12		B	1.1
-160×8-B40-SN12-16	△	△	160	40	70	50	8	41	16	B	1.5		

▲Stock available    △Make-to-order

Tools code key  
B24-B25



Grade selection guide  
B19-B23

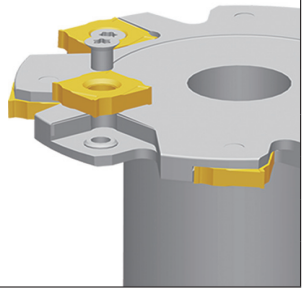
Technical data  
B234-B240

Indexable milling tools

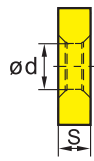
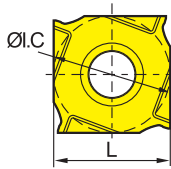
Side and face milling tools

### ➤ Spare parts

Diameter ØD	Edge width ap	Screw	Wrench
			
Ø63-Ø160	4	I91M4×3.2X	WT08IS/IP
Ø63-Ø160	5	I91M4×4.2X	
Ø63-Ø250	6	I91M4×5.1X	
Ø63-Ø250	7	I91M4×6.1X	
Ø63-Ø250	8	I91M4×7.1X	




### ➤ Selection of inserts



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

Workpiece material	Working Condition															
	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Insert shape	Type	Basic dimensions(mm)				CVD Coating				PVD Coating				Cermet	Cemented carbide												
		ØI.C	L	S	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101	YD201
	<b>XSEQ1202</b>	12.7	12.7	2.3	5.0												★										
	<b>XSEQ1203</b>	12.7	12.7	3.0	5.0												★										
	<b>XSEQ12T3</b>	12.7	12.7	3.5	5.0												★										
	<b>XSEQ1204</b>	12.7	12.7	4.0	5.0												★										
	<b>XSEQ12T4</b>	12.7	12.7	4.5	5.0												★										

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

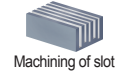
### ➤ Recommended cutting parameters

Cutting parameters	Hardness HB	Insert grade	Cutting parameters		
			Vc(m/min)	fz(mm/z)	
<b>P</b>	Low-carbon steel, Soft steel	≤180	YBG302	150 (100-200)	0.15(0.1-0.3)
	High-carbon steel, Alloy steel	180-280	YBG302	120 (80-200)	0.15(0.1-0.3)
	Alloy tool steel	280-350	YBG302	100 (80-200)	0.15(0.1-0.3)
<b>M</b>	Stainless steel	≤270	YBG302	100 (80-200)	0.08(0.05-0.15)
<b>K</b>	Cast iron	180-250	YBG302	150 (100-250)	0.08(0.05-0.15)

Indexable milling tools

Side and face milling tools

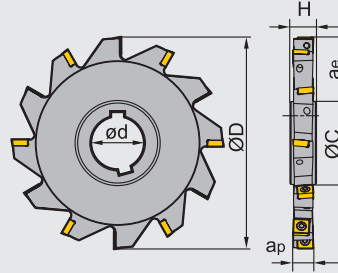
Side and face milling tools



SMP03 P M K



K-type coupling



Specification of tools

Type	Stock	Basic dimensions(mm)							Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
		ØD	øc	ød	ae <sub>max</sub>	ap	H					
SMP03 Mounting by keyway	△	80	43	27	17	8	12	MPHT060304-DM	10	K	0.2	
	△	100	47	32	25	8	12		14	K	0.3	
	△	100	47	32	25	10	14		14	K	0.4	
	△	125	55	40	34	10	14		16	K	0.6	
	△	125	55	40	34	12	16	MPHT080305-DM	12	K	0.7	
	△	160	62	40	47	12	16		14	K	1.3	
	△	160	62	40	49	16	20	MPHT120408-DM	12	K	1.6	
	△	160	62	40	49	18	24		12	K	1.9	
	△	160	62	40	49	20	26		12	K	2.1	
	△	200	72	50	62	16	20		14	K	2.5	
	△	200	72	50	62	18	24		14	K	2.9	
	△	200	72	50	62	20	26		14	K	3.3	

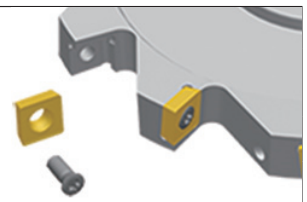
▲Stock available    △Make-to-order

Indexable milling tools

Side and face milling tools

Spare parts

Diameter Ød	Inserts	Screw	Wrench	
Ø80-Ø125	MP06	I60M2.5x6.5	WT07IP	--
Ø125-Ø160	MP08	I60M3x7	WT09IP	--
Ø160-Ø200	MP12	I60M5x13	--	WT20IS

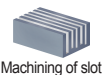


Tools code key  
B24-B25

Grade selection guide  
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Technical data  
B234-B240

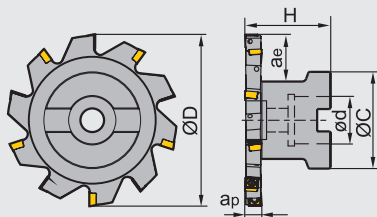
## Side and face milling tools



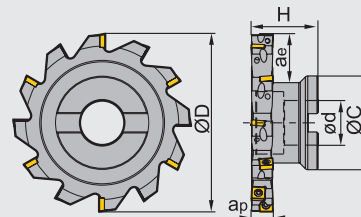
**SMP03** P M K



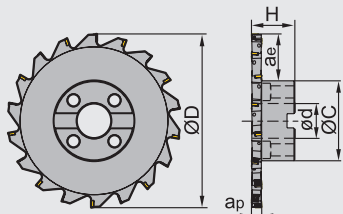
A-type coupling



B-type coupling



C-type coupling



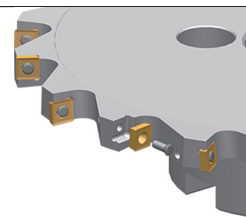
### Specification of tools

Type	Stock		Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
	R	L	ØD	øc	ød	aemax	ap	H				
<b>SMP03</b> Arbor mounting	△	△	80	45	22	21	8	40	MPHT060304-DM	10	A	0.4
	△	△	100	55	27	24	8	40		14	B	0.6
	△	△	100	55	27	24	10	40		14	B	0.7
	△	△	125	65	32	33	10	45		16	B	1.1
	△	△	125	65	32	33	12	45	MPHT080305-DM	12	B	1.4
	△	△	160	80	40	45	12	50		14	B	1.9
	△	△	200	92	40	53	12	50	18	C	3.2	
	△	△	125	65	32	33	16	50	MPHT120408-DM	10	B	2.3
	△	△	160	80	40	45	16	60		12	B	2.3
	△	△	160	80	40	45	18	60		12	B	2.4
	△	△	200	92	40	53	16	50		14	C	3.6
	△	△	200	92	40	53	18	50	14	C	3.9	
△	△	200	92	40	53	20	50	14	C	4.2		

▲Stock available    △Make-to-order

### Spare parts

Diameter ØD	Inserts	Screw	Wrench	
Ø80-Ø125	MP06	I60M2.5×6.5	WT07IP	--
Ø125-Ø200	MP08	I60M3×7	WT09IP	--
Ø125-Ø200	MP12	I60M5×13	--	WT20IS

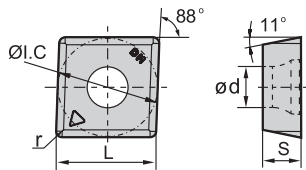


Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

### Selection of inserts



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

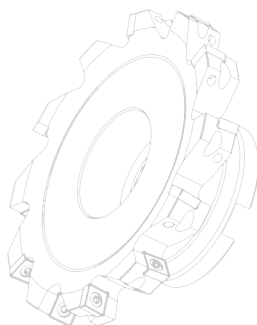
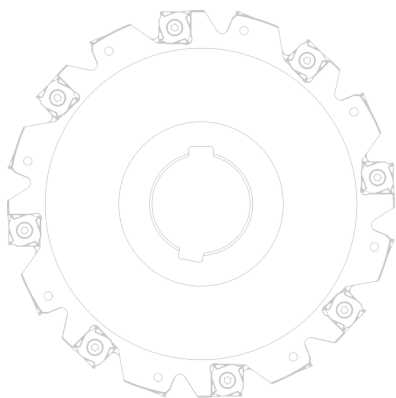
Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊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

Insert shape	Type	Basic dimensions(mm)					CVD Coating					PVD Coating					Cermet	Cemented carbide											
		ØI.C	L	S	ød	r	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	MPHT060304-DM	6.35	6.35	3.18	2.8	0.4												★											
	MPHT080305-DM	8.3	8.3	3.18	3.4	0.5												★											
	MPHT120408-DM	12.7	12.7	4.76	5.56	0.8												★											

★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)
<b>P</b> Low-carbon steel, Soft steel	≤ 180	YBG302	150 (100-200)	0.15(0.1-0.3)
	180-280	YBG302	120 (80-200)	0.15(0.1-0.3)
	280-350	YBG302	100 (80-200)	0.15(0.1-0.3)
<b>M</b> Stainless steel	≤ 270	YBG302	100 (80-200)	0.08(0.05-0.15)
<b>K</b> Cast iron	180-250	YBG302	150 (100-250)	0.08(0.05-0.15)



# SMP05 Slot milling

Groove Widths 1.1~4.8mm.  
 Maximum cutting depth 5mm.  
 Multi-function milling holder: slot milling,plunge  
 milling, root cleaning

## Slot milling specification code

Slot milling

Weldon shank

Insert

Teeth

**SMP05 - 039×3.0 - XP 25 - QC 16- 03**

### Minimum machining diameter(mm)

Code	Diameter
25	25
39	39
44	44

### Maximum cutting width(mm)

Code	Cutting width
3.0	3.0
4.8	4.8

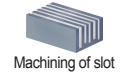
### Cutter diameter(mm)

Code	Diameter
25	25
32	32

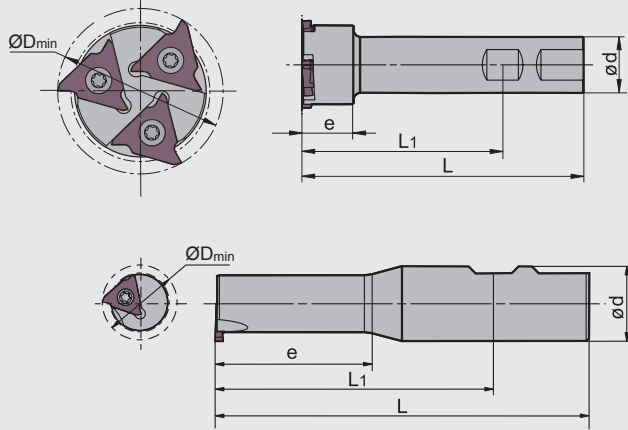
### Cutting edge length code

Cutting edge length code	Inscribed circuler(mm)
16	9.525
22	12.70

Side and face milling tools



**SMP05** P M K

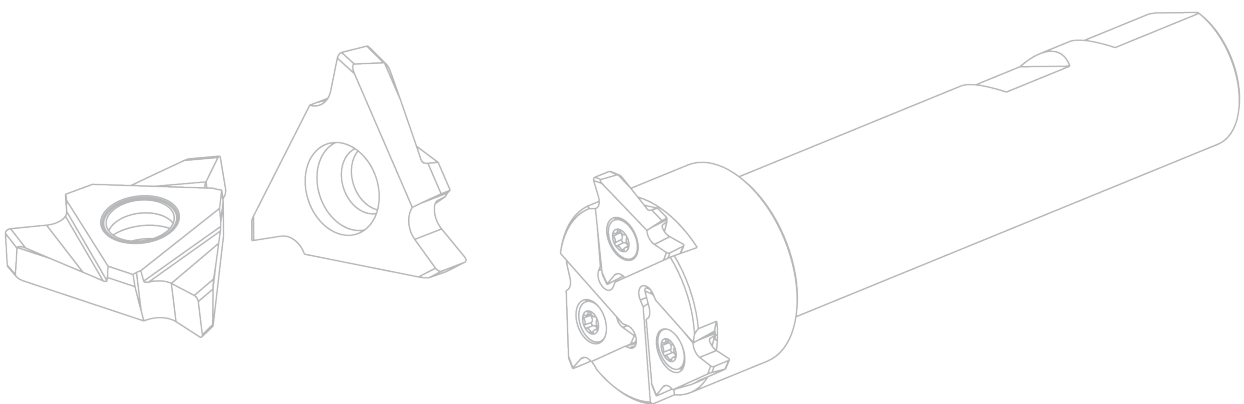


Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Applicable inserts	Width(mm)
		ØD <sub>min</sub>	ød	e	L <sub>1</sub>	L			
<b>SMP05</b> -025×3.0-XP25-QC16-01	△	25	25	40	89	125	1	QC16L 110~300	1.10-3.00
-039×3.0-XP25-QC16-03	△	39	25	23	89	125	3	QC16L 110~300	1.10-3.00
-044×4.8-XP25-QC22-03	△	44	25	23	89	125	3	QC22L 125~480	1.25-4.80

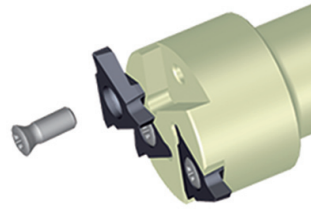
▲Stock available    △Make-to-order

Indexable milling tools  
Side and face milling tools



Spare parts

Diameter ØD	Screw	Wrench
Ø25	I60M3.5×10	WT15IP
Ø39	I60M3.5×10	WT15IP
Ø44	I60M5×13	WT20IP

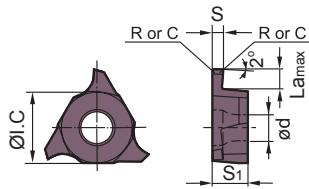


Tools code key  
B24-B25

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							
		S±0.025	Lmax	R/C	ØI.C	S1	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	QC16L110-R01	1.10	2.00	R0.1	9.525	3.18	4.4									○	○												
	QC16L125-R02	1.25	2.00	R0.2	9.525	3.18	4.4									○	○												
	QC16L145-R02	1.45	2.00	R0.2	9.525	3.18	4.4									○	○												
	QC16L150-R02	1.50	2.00	R0.2	9.525	3.18	4.4									○	★												
	QC16L175-R02	1.75	2.00	R0.2	9.525	3.18	4.4									○	○												
	QC16L185-R02	1.85	2.50	R0.2	9.525	3.18	4.4									○	○												
	QC16L200-R02	2.00	2.50	R0.2	9.525	3.18	4.4									○	★												
	QC16L250-R02	2.50	2.50	R0.2	9.525	3.18	4.4									○	★												
	QC16L300-R02	3.00	3.00	R0.2	9.525	3.18	4.4									○	★												
	QC22L125-R02	1.25	2.00	R0.2	12.70	4.76	5.5									○	○												
	QC22L145-R02	1.45	2.00	R0.2	12.70	4.76	5.5									○	○												
	QC22L150-R02	1.50	3.50	R0.2	12.70	4.76	5.5									○	★												
	QC22L175-R02	1.75	3.50	R0.2	12.70	4.76	5.5									○	○												
	QC22L185-R02	1.85	3.50	R0.2	12.70	4.76	5.5									○	○												
	QC22L200-R02	2.00	3.50	R0.2	12.70	4.76	5.5									○	★												
	QC22L230-R02	2.30	3.50	R0.2	12.70	4.76	5.5									○	○												
	QC22L250-R03	2.50	4.00	R0.3	12.70	4.76	5.5									○	★												
	QC22L265-R03	2.65	4.00	R0.3	12.70	4.76	5.5									○	○												
	QC22L280-R03	2.80	4.00	R0.3	12.70	4.76	5.5									○	○												
	QC22L300-R03	3.00	4.00	R0.3	12.70	4.76	5.5									○	★												
	QC22L320-R03	3.20	4.00	R0.3	12.70	4.76	5.5									○	○												
	QC22L330-R03	3.30	4.00	R0.3	12.70	4.76	5.5									○	○												
	QC22L350-R03	3.50	5.00	R0.3	12.70	4.76	5.5									○	★												
	QC22L400-R04	4.00	5.00	R0.4	12.70	4.76	5.5									○	★												
	QC22L430-R04	4.30	5.00	R0.4	12.70	4.76	5.5									○	○												
	QC22L450-R04	4.50	5.00	R0.4	12.70	4.76	5.5									○	○												
	QC22L480-R04	4.80	5.00	R0.4	12.70	5.06	5.5									○	○												

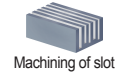
★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

Indexable milling tools

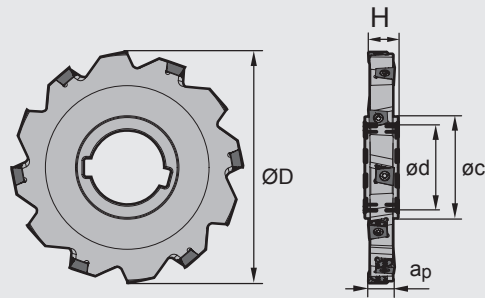
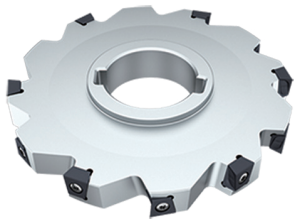
Side and face milling tools



Side and face milling tools



SMP09 P M K



K-type coupling

Specification of tools

Type	Stock	Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	øc	H	ap	aemax				
<b>SMP09</b> -080×10-K27-LN10-08	△	80	27	43	14	10	17	LNGX1005□□-GM	8	K	0.2
-100×10-K32-LN10-10	△	100	32	47	14	10	25		10	K	0.37
-125×10-K40-LN10-12	△	125	40	55	14	10	34		12	K	0.5
-160×10-K40-LN10-14	△	160	40	62	14	10	47		14	K	1
-200×10-K50-LN10-16	△	200	50	72	14	10	62		16	K	1.6
-100×12-K32-LN14-08	△	100	32	47	16	12	25	LNGX1407□□-GM	8	K	0.4
-125×12-K40-LN14-10	△	125	40	55	16	12	34		10	K	0.6
-160×12-K40-LN14-12	△	160	40	62	16	12	47		12	K	1.1
-200×12-K50-LN14-14	△	200	50	72	16	12	62		14	K	1.8
-100×14-K32-LN10-10	△	100	32	47	18	14	25	LNGX1005□□-GM	10	K	0.4
-125×14-K40-LN10-12	△	125	40	55	18	14	34		12	K	0.9
-160×14-K40-LN10-14	△	160	40	62	18	14	47		14	K	1.6
-200×14-K50-LN10-16	△	200	50	72	18	14	62		16	K	2.5
-125×16-K40-LN10-12	△	125	40	55	20	16	34	LNGX1005□□-GM	12	K	1
-160×16-K40-LN10-14	△	160	40	62	20	16	47		14	K	1.8
-200×16-K50-LN10-16	△	200	50	72	20	16	62		16	K	2.9

▲Stock available    △Make-to-order

Tools code key  
B24-B25

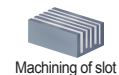
Grade selection guide  
B19-B23

Technical data  
B234-B240

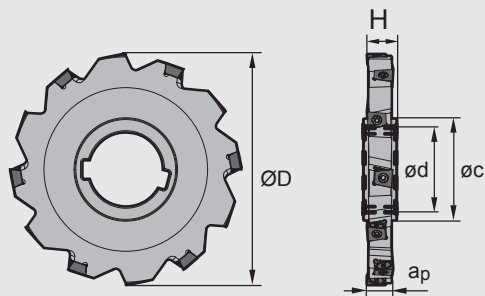
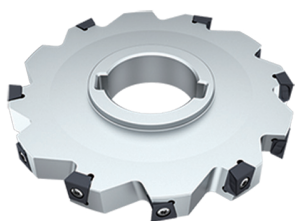
Indexable milling tools

Side and face milling tools

## Side and face milling tools



**SMP09** **P** **M** **K**






K-type coupling

### Specification of tools

Type	Stock	Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	øc	H	ap	a <sub>emax</sub>				
<b>SMP09</b> -125×18-K40-LN10-12	△	125	40	55	24	18	34	LNGX1005□□-GM	12	K	1.2
-160×18-K40-LN10-14	△	160	40	62	24	18	47		14	K	2.1
-200×18-K50-LN10-16	△	200	50	72	24	18	62		16	K	3.4
-250×18-K50-LN10-18	△	250	50	80	24	18	83		18	K	5.5
-125×20-K40-LN14-10	△	125	40	55	26	20	34	LNGX1407□□-GM	10	K	1.2
-160×20-K40-LN14-12	△	160	40	62	26	20	47		12	K	2.1
-200×20-K50-LN14-14	△	200	50	72	26	20	62		14	K	3.5
-250×20-K50-LN14-16	△	250	50	80	26	20	83		16	K	5.8
-160×25-K40-LN14-12	△	160	40	62	30	25	47	LNGX1407□□-GM	12	K	2.8
-200×25-K50-LN14-14	△	200	50	72	30	25	62		14	K	4.5
-250×25-K50-LN14-16	△	250	50	80	30	25	83		16	K	7.5

▲Stock available    △Make-to-order

### Spare parts

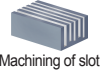
Diameter ØD	Edge width ap	Inserts	Screw	Wrench	
					
Ø80-Ø200	10	LNGX1005□□-GM	I60M3.5×8TT	WP10IS	
Ø100-Ø200	12	LNGX1407□□-GM	I60M4×10	WP15IS	
Ø100-Ø250	14-18	LNGX1005□□-GM	I60M3.5×8TT	WP10IS	
Ø125-Ø315	20-25	LNGX1407□□-GM	I60M4×12	WP15IS	

Tools code key → B24-B25

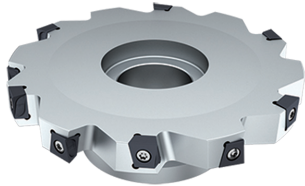
Grade selection guide → B19-B23

Technical data → B234-B240

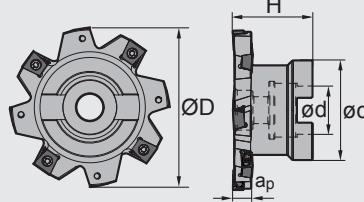
Side and face milling tools



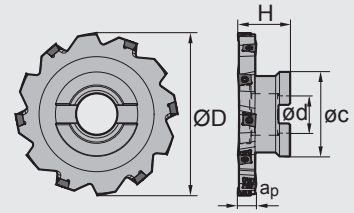
SMP09 P M K



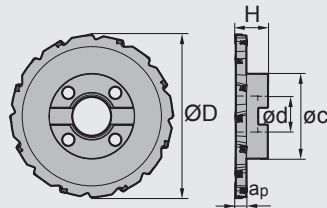
A-type coupling



B-type coupling



C-type coupling



Specification of tools

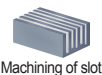
Type	Stock	Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	øc	H	ap	aemax				
<b>SMP09</b> -080×10-A22-LN10-08	△	80	22	45	40	10	20	LNGX1005□□-GM	8	A	0.4
-100×10-B27-LN10-10	△	100	27	55	45	10	24		10	B	0.6
-125×10-B32-LN10-12	△	125	32	65	45	10	33		12	B	1
-160×10-B40-LN10-14	△	160	40	80	50	10	42		14	B	2
-200×10-C40-LN10-16	△	200	40	92	50	10	53		16	C	2.9
-100×12-B27-LN14-08	△	100	27	55	45	12	24	LNGX1407□□-GM	8	B	0.6
-125×12-B32-LN14-10	△	125	32	65	45	12	33		10	B	1
-160×12-B40-LN14-12	△	160	40	80	50	12	42		12	B	2.1
-200×12-C40-LN14-14	△	200	40	92	50	12	53		14	C	2.9
-100×14-B27-LN10-10	△	100	27	55	50	14	24	LNGX1005□□-G	10	B	0.7
-125×14-B32-LN10-12	△	125	32	65	50	14	33		12	B	1.2
-160×14-B40-LN10-14	△	160	40	80	50	14	42		14	B	2.4
-200×14-C40-LN10-16	△	200	40	92	50	14	53		16	C	3.6
-125×16-B32-LN10-12	△	125	32	65	50	16	33	LNGX1005□□-GM	12	B	1.4
-160×16-B40-LN10-14	△	160	40	80	50	16	42		14	B	2.6
-200×16-C40-LN10-16	△	200	40	92	50	16	53		16	C	4

▲Stock available    △Make-to-order

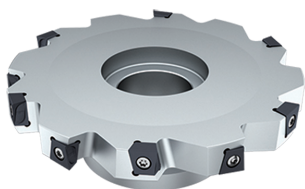
Indexable milling tools

Side and face milling tools

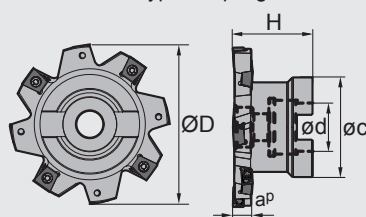
## Side and face milling tools



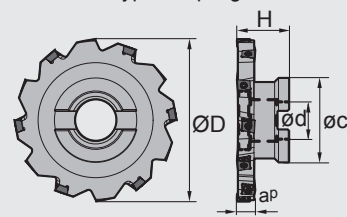
**SMP09** **P** **M** **K**



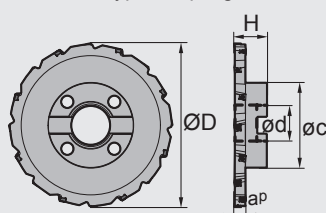
A-type coupling



B-type coupling



C-type coupling



### Specification of tools

Type	Stock	Basic dimensions(mm)						Applicable inserts	Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ød	øc	H	ap	aemax				
<b>SMP09</b> -125×18-B32-LN10-12	△	125	32	65	50	18	33	LNGX1005□□-GM	12	B	1.5
-160×18-B40-LN10-14	△	160	40	80	50	18	42		14	B	2.9
-200×18-C40-LN10-16	△	200	40	92	50	18	53		16	C	4.3
-250×18-C60-LN10-18	△	250	60	132	50	18	58		18	C	7.2
-125×20-B32-LN14-10	△	125	32	65	50	20	33	LNGX1407□□-GM	10	B	1.6
-160×20-B40-LN14-12	△	160	40	80	50	20	42		12	B	2.7
-200×20-C40-LN14-14	△	200	40	92	50	20	53		14	C	4.6
-250×20-C60-LN14-16	△	250	60	132	50	20	58		16	C	7.4
-160×25-B40-LN14-12	△	160	40	80	50	25	42	LNGX1407□□-GM	12	B	3.2
-200×25-C40-LN14-14	△	200	40	92	50	25	53		14	C	5.2
-250×25-C60-LN14-16	△	250	60	132	50	25	58		16	C	8.6
-315×25-C60-LN14-20	△	315	60	132	50	25	90		20	C	13.2

▲Stock available    △Make-to-order

### Spare parts

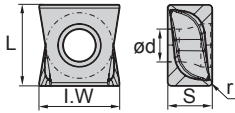
Diameter ØD	Edge width ap	Inserts	Screw	Wrench	
Ø80-Ø200	10	LNGX1005□□-GM	I60M3.5×8TT	WP10IS	
Ø100-Ø200	12	LNGX1407□□-GM	I60M4×10	WP15IS	
Ø100-Ø250	14-18	LNGX1005□□-GM	I60M3.5×8TT	WP10IS	
Ø125-Ø315	20-25	LNGX1407□□-GM	I60M4×12	WP15IS	

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					Cermets		Cemented carbide										
		I.W	L	S	ød	r	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	LNGX100504-GM	9.9	10	5.5	4.1	0.4				●																			
	LNGX100508-GM	9.9	10	5.5	4.1	0.8				●																			
	LNGX100512-GM	9.9	10	5.5	4.1	1.2				●																			
	LNGX100516-GM	9.9	10	5.5	4.1	1.6				●																			
	LNGX100520-GM	9.9	10	5.5	4.1	2.0				●																			
	LNGX100524-GM	9.9	10	5.5	4.1	2.4				●																			
	LNGX100530-GM	9.9	10	5.5	4.1	3.0				●																			
	LNGX100540-GM	9.9	10	5.5	4.1	4.0				●																			
	LNGX140704-GM	13.4	14	7.5	4.4	0.4				●																			
	LNGX140708-GM	13.4	14	7.5	4.4	0.8				●																			
	LNGX140712-GM	13.4	14	7.5	4.4	1.2				●																			
	LNGX140716-GM	13.4	14	7.5	4.4	1.6				●																			
	LNGX140720-GM	13.4	14	7.5	4.4	2.0				●																			
	LNGX140724-GM	13.4	14	7.5	4.4	2.4				●																			
	LNGX140730-GM	13.4	14	7.5	4.4	3.0				●																			
	LNGX140740-GM	13.4	14	7.5	4.4	4.0				●																			
	LNGX140750-GM	13.4	14	7.5	4.4	5.0				●																			

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

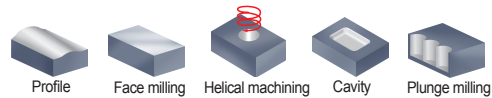
## Recommended cutting parameters

	Workpiece material	Hardness HB	Insert grade	Cutting parameters	
				Vc(m/min)	fz(mm/z)
<b>P</b>	Low-carbon steel, Soft steel	≤ 180	YB9320 YBM253	150(100-200)	0.12(0.1-0.3)
	High-carbon steel, Alloy steel	180-280	YB9320 YBM253	120(80-200)	0.12(0.1-0.3)
	Alloy tool steel	280-350	YB9320 YBM253	100(80-200)	0.12(0.1-0.3)
<b>M</b>	Stainless steel	≤ 270	YB9320 YBM253	100(80-200)	0.08(0.05-0.15)
<b>K</b>	Cast iron, Ductile iron, High nickel cast iron	180-250	YB9320 YBM253	150(100-250)	0.08(0.05-0.15)

Indexable milling tools

Side and face milling tools

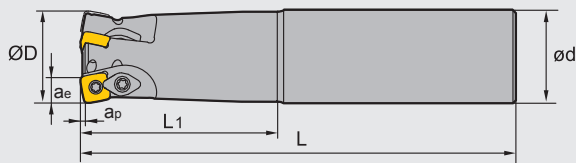
## High feed milling cutters



### XMR01 P M K S



S-type insert, straight shank



### Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)
		ØD	ap	ae	L1	L	ød		
<b>XMR01</b> -020-G20-SD06-02	▲	20	0.8	4.45	50	130	20	2	0.26
-020-G20-SD06-02CL	△	20	0.8	4.45	100	180	20	2	0.364
-020-G20-SD06-02CXL	△	20	0.8	4.45	130	250	20	2	0.522
-025-G25-SD06-03	▲	25	0.8	4.45	60	140	25	3	0.46
-025-G25-SD06-03CL	△	25	0.8	4.45	120	200	25	3	0.670
-025-G25-SD06-03CXL	△	25	0.8	4.45	130	250	25	3	0.850
-025-G25-SD09-02	▲	25	1.4	6.88	60	140	25	2	0.5
-025-G25-SD09-02CL	△	25	1.4	6.88	120	200	25	2	0.636
-025-G25-SD09-02CXL	△	25	1.4	6.88	180	300	25	3	0.980
-032-G32-SD09-03	▲	32	1.4	6.88	90	150	32	3	0.8
-032-G32-SD09-03CL	△	32	1.4	6.88	120	200	32	3	1.006
-032-G32-SD09-03CXL	△	32	1.4	6.88	180	300	32	3	1.551
-035-G32-SD09-03	▲	35	1.4	6.88	70	150	32	3	0.8
-035-G32-SD09-03CL	△	35	1.4	6.88	120	200	32	3	1.037
-035-G32-SD09-03CXL	△	35	1.4	6.88	180	300	32	3	1.582
-032-G32-SD12-02	▲	32	1.8	8.77	90	150	32	2	0.8
-032-G32-SD12-02CL	△	32	1.8	8.77	120	200	32	2	1.002
-032-G32-SD12-02CXL	△	32	1.8	8.77	180	300	32	2	1.547
-040-G40-SD12-03	▲	40	1.8	8.77	70	150	40	3	1.3
-040-G40-SD12-03CL	△	40	1.8	8.77	70	250	40	3	2.118
-040-G40-SD12-03CXL	△	40	1.8	8.77	70	300	40	3	2.579
-040-G40-SD15-02	▲	40	2.2	11.7	70	200	40	2	1.6
-040-G40-SD15-02CL	△	40	2.2	11.7	70	250	40	2	2.061
-040-G40-SD15-02CXL	△	40	2.2	11.7	70	300	40	2	3.522

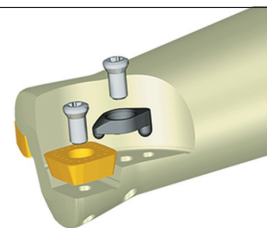
▲ Stock available    △ Make-to-order

### XMR01-020-G20-SD06QL-02CL/CXL

Standard toolholder sery ——— Long sery ——— Extended sery

### Spare parts

Tool type	Screw	Clamp Screw	Clamp	Wrench	
	XMR01□□-SD06□□	I60M2.2×5.5	--	--	WT07IP
XMR01□□-SD09□□	I60M3.5×08TT	I60M4×8.4	WD-204	WT10IP	WT15IP
XMR01□□-SD12□□	I60M4×8.4			WT15IP	
XMR01□□-SD15□□	I60M5×13		WD-208	WT20IP	--



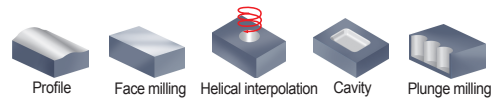
Tools code key → B24-B25

Grade selection guide → B19-B23

Technical data → B234-B240

Indexable milling tools  
High feed milling cutters

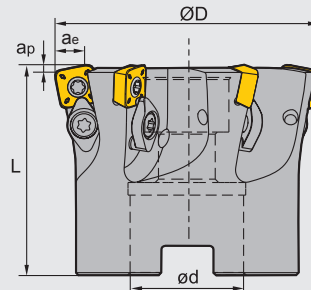
High feed milling cutters



XMR01 P M K S



S type insert milling cutter



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ap	ae	L	ød			
<b>XMR01</b> -050-A22-SD06-07C	▲	50	0.8	5.8	40	22	7	A	0.36
-063-A22-SD06-10C	▲	63	0.8	5.8	40	22	10	A	0.53
-063-A27-SD06-10C	▲	63	0.8	5.8	50	27	10	A	0.57
-050-A22-SD09-04C	▲	50	1.4	8.8	40	22	4	A	0.3
-063-A22-SD09-06C	▲	63	1.4	8.8	40	22	6	A	0.5
-063-A27-SD09-06C	▲	63	1.4	8.8	50	27	6	A	0.6
-063-A22-SD12-05C	▲	63	1.8	11.7	40	22	5	A	0.5
-063-A27-SD12-05C	▲	63	1.8	11.7	50	27	5	A	0.6
-080-A27-SD12-05C	▲	80	1.8	11.7	50	27	5	A	0.9
-100-B32-SD12-06	▲	100	1.8	11.7	50	32	6	B	1.8
-080-A27-SD15-05C	▲	80	2.2	14	50	27	5	A	0.78
-080-A32-SD15-05	▲	80	2.2	14	50	32	5	A	0.72
-100-B32-SD15-07	▲	100	2.2	14	50	32	7	B	1.2
-125-B40-SD15-09	▲	125	2.2	14	63	40	9	B	2.9
-160-B40-SD15-12	▲	160	2.2	14	63	40	12	B	4.4

▲Stock available    △Make-to-order

Spare parts

Tool type	Screw	Clamp Screw	Clamp	Wrench	
	XMR01□□-SD06□□	I60M2.2×5.5	--	--	WT07IP
XMR01□□-SD09□□	I60M3.5×08TT	I60M4×8.4	WD-204	WT10IP	WT15IP
XMR01□□-SD12□□	I60M4×8.4			WT15IP	
XMR01□□-SD15□□	I60M5×13	--	WD-208	WT20IP	--

Tools code key  
B24-B25

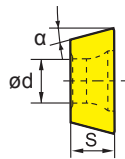
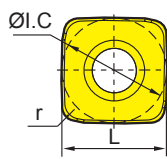
Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools

High feed milling cutters

## Selection of inserts



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

Workpiece material	P	M	K	N	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								
		ØI.C	L	r	S	ød	α	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	SDMT06T208-DM	6.35	6.35	0.8	2.58	2.5	15°	★																					
	SDMT09T312-DM	9.525	9.525	1.2	3.97	4.0	15°	★																					
	SDMT120412-DM	12.7	12.7	1.2	4.76	4.4	15°	★									★	●	○										
	SDMT150520-DM	15.875	15.875	2.0	5.56	5.5	15°	★									●	●	○										
	SDMT06T208-PM	6.35	6.35	0.8	2.58	2.5	15°	★	○								●						●						
	SDMT09T312-PM	9.525	9.525	1.2	3.97	4.0	15°	★	●								●												
	SDMT120412-PM	12.7	12.7	1.2	4.76	4.4	15°	★	●								●												
	SDMT150520-PM	15.875	15.875	2.0	5.56	5.5	15°	★	●								●												
	SDMT06T208-NM	6.35	6.35	0.8	2.58	2.5	15°				●												●						
	SDMT09T312-NM	9.525	9.525	1.2	3.97	4.0	15°				○												○	○					
	SDMT120412-NM	12.7	12.7	1.2	4.76	4.4	15°				○												○	○					
	SDMT150520-NM	15.875	15.875	2.0	5.56	5.5	15°				●							●					●						

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

Chipbreaker introduction:

- PM chipbreaker has sharp cutting edge, it is more suitable for machining with power shortage and for relatively adhesive materials, such as stainless steel and Ti alloy, etc.
- DM chipbreaker has blunt cutting edge and is relatively suitable for machining of hard materials such as hardened steel and cast iron, etc.

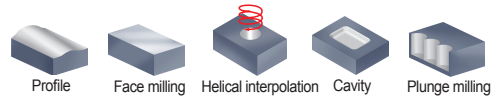


Indexable milling tools

High feed milling cutters



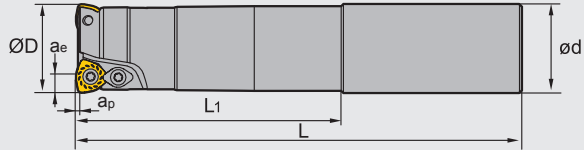
## High feed milling cutters



**XMR01** P M K



W-type insert, straight shank



### Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Weight (kg)
		ØD	ap	ae	L1	L	ød		
<b>XMR01</b> -020-G20-WP05-02-M	△	20	1.5	3.8	50	130	20	2	0.2
-020-G20-WP05-02-L	△	20	1.5	3.8	100	180	20	2	0.3
-020-G20-WP05-02-XL	△	20	1.5	3.8	130	250	20	2	0.8
-025-G25-WP06-02-M	△	25	1.5	4.35	60	140	25	2	0.4
-025-G25-WP06-02-L	△	25	1.5	4.35	120	200	25	2	0.6
-025-G25-WP06-02-XL	△	25	1.5	4.35	180	300	25	2	1.0
-032-G32-WP06-03-M	△	32	1.5	4.35	70	150	32	3	0.8
-032-G32-WP06-03-L	△	32	1.5	4.35	120	200	32	3	1.0
-032-G32-WP06-03-XL	△	32	1.5	4.35	180	300	32	3	1.6
-040-G32-WP06-03-M	△	40	1.5	4.35	50	150	32	3	0.9
-040-G32-WP06-03-L	△	40	1.5	4.35	50	250	32	3	1.5
-040-G32-WP06-03-XL	△	40	1.5	4.35	50	300	32	3	1.8
-040-G32-WP08-02-M	△	40	1.5	5.66	50	150	32	2	0.9
-040-G32-WP08-02-L	△	40	1.5	5.66	50	250	32	2	1.5
-040-G32-WP08-02-XL	△	40	1.5	5.66	50	300	32	2	1.9
-050-G32-WP09-02-M	△	50	3.0	6.8	50	150	32	2	1.9
-050-G32-WP09-02-L	△	50	3.0	6.8	50	250	32	2	2.5

▲Stock available    △Make-to-order

### Spare parts

Tool type	Clamp/Insert screw	Clamp	Wrench	
XMR01□□-WP05□□	I60M3.5×6.5	--	WT10P	--
XMR01□□-WP06□□	I60M4×8.4	--	WT15P	--
XMR01□□-WP08□□	I60M5×13	WD-208	--	WT20IT
XMR01□□-WP09□□				

Tools code key  
B24-B25

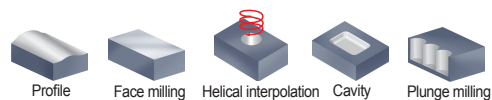
Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools

High feed milling cutters

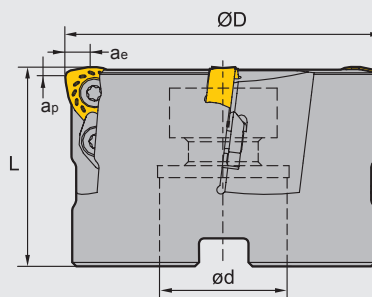
## High feed milling cutters



### XMR01 P M K



W-type insert, arbor mounting



### Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		ØD	ap	ae	L	ød			
<b>XMR01</b> -050-A22-WP06-04	△	50	1.5	4.35	40	22	4	A	0.4
-050-A22-WP08-03	△	50	1.5	5.66	50	22	3	A	0.4
-063-A22-WP08-04C	△	63	1.5	5.66	50	22	4	A	0.7
-063-A27-WP08-04C	△	63	1.5	5.66	50	27	4	A	0.7
-080-A27-WP08-05C	△	80	1.5	5.66	63	27	5	A	1.5
-100-B32-WP08-06	△	100	1.5	5.66	63	32	6	B	2.2
-125-B40-WP08-07	△	125	1.5	5.66	63	40	7	B	3.5
-160-B40-WP08-08	△	160	1.5	5.66	63	40	8	B	6.0
-063-A22-WP09-03C	△	63	3.0	6.8	50	22	3	A	0.7
-080-A27-WP09-04C	△	80	3.0	6.8	63	27	4	A	1.4
-100-B32-WP09-05	△	100	3.0	6.8	63	32	5	B	2.1
-125-B40-WP09-06	△	125	3.0	6.8	63	40	6	B	3.7
-160-B40-WP09-07	△	160	3.0	6.8	63	40	7	B	6.3

▲ Stock available    △ Make-to-order

### Spare parts

Tool type	Clamp/Insert screw	Clamp	Wrench	
XMR01□□-WP06□□	I60M4×8.4	--	WT15S	--
XMR01□□-WP08□□	I60M5×13	WD-208	--	WT20IT
XMR01□□-WP09□□	I60M5×13	WD-208	--	

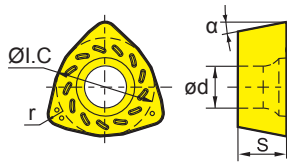


Tools code key **B24-B25**

Grade selection guide **B19-B23**

Technical data **B234-B240**

## Selection of inserts



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

Workpiece material	Working Condition																						
	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101	YD201	
<b>P</b> Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>N</b> Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Insert shape	Type	Basic dimensions(mm)					CVD Coating						PVD Coating						Cermet		Cemented carbide							
		ØI.C	r	S	ød	α	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101	YD201
	WPGT050315ZSR	7.94	1.5	3.5	4.0	11°	★	●	●																			
	WPGT060415ZSR	9.525	1.5	4.2	4.4	11°	★	●	●						●													
	WPGT080615ZSR	12.85	1.5	6.35	5.5	11°	★	●	●						●													
	WPGT090725ZSR	15.00	2.5	7	5.5	11°	★	●	●						●													
	WPGT050315ZSR-PM	7.94	1.5	3.5	4.0	11°	★	●	●						●													
	WPGT060415ZSR-PM	9.525	1.5	4.2	4.4	11°	★	●	●						●							○						
	WPGT080615ZSR-PM	12.85	1.5	6.35	5.5	11°	★	●	●						●							○						
	WPGT090725ZSR-PM	15.00	2.5	7.00	5.5	11°	★	●	●						●													

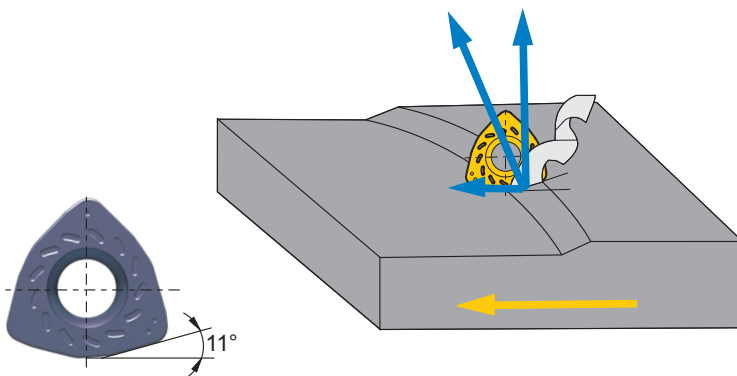
★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

Chipbreaker introduction:

-PM chipbreaker has sharp cutting edge, it is more suitable for machining with power shortage and for relatively adhesive materials, such as stainless steel and Ti alloy, etc.

General chipbreaker has blunt cutting edge and is relatively suitable for machining of hard materials such as hardened steel and cast iron, etc.

## XMR01 series milling tools



The main feature of high feed tools is to resolve the major cutting force to the axial direction, greatly reducing the radial cutting force, thus improve tool's vibration resistance. In addition, this structure can effectively reduce vibration in long-overhang milling operation.

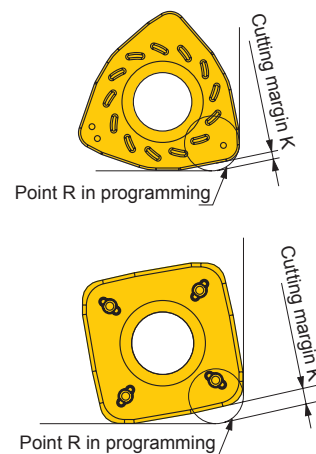


Indexable milling tools

High feed milling cutters

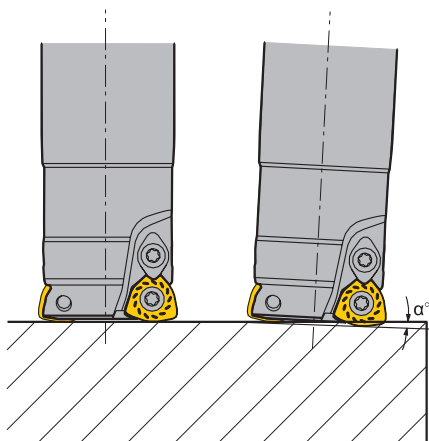
## Approximate R in machining program

Applicable insert	Approximate R(mm)	Cutting margin K(mm)
WPGT050315ZSR/-PM	2	0.5
WPGT060415ZSR/-PM	2.5	0.7
WPGT080615ZSR/-PM	2.5	0.7
WPGT090725ZSR/-PM	4.5	1.2
SDMT06T208-DM/-PM/NM	1.6	0.5
SDMT09T312-DM/-PM/NM	2.5	0.87
SDMT120412-DM/-PM/NM	4.0	0.93
SDMT150520-DM/-PM/NM	4.0	1.38

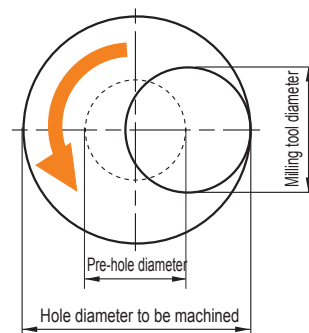


## Different machining styles

### Ramp machining



### Helical interpolation milling



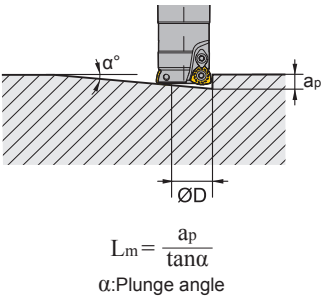
- Reduce the feed rate in ramp and helical machining operations.
- Set the axial feed rate below 0.2mm/rev in drilling operation.
- Be careful ! Long chips may fly off in drilling operation.
- The cutting depth of each rotation must not exceed the maximum cutting depth ( $a_p$ ).
- The S-type insert can be used for plunge milling in addition to the machining operations mentioned above.

## Selection guide for XMR01 series

XMR01 series tools (with SD□□ inserts) have perfect edge strength and good economical efficiency, advantageous in face milling.

XMR01 series tools (with WP□□ inserts) has good capability of chip removal, proficient in cavity milling.

## Ramp milling, helical interpolation milling

	Insert	Diameter ØD(mm)	Ramp milling		Helical interpolationmilling	
			Max.cutting depth $a_p$ (mm)	Max.plunge angle $\alpha^\circ$	Min.diameter ØD <sub>1</sub> (mm)	Max.diameter (mm)
<p><b>● Ramp milling</b></p>  <p><math>L_m = \frac{a_p}{\tan \alpha}</math>  <math>\alpha</math>: Plunge angle</p>	WP**05**	20	1.5	12	24	37
	WP**06*	25	1.5	8.8	31	47
		32	1.5	5	45	61
		40	1.5	3.2	61	77
		50	1.5	2.8	81	97
	WP**08*	40	1.5	9	52	77
		50	1.5	5.4	71	97
		63	1.5	4.3	97	123
		80	1.5	2.9	131	157
		100	1.5	2.1	171	197
125		1.5	1.3	221	247	
160		1.5	1.1	291	317	
WP**09*	50	3.0	7.2	70	96	
	63	3.0	4.5	96	122	
	80	3.0	2.8	130	156	
	100	3.0	2.2	170	196	
	125	3.0	1.6	220	246	
	160	3.0	1.2	290	316	

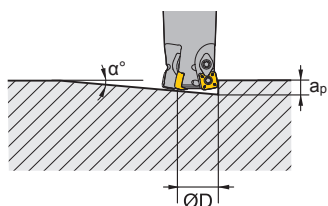
Reduce the feed rate when plunging and circular milling.  
 For drilling operations (axial) set the feed rate under 0.2mm.  
 "Attention"—drilling can produce long chips.

Indexable milling tools

High feed milling cutters

## Ramp milling, helical interpolation milling

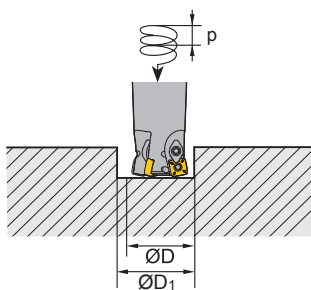
### ● Ramp milling



$$L_m = \frac{a_p}{\tan \alpha}$$

α: Plunge angle

### ● Helical interpolation milling



$$P = \tan \alpha \times \pi \times D_1$$

α: Helix angle

Insert	Diameter ØD(mm)	Ramp milling		Helical interpolationmilling	
		max.cutting depth ap(mm)	max.cutting depth α°	min.diameter ØD1(mm)	max. diameter(mm)
SD**06**	20	0.8	3.6	30	38
	25	0.8	2.8	40	48
	32	0.8	1.6	52	60
	40	0.8	1.1	70	78
	50	0.8	0.8	90	98
	63	0.8	0.7	114	122
SD**09**	25	1.4	6.5	34	48
	32	1.4	4.5	48	62
	35	1.4	3.6	54	68
	50	1.4	1.8	84	98
	63	1.4	1.3	110	124
SD**12**	32	1.8	10.4	44	60
	40	1.8	5.7	60	76
	50	1.8	3.5	80	96
	63	1.8	2.5	106	122
	80	1.8	1.6	140	156
	100	1.8	1.2	180	196
SD**15**	40	2.2	7.3	54	76
	80	2.2	1.4	134	156
	100	2.2	1.0	174	196
	125	2.2	0.9	234	246
	160	2.2	0.6	304	316


Reduce the feed rate when plunging and circular milling.  
For drilling operations (axial) set the feed rate under 0.2mm.  
"Attention"—drilling can produce long chips.

### ▶▶ Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting speed (m/min)	Ø25		Ø30/32/35	
				Axial cutting depth	Feed rate per tooth	Axial cutting depth	Feed rate per tooth
<b>P</b> Soft steel Carbon Steel	≤HB180 HB180-280	YBC302 YBM351 YBM253 YBG205 YB9320	170(120-220) 150(100-200)	0.6~1.5	0.6~1.2	0.6~1.2	0.5~1.4
	Alloy steel Alloy tool steel	YBC302 YBM351 YBM253 YBG205 YB9320	130(80-180)	0.4~1.2	0.6~1.2	0.4~1.0	0.5~1.4
	pre-hardened steel	YBC302 YBM351 YBM253 YBG205 YB9320	120(80-160)	0.4~1.0	0.5~1.0	0.4~1.0	0.5~1.0
<b>M</b> Stainless steel	≤HB270	YBM351 YBM253	120(80-160)	0.6~1.0	0.6~1.0	0.8~1.2	0.8~1.2
		YBG205 YB9320	120(80-190)				
<b>K</b> Common cast iron	Tensile strength ≤350MPa	YBG302	150(100-200)	0.6~1.0	0.6~1.4	0.6~1.2	0.6~1.6
	Nodular cast iron	YBG302	120(80-160)	0.4~0.8	0.5~1.2	0.4~1.0	0.5~1.4
<b>S</b> Difficult-to-machine materials	≤400	YBS203	80(60-120)	0.6~1.0	0.6~1.0	0.8~1.2	0.8~1.2
		YBS303	60(45-110)	0.4~0.8	0.4~0.8	0.4~1.0	0.4~0.8

### ▶▶ Recommended cutting parameters

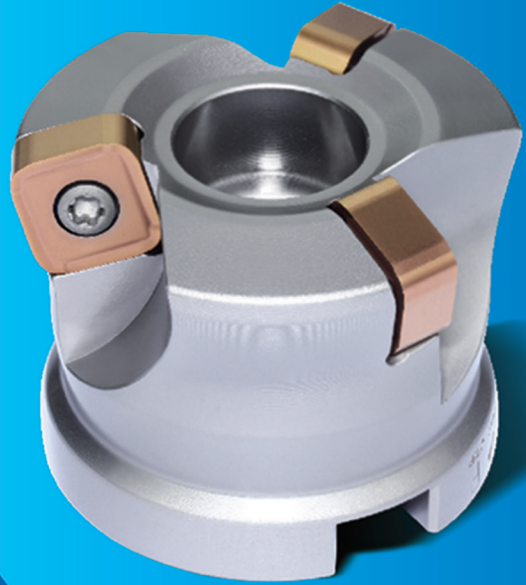
Workpiece material	Hardness HB	Insert grade	Cutting speed (m/min)	Ø40		Ø50/63		Ø80/100	
				Axial cutting depth	Feed rate per tooth	Axial cutting depth	Feed rate per tooth	Axial cutting depth	Feed rate per tooth
<b>P</b> Soft steel Carbon Steel	≤HB180 HB180-280	YBC302 YBM351 YBM253 YBG205 YB9320	170(120-220) 150(100-200)	0.6~1.5	0.8~1.5	0.6~1.5	0.8~1.5	0.6~1.5	0.5~1.5
	Alloy steel Alloy tool steel	YBC302 YBM351 YBM253 YBG205 YB9320	130(80-180)	0.4~1.2	0.6~1.5	0.4~1.3	0.6~1.5	0.4~1.3	0.5~1.5
	pre-hardened steel	YBC302 YBM351 YBM253 YBG205 YB9320	120(80-160)	0.4~1.0	0.5~1.0	0.4~1.3	0.5~1.0	0.4~1.3	0.5~1.0
<b>M</b> Stainless steel	≤HB270	YBM351 YBM253	120(80-160)	0.8~1.2	0.8~1.2	1.1~1.5	0.9~1.3	1.0~1.5	0.8~1.3
		YBG205 YB9320	120(80-190)						
<b>K</b> Common cast iron	Tensile strength ≤350MPa	YBG302	150(100-200)	0.6~1.5	0.8~1.6	0.6~1.5	0.8~1.7	0.6~1.5	0.6~1.7
	Nodular cast iron	YBG302	120(80-160)	0.4~1.2	0.6~1.4	0.6~1.3	0.6~1.5	0.4~1.3	0.5~1.5
<b>S</b> Difficult-to-machine materials	≤400	YBS203	80(60-120)	0.8~1.2	0.6~1.0	1.1~1.5	0.6~1.2	1.0~1.5	0.4~1.2
		YBS303	60(45-110)	0.4~1.0	0.4~1.0	0.6~1.2	0.6~1.0	0.4~1.0	0.4~0.8



After reasonable calculation and optimization, the axial and radial inclination angles effectively reduce the machining resistance of the tool.

The whole cutting tool can realize stable processing with excellent impact resistance and strong vibration resistance.

Screw clamping achieves high positioning accuracy and good economy.



# **XMRO03** Series of High Feed Milling Cutter

8 cutting edges on both sides achieve economical and cost-effective machining.

1

2

Large rake angle design, low cutting resistance, special edge shape and tool combination achieve a large chip space, leading to excellent chip removal performance.

4

3

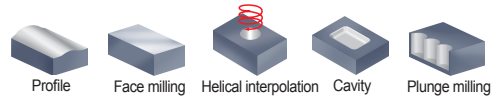
Due to the good versatility, it can be used for large-feed processing of various steels, as well as processing viscous materials such as stainless steel and titanium alloy.

4×2=8 cutting edges

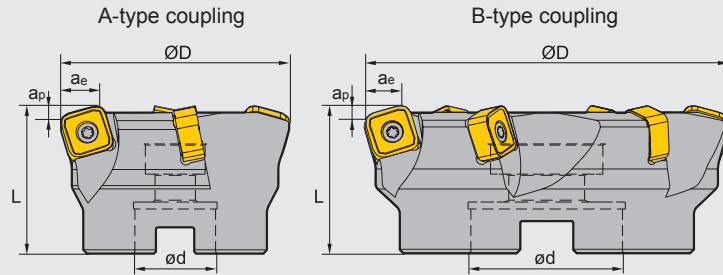
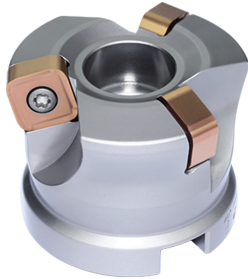




## High feed milling cutters



### XMR03 P M






### Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
		ØD	apmax	ae	L	ød				
<b>XMR03</b> Coarse pitch	-050-A22-SN12-03	▲	50	1.8	9.8	40	22	3	A	0.289
	-063-A22-SN12-04	▲	63	1.8	9.8	40	22	4	A	0.482
	-080-A27-SN12-05	▲	80	1.8	9.8	50	27	5	A	1.014
	-100-B32-SN12-06	▲	100	1.8	9.8	50	32	6	B	1.45
	-125-B40-SN12-07	▲	125	1.8	9.8	63	40	7	B	2.7
Close pitch	-050-A22-SN12-04	△	50	1.8	9.8	40	22	4	A	0.319
	-063-A22-SN12-05	△	63	1.8	9.8	40	22	5	A	0.512
	-080-A27-SN12-06	△	80	1.8	9.8	50	27	6	A	1.044
	-100-B32-SN12-07	△	100	1.8	9.8	50	32	7	B	1.48
	-125-B40-SN12-08	△	125	1.8	9.8	63	40	8	B	2.73
Extra close pitch	-050-A22-SN12-05	△	50	1.8	9.8	40	22	5	A	0.354
	-063-A22-SN12-06	△	63	1.8	9.8	40	22	6	A	0.547
	-080-A27-SN12-07	△	80	1.8	9.8	50	27	7	A	1.079
	-100-B32-SN12-08	△	100	1.8	9.8	50	32	8	B	1.435
	-125-B40-SN12-09	△	125	1.8	9.8	63	40	9	B	2.765

▲ Stock available    △ Make-to-order

### Spare parts

Tool type	Insert screw	Wrench	
			
XMR03□□-SD12□□	I60M4×10	WT15IP	

Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools

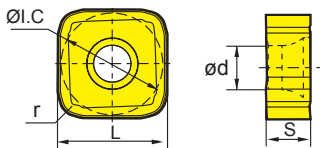
High feed milling cutters



# MILLING

## Indexable Milling Tools

### 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												
		L	ØI.C	r	S	ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101	YD201	
	SNGU120620-GM	12.7	12.7	2.0	5.6	4.4				●					●	●													

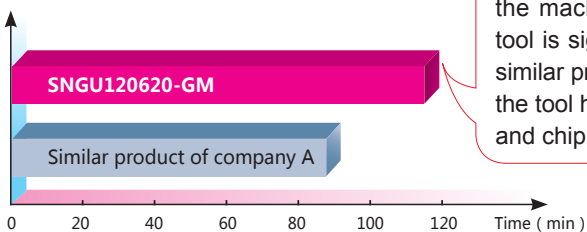
★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

### Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting speed (m/min)	Ø50/63		Ø80/125	
				Axial cutting depth	Feed rate per tooth	Axial cutting depth	Feed rate per tooth
<b>P</b> Soft steel, carbon steel	≤HB180 HB180-280	YB9320	170(120-220)	0.6~1.5	0.5~1.5	0.6~1.5	0.6~1.5
		YBM253	150(100-200)				
		YBG205					
<b>P</b> Alloy steel, alloy tool steel	HB280-350	YB9320	130(80-180)	0.4~1.3	0.5~1.5	0.4~1.3	0.6~1.5
		YBM253					
		YBG205					
<b>P</b> Pre-hardened steel	≤HRC35	YB9320	120(80-160)	0.4~1.3	0.5~1.0	0.4~1.3	0.5~1.0
		YBM253					
		YBG205					
<b>M</b> Stainless steel	≤HB270	YBM253	120(80-160)	0.4~1.5	0.4~1.2	0.4~1.5	0.5~1.3
		YBG205	120(80-190)				
		YB9320					

### XMR03series milling cutter processing case

Workpiece: 718H(HRC 34)  
 Toolholder: XMR03-050-A22-SN12-03  
 Insert: SNGU120620-GM/YB9320  
 Cutting parameter:  
 $V_c=142m/min$  ,  $f_z=1.25mm/z$  ,  
 $a_p=0.8mm$



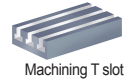
Under the same circumstances, the machining life of our XMR03 tool is significantly better than the similar product of company A, and the tool has better wear resistance and chipping resistance.

Indexable milling tools

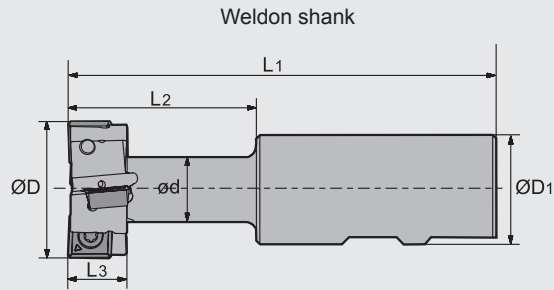
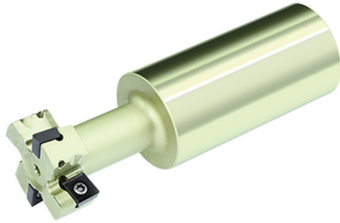
High feed milling cutters

T-slot milling tools

Kr:90°



TMP01 **K**



Specification of tools

Type	Stock	Basic dimensions(mm)						Number of teeth Z	Number of insert	T-slot specification
		ØD	ØD1	ød	L1	L2	L3			
<b>TMP01</b> -021-XP25-MP06-01	▲	21	25	10	100	32	9	1	2	12
-025-XP25-MP06-01	▲	25	25	12	100	35	11	1	2	14
-032-XP32-MP08-02	▲	32	32	15	110	45	14	2	4	18
-040-XP32-MP12-02	▲	40	32	19	125	55	18	2	4	22
-050-XP40-MP12-02	▲	50	40	25	140	65	22	2	4	28
-060-XP50-MP12-02	▲	60	50	32	160	80	28	2	6	36

▲Stock available    △Make-to-order

Indexable milling tools

T-slot milling tools

Spare parts

Tool type	Screw	Wrench	
TMP01-021-XP25-MP06-01	I60M2.5×5.5	WT07IP	--
TMP01-025-XP25-MP06-01	I60M2.5×5.5		
TMP01-032-XP32-MP08-02	I60M3×7	WT10IP	--
TMP01-040-XP32-MP12-02	I60M5×10	--	WT20IT
TMP01-050-XP40-MP12-02	I60M5×10		
TMP01-060-XP50-MP12-02	I60M5×10		

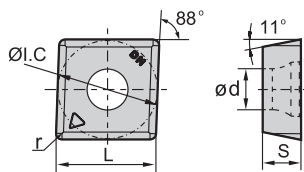
Caution: When installing inserts, make sure the insert nose marked with "DM" or "Δ" is pointing to the slot.

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

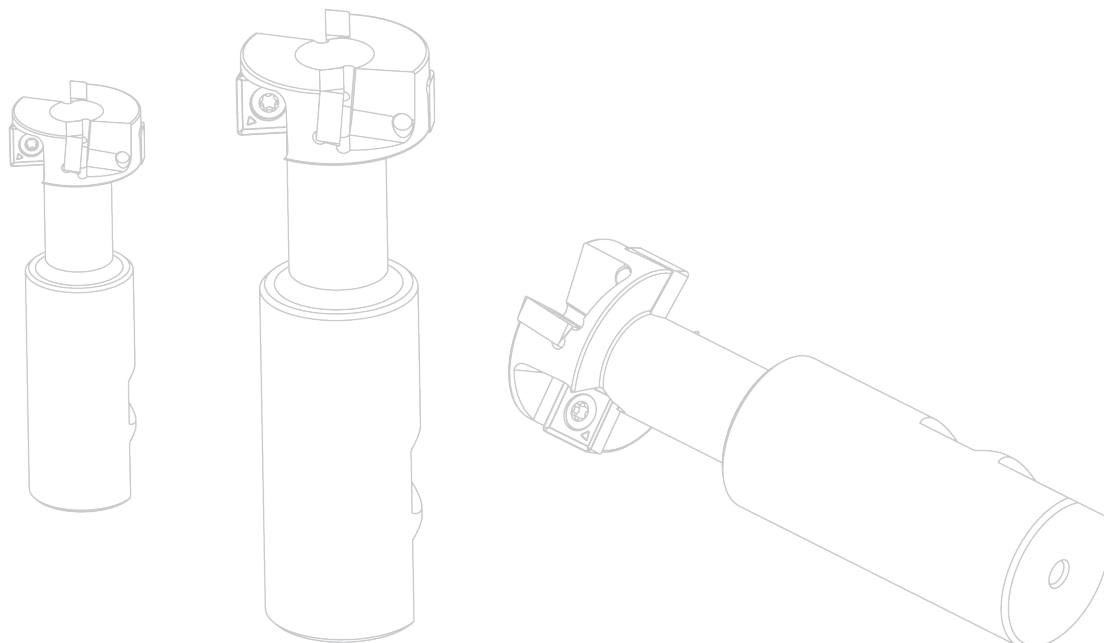
Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
Steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Stainless steel	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Cast iron	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Non-ferrous metal	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊	😊😊😊😊😊😊
Heat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

Insert shape	Type	Basic dimensions(mm)					CVD Coating					PVD Coating					Cermet	Cemented carbide									
		Øl.C	L	s	ød	r	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC305	YD051	YD101
	MPHT060304-DM	6.35	6.35	3.18	2.8	0.4												★									
	MPHT080305-DM	8.3	8.3	3.18	3.4	0.5												★									
	MPHT120408-DM	12.7	12.7	4.76	5.56	0.8												★									

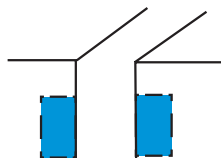
★ Recommended grade (always stock available)    ● Available grade (always stock available)    ○ Make-to-order

Indexable milling tools

T-slot milling tools



◆ Workpiece before machining



## Recommended cutting parameters

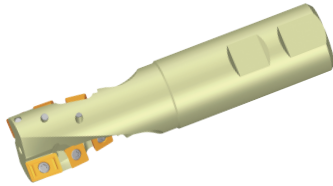
Workpiece material	Insert grade	Cutting parameters		
		Vc(m/min)	fz(mm/z)	Cooling
Grey cast iron	YBG302	80~160	0.05~0.2	Wet / Dry

Helical milling

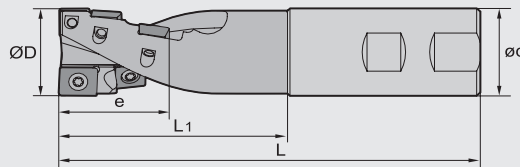
Kr:90°



HMP01 P K



Weldon shank



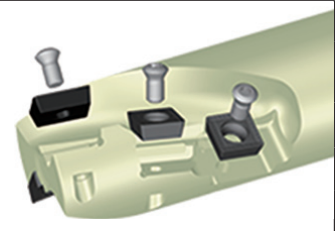
Specification of tools

Type	Stock		Basic dimensions(mm)					Number of flute Z	Number of inserts		Shank type
	R	L	ØD	ød	e	L <sub>1</sub>	L		APKT 150412-PM/KM	SPMT 120408-PM/KM	
<b>HMP01</b> -040×55-XP40-SP12-02	△	△	40	40	55	95	175	2	1	5	Weldon shank
-050×55-XP40-SP12-04	△	△	50	40	55	95	175	4	2	10	Weldon shank

▲Stock available    △Make-to-order

Spare parts

Diameter ØD	Screw	Wrench
Ø40	I60M5×10	WT20T
Ø50	I60M5×13	WT20T



Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools  
Helical milling

## Helical milling

Kr:90°

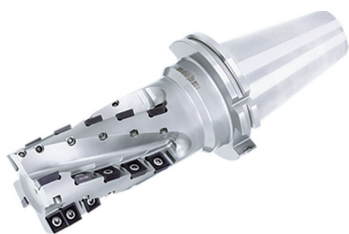


Side milling

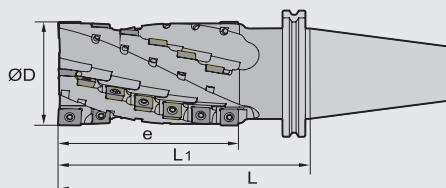


Slot milling

### HMP01 P K



JT shank/ BT shank ( JT shank shown)



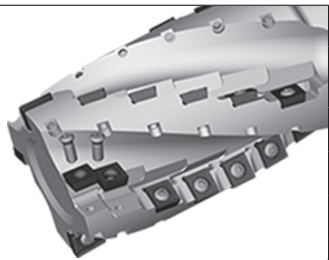
#### Specification of tools

Type	Stock		Basic dimensions(mm)				Teeth row	Number of inserts		Shank type
	R	L	ØD	e	L <sub>1</sub>	L		APKT 150412-PM/KM	SPMT 120408-PM/KM	
<b>HMP01</b> -050×84-JT50-SP12-04	△	△	50	84	145	246.75	4	2	16	JT
-063×74-JT50-SP12-04	△	△	63	74	135	236.75	4	2	14	JT
-063×104-JT50-SP12-04	△	△	63	104	165	266.75	4	2	20	JT
-063×134-JT50-SP12-04	△	△	63	134	195	296.75	4	2	26	JT
-080×104-JT50-SP12-04	△	△	80	104	165	266.75	4	2	20	JT
-080×144-JT50-SP12-04	△	△	80	144	205	306.75	4	2	28	JT
-050×84-BT50-SP12-04	△	△	50	84	145	246.8	4	2	16	BT
-063×74-BT50-SP12-04	△	△	63	74	135	236.8	4	2	14	BT
-063×104-BT50-SP12-04	△	△	63	104	165	266.8	4	2	20	BT
-063×134-BT50-SP12-04	△	△	63	134	195	296.8	4	2	26	BT
-080×104-BT50-SP12-04	△	△	80	104	165	266.8	4	2	20	BT
-080×144-BT50-SP12-04	△	△	80	144	205	306.8	4	2	28	BT

▲Stock available    △Make-to-order

#### Spare parts

Diameter ØD	Screw	Wrench
Ø50	I60M5×13	WT20IS
Ø63	I60M5×13	WT20IS
Ø80	I60M5×13	WT20IS



Tools code key  
B24-B25

Grade selection guide  
B19-B23

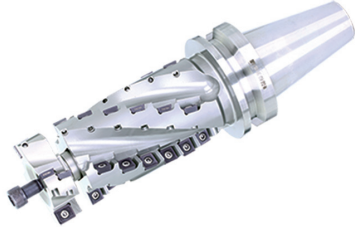
Technical data  
B234-B240

Helical milling

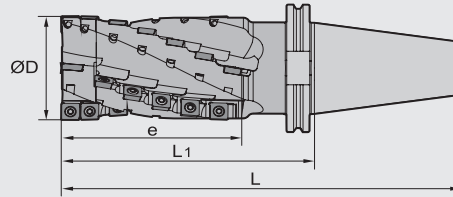
Kr:90°



HMP01 EC P K



JT shank/ BT shank ( JT shank shown)



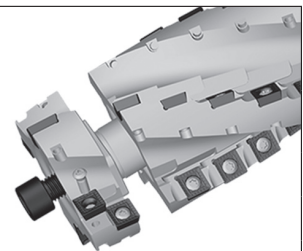
Specification of tools

Type	Stock		Basic dimensions(mm)				Teeth row	Number of inserts		Shank type
	R	L	ØD	e	L <sub>1</sub>	L		APKT 150412-PM/KM	SPMT 120408-PM/KM	
<b>HMP01</b> -050×84EC-JT50-SP12-04	△	△	50	84	145	246.75	4	2	16	JT
-063×74EC-JT50-SP12-04	△	△	63	74	135	236.75	4	2	14	JT
-063×104EC-JT50-SP12-04	△	△	63	104	165	266.75	4	2	20	JT
-063×134EC-JT50-SP12-04	△	△	63	134	195	296.75	4	2	26	JT
-080×104EC-JT50-SP12-04	△	△	80	104	165	266.75	4	2	20	JT
-080×144EC-JT50-SP12-04	△	△	80	144	205	306.75	4	2	28	JT
-050×84EC-BT50-SP12-04	△	△	50	84	145	246.8	4	2	16	BT
-063×74EC-BT50-SP12-04	△	△	63	74	135	236.8	4	2	14	BT
-063×104EC-BT50-SP12-04	△	△	63	104	165	266.8	4	2	20	BT
-063×134EC-BT50-SP12-04	△	△	63	134	195	296.8	4	2	26	BT
-080×104EC-BT50-SP12-04	△	△	80	104	165	266.8	4	2	20	BT
-080×144EC-BT50-SP12-04	△	△	80	144	205	306.8	4	2	28	BT

▲Stock available    △Make-to-order

Spare parts

Diameter ØD	Insert screw	Screw of interchangeable head	Wrench of insert screw	Wrench of interchangeable head	Interchangeable head
Ø50					
Ø63	I60M5×13	M10×50	WT20IS	WH80L	050EC
Ø80	I60M5×13	M12×55	WT20IS	WH100L	080EC



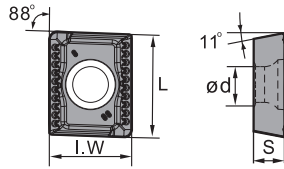
Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

Indexable milling tools  
Helical milling

## Selection of inserts



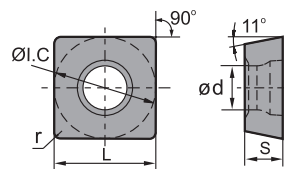
😊 Good working condition   😊 Normal working condition   😞 Bad working condition

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

Insert shape	Type	Basic dimensions(mm)					CVD Coating						PVD Coating						Cermet	Cemented carbide										
		L	I.W	S	ød	r	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201		
	<b>APKT150412-PM</b>	16.33	12.7	4.76	5.4	1.2				★									●											
	<b>APKT150412-KM</b>	16.33	12.7	4.76	5.4	1.2													●	○										

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

## 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	
<b>P</b> Steel	😊	😊	😊	😊	😊				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>M</b> Stainless steel	😊	😊	😊	😊	😊				😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
<b>K</b> Cast iron						😊	😊	😊					😊	😊							😊	😊	😊
<b>N</b> Non-ferrous metal																					😊	😊	😊
<b>S</b> Heat resistant alloy, Ti alloy								😊	😊	😊	😊						😊	😊					

Insert shape	Type	Basic dimensions(mm)					CVD Coating						PVD Coating						Cermet	Cemented carbide									
		L	øI.C	S	ød	r	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	<b>SPMT120408-PM</b>	12.7	12.7	4.76	5.5	0.8				★										●									
	<b>SPMT120408-KM</b>	12.7	12.7	4.76	5.5	0.8														●	○								

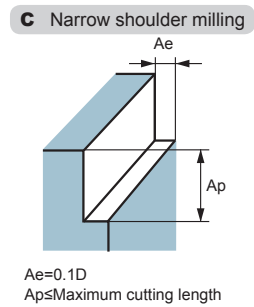
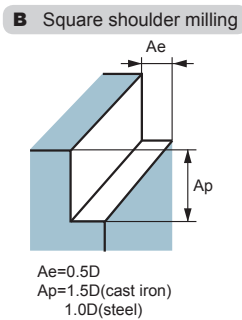
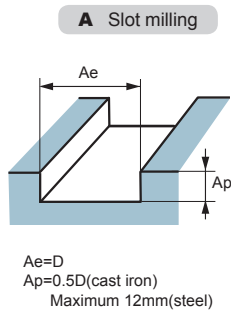
★ Recommended grade (always stock available)   ● Available grade (always stock available)   ○ Make-to-order

## Chipbreaker selection for HMP01 milling inserts

Classification	Function	For semi-finishing	For roughing
	<b>P</b>		-PM
<b>K</b>		-KM	-KM

Indexable milling tools  
Helical endmills with interchangeable heads



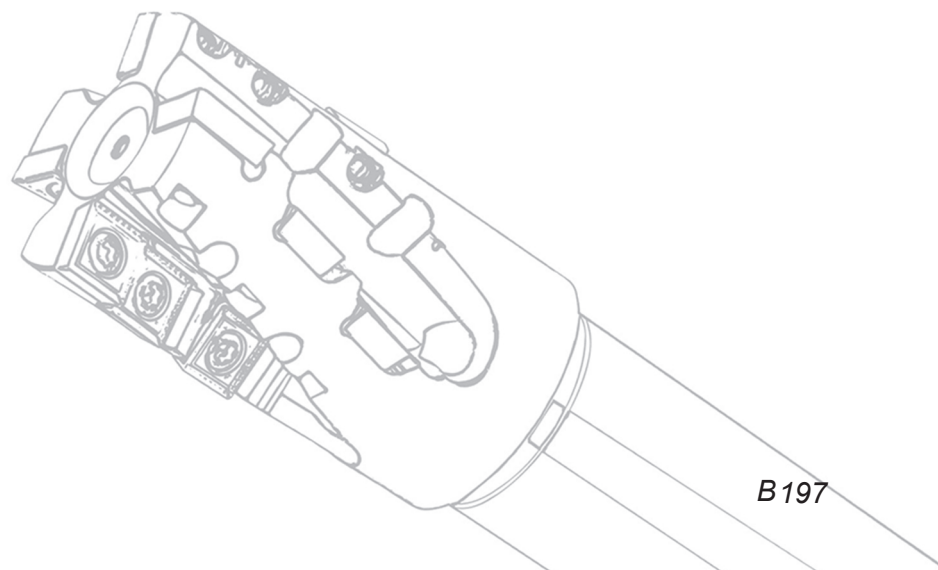


## Recommended cutting parameters

	Workpiece material	Hardness HB	Insert grade	Cutting parameters		Operation (figure)
				Cutting speed(m/min)	Feed speed(mm/z)	
<b>P</b>	Low-carbon steel, Soft steel	$\leq 180$	YBM253 YBG302	80(60-90)	0.25(0.1-0.35)	A
				90(70-120)	0.3(0.15-0.4)	B
				90(70-120)	0.3(0.15-0.4)	C
	High-carbon steel, Alloy steel	180-280	YBM253 YBG302	70(60-100)	0.2(0.1-0.35)	A
				80(60-120)	0.25(0.15-0.35)	B
				90(70-120)	0.25(0.15-0.35)	C
	Alloy tool steel	280-350	YBM253 YBG302	50(40-80)	0.15(0.08-0.25)	A
				60(50-100)	0.2(0.1-0.35)	B
				70(50-100)	0.2(0.1-0.35)	C
<b>K</b>	Cast iron	180-250	YBG152 YBG302	70(50-100)	0.2(0.1-0.35)	A
				80(60-120)	0.25(0.15-0.35)	B
				90(80-120)	0.25(0.15-0.35)	C

Indexable milling tools

Helical endmills with interchangeable heads



## Chamfer milling

Kr:30°



Chamfering

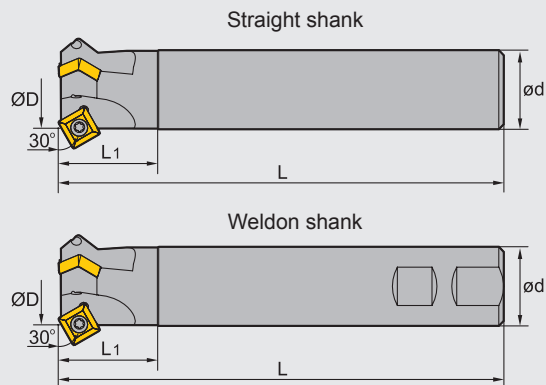


Face milling



Hole stomata chamfer

**CMZ01** **P** **M** **K**



### Specification of tools

Type	Stock	Basic dimensions(mm)				Number of teeth Z	Weight (kg)	
		ØD	ød	L	L <sub>1</sub>			
Straight shank	-012-G20-SP12-01	△	12	20	100	40	1	0.2
	-025-G25-SP12-02	△	25	25	120	40	2	0.8
	-032-G32-SP12-03	△	32	32	180	40	3	1.1
Weldon shank	-012-XP20-SP12-01	△	12	20	100	40	1	0.2
	-025-XP25-SP12-02	△	25	25	120	40	2	0.6
	-032-XP32-SP12-03	△	32	32	180	40	3	1.0

▲Stock available    △Make-to-order

Indexable milling tools

Chamfer milling

### Spare parts

Diameter ØD	Screw	Wrench	
	Ø12-Ø32	I43M5×11	

Tools code key **B24-B25**

Grade selection guide **B19-B23**

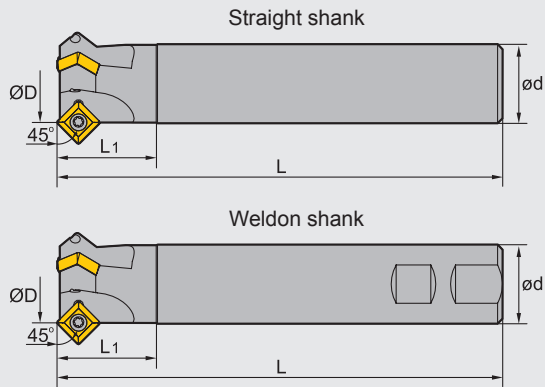
Technical data **B234-B240**

Chamfer milling

Kr:45°



CMA01 P M K



Specification of tools

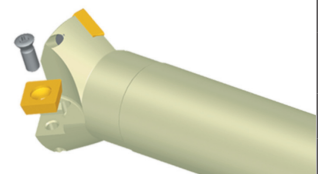
Type	Stock	Basic dimensions(mm)				Number of teeth Z	Weight (kg)
		ØD	ød	L	L <sub>1</sub>		
Straight shank	▲	12	20	100	40	1	0.2
	▲	25	25	120	40	2	0.8
	▲	32	32	180	40	3	1.1
Weldon shank	▲	12	20	100	40	1	0.2
	▲	25	25	120	40	2	0.6
	▲	32	32	180	40	3	1.0

▲Stock available    △Make-to-order

Indexable milling tools  
Chamfer milling

Spare parts

Diameter ØD	Screw	Wrench
Ø12-Ø32	I43M5×11	WT20IS



Tools code key  
B24-B25

Grade selection guide  
B19-B23

Technical data  
B234-B240

## Chamfer milling tools

Kr:60°



Chamfering



Face milling

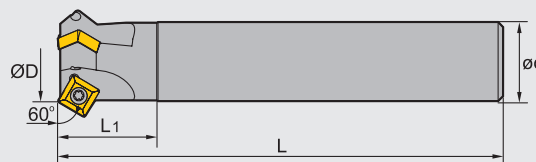


Hole stomata chamfer

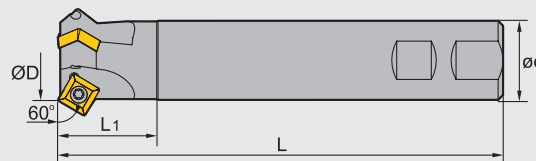
**CMD01** P M K



Straight shank



Weldon shank



### Specification of tools

Type	Stock	Basic dimensions(mm)				Number of teeth Z	Weight (kg)
		ØD	ød	L	L <sub>1</sub>		
Straight shank	▲	12	20	100	40	1	0.2
	▲	25	25	120	40	2	0.8
	▲	36	32	180	40	3	1.0
Straight shank	▲	12	20	100	40	1	0.2
	▲	25	25	120	40	2	0.6
	▲	36	32	180	40	3	1.0

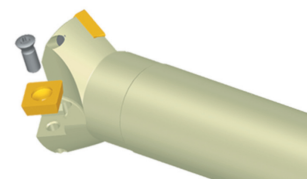
▲Stock available    △Make-to-order

Indexable milling tools

Chamfer milling tools

### Spare parts

Diameter ØD	Screw	Wrench
Ø12-Ø36	I43M5×11	WT20IS

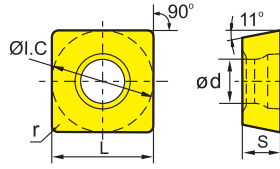


Tools code key → B24-B25

Grade selection guide → B19-B23

Technical data → B234-B240

Selection of inserts



		😊 Good working condition	😐 Normal working condition	😞 Bad working condition
Workpiece material	<b>P</b> Steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
	<b>M</b> Stainless steel	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊
	<b>K</b> Cast iron			😊😊😊😊😊😊😊😊
	<b>N</b> Non-ferrous metal			😊😊😊😊😊😊😊😊
	<b>S</b> Heat resistant alloy, Ti alloy			😊😊😊😊😊😊😊😊

Insert shape	Type	Basic dimensions(mm)					CVD Coating				PVD Coating				Cermet	Cemented carbide													
		ØI.C	L	r	S	Ød	YBC301	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YBS203	YBS303	YNG151	YNG151C	YC30S	YD051	YD101	YD201	
	<b>SPMT120408</b>	12.7	12.7	0.8	4.76	5.5	●		●									★											

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

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters		
			Cutting speed(m/min)	Feed speed(mm/z)	
<b>P</b>	Low-carbon steel, Soft steel	YBM251 YBC301	180(100-250)	0.25 (0.1-0.4)	
		YBM351 YBG302	150(100-200)	0.3 (0.1-0.5)	
		YC30S	120(80-150)	0.4 (0.1-0.5)	
	High-carbon steel, Alloy steel	YBM251 YBC301	160(100-220)	0.3 (0.1-0.4)	
		YBM351 YBG302	130(100-180)	0.3 (0.1-0.5)	
		YC30S	100(60-150)	0.4 (0.1-0.5)	
	Alloy tool steel	YBM251 YBC301	120(80-180)	0.3 (0.1-0.4)	
		YBM351 YBG302	100(80-150)	0.3 (0.1-0.5)	
		YC30S	80(60-120)	0.4 (0.1-0.5)	
<b>M</b>	Stainless steel	YBM251 YBC301	120(80—180)	0.3 (0.1-0.4)	
		YBM351 YBG302	100(80-150)	0.3 (0.1-0.5)	
		YC30S	80(60-120)	0.4 (0.1-0.5)	
<b>K</b>	Cast iron	180-250	YBG302	130(100-180)	0.4 (0.1-0.5)

Indexable milling tools

Chamfer milling tools