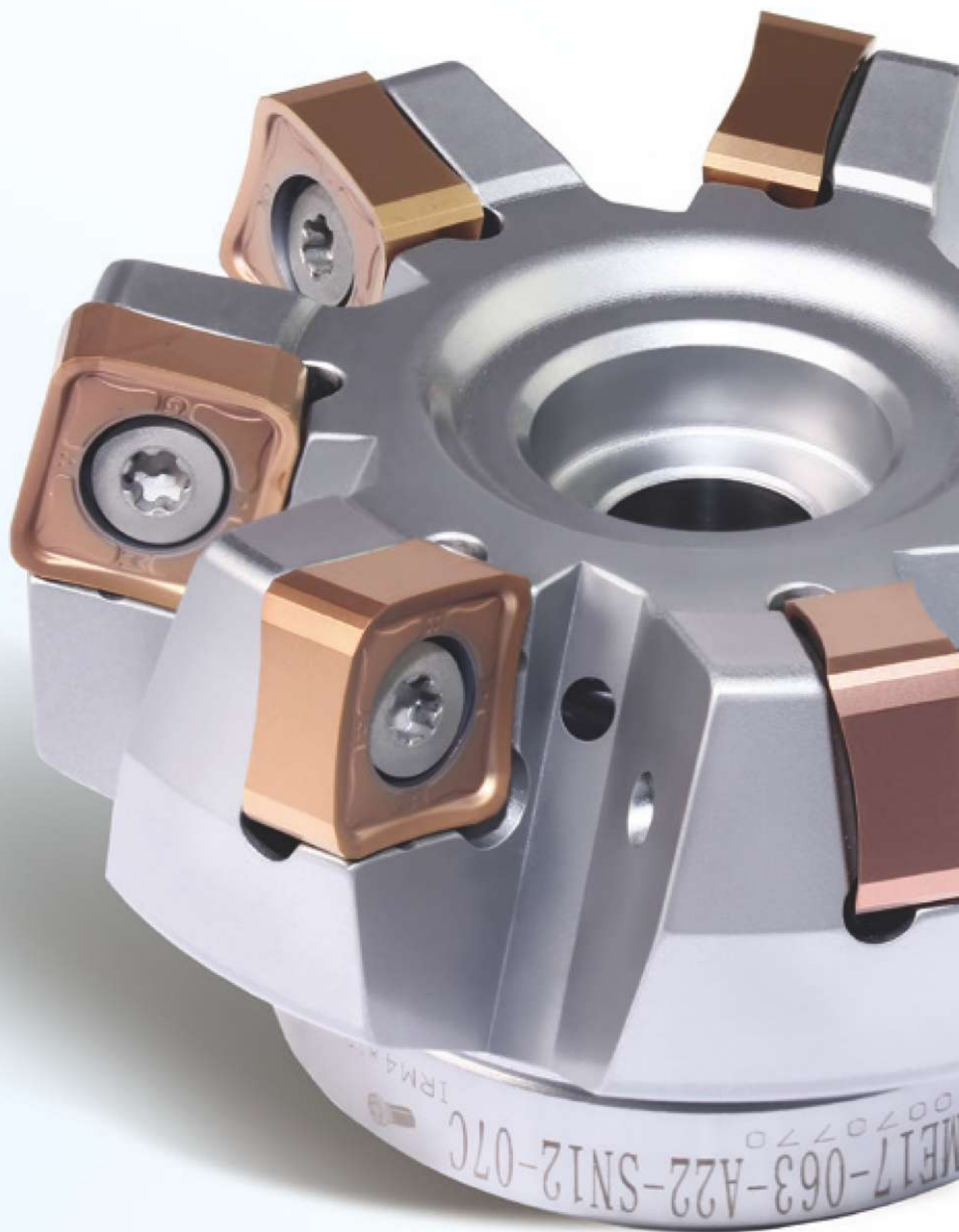






Milling Tools

Indexable milling tools

FMA11 series

With Outstanding Economy and High Performance



FMA12 series

High Performance Face Milling
with 16 Edges for Outstanding
Economy Milling



FMA14 series





High Efficiency and High Precision
General Purpose Milling Tools

FM*17 series





*New Generation of the
Tangential Milling Tools*
EMP09 series

EMP13 Series
Achieve High-quality 90° Square
Shoulder Processing



Milling



Indexable Milling Tools • B1-B276

Indexable milling tools B3-B229

Indexable milling inserts B230-B270

Technical information • B271-B276

Solid Carbide End Mills • B277-B680

Solid carbide end mills B277-B646

Technical information B647-B651

Interchangeable modular end mills • B654-B680



New champion in milling **YBC302**
Black Diamond Series Grade



How to choose the right indexable milling tools

■ Classification of milling tools

According to types of machining operation

Applicable machining operations

For face milling, chamfering, shoulder milling etc.

Product series

Type of machining

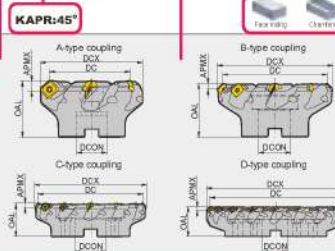
Workpiece materials

Approach angle

Structure and coupling size

Face milling tools

FMA01



Specification of tools

Type	Stock		Basic dimensions (mm)						Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DOON	OAL	APMX				
FMA01											
-050-A22-SE12-04	▲	△	50	61	22	48	5	4	A		0.3
-063-A22-SE12-05	▲	△	63	74	22	48	5	5	A		0.5
-080-A22-SE12-06	▲	△	80	91	27	58	5	6	A		1.2
-100-B32-SE12-07	▲	△	100	107	32	58	5	7	B		1.52
-125-B40-SE12-08	▲	△	125	136	40	63	5	8	B		2.8
-160-B40-SE12-07	▲	△	160	174	40	63	5	7	B		4.548
-160-B40-SE12-10	▲	△	160	170	40	63	5	10	B		4.92
-200-C60-SE12-08	▲	△	200	214	60	63	5	8	C		6.175
-200-C60-SE12-12	▲	△	200	210	60	63	5	12	C		7.6
-250-C60-SE12-10	▲	△	250	264	60	63	5	10	C		12.986
-250-C60-SE12-14	▲	△	250	260	60	63	5	14	C		13.5
-315-D60-SE12-18	▲	△	315	325	60	70	5	18	D		20.8
-100-B32-SE18-04	▲	△	100	120	32	63	10.4	4	B		2.22
-125-B40-SE18-05	▲	△	125	145	40	63	10.4	5	B		3.15
-160-B40-SE18-06	▲	△	160	180	40	63	10.4	6	B		5.01
-200-C60-SE18-08	▲	△	200	220	60	63	10.4	8	C		6.9
-250-C60-SE18-10	▲	△	250	270	60	63	10.4	10	C		13.1
-315-D60-SE18-12	▲	△	315	335	60	80	10.4	12	D		24.5

▲ Stock available △ Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Shim	Shim screw	Wrench	Wrench
Q09-Q315	SEET12□□	I00M2.5x12	S12B5	SM5x7XA	WT151S	WH35L
Q100-Q315	SEET18□□	I00M5x17	S18B5	SM8x9XA	WT201T	WH50L

Tools code key (E26-E27) Grade selection guide (E19-E22) Technical data (E271-E276)

Spare parts

Tools specification
Tool shape, dimensions,
stock, etcAssembly of tools and
spare parts

Tool shape

Tools code key, reference to grade
selection, technical data

Inserts specification

Insert shape, type, dimensions,
grade, stock, etc.

Selection of inserts

Insert shape	Type	Basic dimensions (mm)						CVD Coating		PVD Coating		Cemented carbide	Cermet
		L	IC	S	D1	SC	R	VC020	VC025	VC030	VC040		
SEET1273-DF	SEET1273-DF	13.4	13.4	3.97	4.1	2.95	—	★	—	—	—	—	—
	SEET1273-CF	13.4	13.4	3.97	4.1	2.95	—	—	—	★	—	—	—
	SEET1273-EF	13.4	13.4	3.97	4.1	2.95	—	—	—	—	★	—	—
	SEET1273-DM	13.4	13.4	3.97	4.1	2.95	—	★	—	—	—	—	—
SEET1876-EM	SEET1876-EM	18.0	18.0	6.1	5.5	1.5	—	—	—	—	—	—	—
	SEET1273-DM	13.4	13.4	3.97	4.1	2.95	—	—	—	★	—	—	—
	SEET1273-EM	13.4	13.4	3.97	4.1	2.95	—	—	—	—	★	—	—
	SEET1876-EM	18.0	18.0	6.1	5.5	1.5	—	—	—	—	—	—	—
SEET1273-DR	SEET1273-DR	13.4	13.4	3.97	4.1	2.95	—	★	—	—	—	—	—
	SEET1273-CR	13.4	13.4	3.97	4.1	2.95	—	—	—	★	—	—	—
	SEET1273-LH	13.4	13.4	3.97	4.1	2.95	—	—	—	—	—	—	—
	SEET1273-W	17.82	13.4	3.97	4.1	9.48	500	★	★	★	★	—	—
SEET1876-W	SEET1876-W	24.78	18.0	6.1	5.5	11.0	500	—	—	★	—	—	—

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

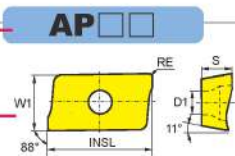
How to choose indexable milling inserts

■ Detailed information for indexable milling inserts

Listed according to insert shape

- Insert shape and size

- Insert shape



Select insert grade according to workpiece material and working condition.
Prior to selecting grade, please refer to the working condition suitable for the workpiece material.

😊 Good working condition: machine works well and stably. There are high requirements for dimensional precision of components and quality surface.

😊 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.

🙄 Bad working condition: machine works with bad stability. There are high requirements for high metal removal rate.

AP		Good working condition 😊					Normal working condition 😊					Bad working condition 😞											
Workpiece material		P	M	K	N	A																	
Workpiece material		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								
			INSL	W1	S	D1	RE	YBC302	YBM253	YBD162	YBD203	YBD252	YBG105	YBG202	YBG205	YBG320	YBG302	YBS203	YBS303	YNG151	YNG15/C	YD101	YD201
	APKT11T304-APL	12.24	6.6	3.6	2.8	0.4									★						○		
	APKT11T308-APL	12.24	6.6	3.6	2.8	0.8		★	★	★					★				○				
	APKT160408-APL	17.877	9.33	5.76	4.4	0.8		★	★	★					★				○				
	APKT160420-APL	17.877	9.33	5.76	4.4	2.0									★								
	APKT070204-APM	7.32	4.34	2.38	2	0.4		●	●						★								
	APKT11T304-APM	12.24	6.6	3.6	2.8	0.4		●							★								
	APKT11T308-APM	12.24	6.6	3.6	2.8	0.8		●	●						★			●	●				
	APKT11T312-APM	12.24	6.6	3.6	2.8	1.2			●						★								
	APKT11T316-APM	12.24	6.6	3.6	2.8	1.6									★								
	APKT11T320-APM	12.24	6.6	3.6	2.8	2.0		●							★								
	APKT160408-APM	17.877	9.33	5.76	4.4	0.8		●	●						★			●	●				
	APKT160416-APM	17.877	9.33	5.76	4.4	1.6		●	●						★			●					
	APKT160420-APM	17.877	9.33	5.76	4.4	2.0			●						★								
	APKT160424-APM	17.877	9.33	5.76	4.4	2.4									★								
	APKT160430-APM	17.877	9.33	5.76	4.4	3.0									★								
	APKT070204-APF	7.32	4.34	2.38	2	0.4		●	●							★							
	APKT11T304-APF	12.24	6.6	3.6	2.8	0.4		●	●						★								
	APKT11T308-APF	12.24	6.6	3.6	2.8	0.8		●	●						★			●	●				
	APKT160408-APF	17.877	9.33	5.76	4.4	0.8		●							★			●	●				
	APKT11T304-ALH	12.24	6.6	3.6	2.8	0.4																★	★
	APKT11T308-ALH	12.24	6.6	3.6	2.8	0.8																★	○
	APKT160408-ALH	17.877	9.33	5.76	4.4	0.8																★	★

Insert grade

- Insert shape

Insert dimension

Stock condition

- Insert type



MILLING

Indexable Milling Tools

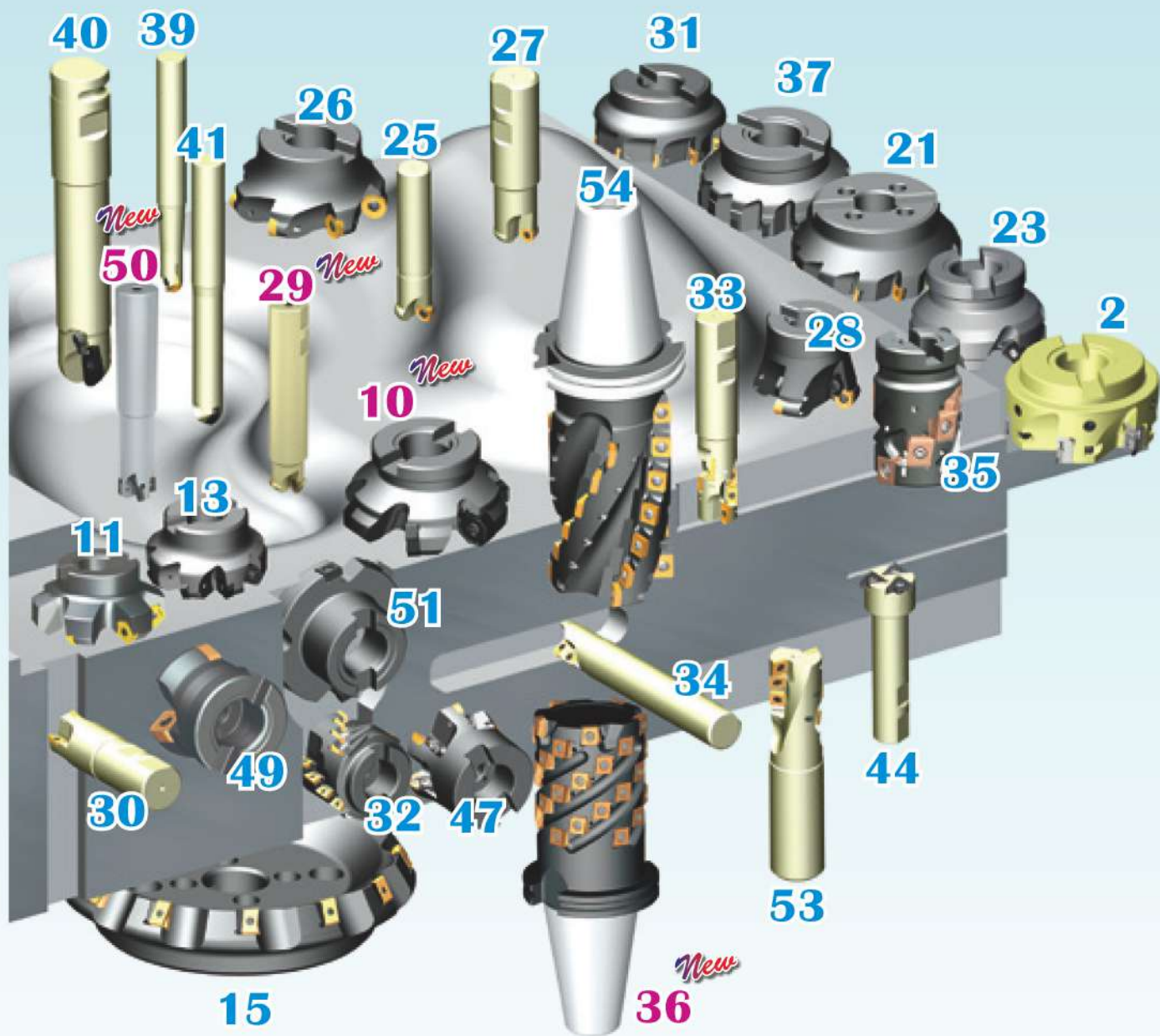
Indexable milling tools family	B6-B7
Indexable milling tools overview	B9-B17
Milling insert grades overview	B19
Grade classification for milling inserts	B20-B23
Indexable milling tools code key	B26-B27
Indexable milling tool series	B28-B227
High-speed High-precision milling tools series	B28-B32
Face milling tool series	B33-B115
Square shoulder milling tool series	B116-B149
Profile milling tool series	B150-B173
Side and face milling series	B174-B193
High feed rate milling tools series	B194-B213
Boring series	B214-B216
T-slot milling tool series	B217-B218
Helical end mill series	B219-B223
Chamfer milling tool series	B224-B227
Interchangeable milling cutter series	B228
Interchangeable tool holders	B229
Indexable milling inserts overview	B230-B233
Indexable milling inserts code key	B234-B235
Indexable milling inserts specification	B236-B270
Technical information	B271-B276



Indexable milling tools family



Number	Tool category	Page	Number	Tool category	Page	Number	Tool category	Page
1	AMA01	B29	11	FMA14	B63	21	FMP02	B89
2	AMP01	B31	12	FMA17	B65	22	FMP03	B94
3	FMA01	B33	13	FMD02(PN11)	B68	23	FMP12	B97
4	FMA03	B38	14	FMD02(HN09)	B73	24	FMP17	B100
5	FMA04(OFKT05□□)	B41	15	FMD03	B75	25	FMR01	B103
6	FMA04(ODH/MT06□□)	B44	16	FME02	B77	26	FMR02	B105
7	FMA07	B47	17	FME03	B79	27	FMR03	B108
8	FMA08	B51	18	FME04	B83	28	FMR04	B109
9	FMA11	B54	19	FME17	B85	29	FMR11	B112
10	FMA12	B59	20	FMP01	B87	30	EMP01	B116



Number	Tool category	Page	Number	Tool category	Page	Number	Tool category	Page
31	EMP02	B119	40	BMR03	B154	50	XMR12	B208
32	EMP03	B120	41	BMR04	B167	51	XMP01	B215
33	EMP04	B121	42	SMP01	B175	52	TMP01	B217
34	EMP05	B127	43	SMP03	B178	53	HMP01(Ø40-Ø50)	B219
35	EMP09	B135	44	SMP05	B182	54	HMP01(Ø50-Ø80)	B220
36	EMP09 BT	B140	45	SMP08	B184		HMP01 EC(Ø50-Ø80)	B221
	EMP09 JT	B140	46	SMP09	B189	55	CM□01	B224
37	EMP13	B145	47	XMR01(SDMT□□)	B194			
38	BMR01	B150	48	XMR01(WPGT□□)	B198			
39	BMR02	B152	49	XMR03	B206			

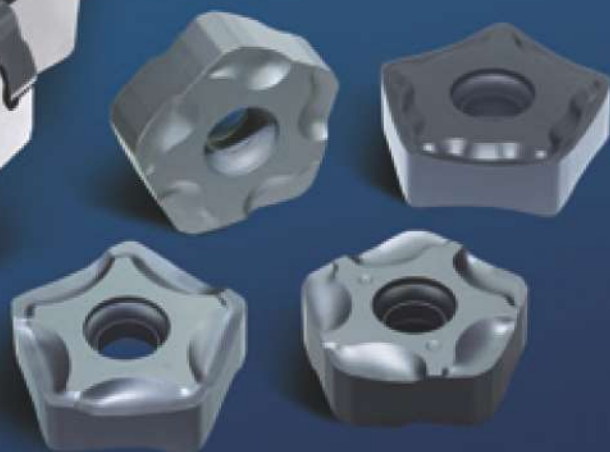


The image is a promotional graphic for the Whirlwind FMD02 Milling Tools Series. It features a large, detailed image of a milling tool at the top, showing its complex, multi-faceted design and the cutting edges. Below this, a blue curved banner contains the product name. At the bottom, there is a smaller image of a similar tool, but with a different internal structure, and several individual tool components arranged around it. The background is a dark blue gradient with some light blue and purple accents.

Whirlwind

FMD02

Milling Tools Series



Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
High-speed high-precision milling tools	AMA01 	KAPR=45° $a_{pmax}=6.6$	SEHT12T3AFFN-AL	High-speed, high-precision milling of aluminum alloy and cast iron	• Tool diameter Ø50-Ø500 • High-strength, lightweight aluminum alloy tool body • Unique tool clamping design • Elastic runout adjustment structure, high-pressure internal cooling, combined with high-precision cutting inserts, to achieve high-precision, efficient, and stable processing of various materials
		KAPR=45° $a_{pmax}=2.0$	SEHT12T308AFFN-CBN		
		KAPR=45° $a_{pmax}=2.5$	SEHT12T308AFFN-PCD		
	AMP01 	KAPR=90° $a_{pmax}=12$	APHT12T304PPFR-AL		
		KAPR=90° $a_{pmax}=1.0$	APHT12T304-W		
		KAPR=90° $a_{pmax}=2.0$	APHT12T304PPFR-CBN		
		KAPR=90° $a_{pmax}=3.0$	APHT12T304PPFR-PCD		
Face milling tools	FMA01 	KAPR=45° $a_{pmax}=6.0$	SEET12T3-DF/DM/DR SEET12T3-CF/CM/CR SEET12T3-EF/EM SEET12T3-LH/W	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	• Tool diameter Ø50-Ø315 • Large lead angle design for quicker cutting • Compatible with a variety of slot inserts, widely applicable • Compatible with wipers to improve surface quality
		KAPR=45° $a_{pmax}=10.4$	SEET18T6-DM/EM/W		
	FMA03 	KAPR=45° $a_{pmax}=5.5$	SE□□1203A□□□□	Face milling of steel, stainless steel, and cast iron	• Tool diameter Ø80-Ø315 • Large lead angle design for quicker cutting • Block compression structure, good vibration resistance
		KAPR=45° $a_{pmax}=7.5$	SE□□1504A□□□□		
	FMA04 	KAPR=45° $a_{pmax}=3.5$	OFKT05T3-DF/DM OFKT05T3-LH	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	• Tool diameter Ø50-Ø160 • 8-flute high-economic milling cutter • High precision with screw compression
		KAPR=45° $a_{pmax}=4.0$	ODHT060508-GL/GM/ GH/LH ODMT060512-GM	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	• Tool diameter Ø50-Ø160 • 8-flute high-economic milling cutter • High precision with screw compression
	FMA07 	KAPR=45° $a_{pmax}=4.0$	ONHU060408-PF/PM/W	Common face milling of steel and cast iron	• Tool diameter Ø25-Ø50 • 16-flute high-economic milling cutter
		KAPR=45° $a_{pmax}=5.0$	ONHU08T508-PF/PM/W	Common face milling of steel and cast iron	• Tool diameter Ø50-Ø315 • 16-flute high-economic milling cutter

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Face milling tools	FMA08 <i>New</i>  B51	KAPR=45° $a_{pmax}=1.0$	ONHU060408-CM XEEC120904	Precision face milling of cast iron components	- Tool diameter Ø100-Ø315 - Precision face milling cutter with adjustable dedicated wipers for strong operability - Double-sided 16-flute inserts, economically efficient, compatible with FMA07 series - Preferred tool for broad surface precision machining of K-class materials
	FMA11  B54-55	KAPR=45° $a_{pmax}=5.5$ KAPR=45° $a_{pmax}=7.0$ KAPR=45° $a_{pmax}=9.0$	SNEG1205ANR-GM/HGR/GR/W SNEG1506ANR-GM/HGR/GR/W SNEG1907ANR-HGR/GR	Face milling of steel, alloy steel, stainless steel, cast iron, and high-temperature alloys	- Tool diameter Ø63-Ø315 - Double-sided slot milling inserts with 8 cutting edges, economically efficient - Large lead angle design for inserts, unique chipbreaker structure, low power consumption during machining - Double-negative structure and ultra-thick inserts ensure higher tool safety and excellent impact resistance, suitable for deep cutting operations - Inserts have wiper edges, excellent machining performance
	FMA12 <i>New</i>  B59-60	KAPR=45° $a_{pmax}=4.0$ KAPR=45° $a_{pmax}=5.5$	ONHU0604□□ANN-GL/GM/GH ONMU0604□□-GH/GM ONMU09□□□□-GM/GH ONHU09□□□□ANN-GM/GH/GL	Face milling of steel, alloy steel, stainless steel, cast iron, and high-temperature alloys	- Tool diameter Ø50-Ø315 - Unique 3D spiral insert design with 16 cutting edges - Double-negative structure of the tool body, combined with the spiral insert design, achieves a positive axial lead angle, reducing cutting forces and aiding chip evacuation
	FMA14  B63	KAPR=45° $a_{pmax}=5.5$	PNEG110512-GL PNEG110530-GM PNEG110530-GH	Common face milling of steel, stainless steel, and cast iron	- Tool diameter Ø50-Ø315 10-flute high-economic milling cutter 45° entering angle balance design - Strong vibration resistance ensures good machining surface quality
	FMA17 <i>New</i>  B65	KAPR=45° $a_{pmax}=6.5$	SNGX1205ANN-GL/GM/GH/LH/W SNMX1205ANN-GM SNMX120512-GL/GM/GH	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	- Tool diameter Ø50-Ø400 - Double-sided slot milling inserts with 8 cutting edges, economically efficient - Left and right use the same inserts, with the cutter divided into sparse and dense teeth. - Inserts have wiper edges, high machining surface quality - Various chipbreakers with different coating materials, widely applicable
	FMD02  B68-69  B73	KAPR=67° $a_{pmax}=5.0$ KAPR=67° $a_{pmax}=7.5$ KAPR=67° $a_{pmax}=6.5$ KAPR=55° $a_{pmax}=6.0$	PNEG110512R/L-CF/CM/CR PNEG110512R/L-PF/PM/PR PNEG110512-KH/KM/KL HNEX090512-DF/DM HNEX090512-DR	Common face milling of steel and cast iron Common face milling of cast iron	- Tool diameter Ø50-Ø315 10-flute high-economic milling cutter - Tool diameter Ø80-Ø315 12-flute high-economic milling cutter - Block compression structure, convenient for tool insert installation and removal

Operating pattern	Series/Shape	Approach angle / Max. cutting depth	Applicable insert	Application overview	Features
Face milling tools	FMD03  B75	KAPR=60° $a_{pmax}=12.0$	LNKT2007DN-ZR	Steel, alloy steel, stainless steel, cast iron heavy face milling	• Tool diameter Ø125-Ø400 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form
		KAPR=60° $a_{pmax}=17.0$	LNKT2510-ZR		
	FME02  B77	KAPR=75° $a_{pmax}=6.0$	SPKW1204EDFR SPKW1204EDSR SPKT1204EDR	Common face milling of steel, alloy steel, and cast iron	• Tool diameter Ø50-Ø125 • 75° entering angle general face milling cutter • Compatible with different chipbreaker inserts, widely applicable
	FME03  B79	KAPR=75° $a_{pmax}=6.0$	SPON1203(1504)ED□□ SPOR1203(1504)ED□□ SPEX1203□□-1	Common face milling of steel, alloy steel, and cast iron	• Tool diameter Ø80-Ø315 • 75° entering angle general face milling cutter • Block compression structure, convenient for tool insert installation and removal
		KAPR=75° $a_{pmax}=8.0$	SPON1504ED□□ SPOR1504ED□□ SPEX1504□□-1		
	FME04  B83	KAPR=75° $a_{pmax}=12.0$	LNKT1506EN-ZR	Steel, alloy steel heavy face milling	• Tool diameter Ø125-Ø315 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form
	FME17  B85	KAPR=75° $a_{pmax}=8.0$	SNGX1205ENN-GL/GM/GH/W SNMX120512-GL/GM/GH	Steel, alloy steel, stainless steel, cast iron, high-temperature alloy face milling	• Tool diameter Ø50-Ø400 • Double-sided slot milling inserts, 8 cutting edges, economically efficient • Left and right use the same inserts, with the cutter divided into sparse and dense teeth. • Inserts have wiper edges, high machining surface quality • Various chipbreakers with different coating materials • Widely applicable
	FMP01  B87	KAPR=90° $a_{pmax}=18.0$	TPKN2204PD□ TPKN2204PDF□ TPKN2204PDT□ TPMR2204PDS□	Face milling of steel, alloy steel, cast iron	• Tool diameter Ø80-Ø315 • 90° entering angle, suitable for square shoulder milling • Block structure for faster tool insert installation and removal
	FMP02  B89	KAPR=90° $a_{pmax}=6.7$	SEET09T308PER-APF/APM/APR	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloy	• Tool diameter Ø40-Ø315 • 90° entering angle, suitable for square shoulder milling • Sparse teeth, dense teeth, ultra-dense teeth design • Edge precision ground inserts, high workpiece surface quality • Correct chipbreaker and grade matching, suitable for finishing, semi-finishing, and roughing
		KAPR=90° $a_{pmax}=10.8$	SEET120308PER-APF/APM/APR SEET120308-LH		
	FMP03  B94	KAPR=90° $a_{pmax}=13.0$	LNKT1506EN-ZR	Steel, alloy steel heavy face milling	• Tool diameter Ø125-Ø315 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form
		KAPR=90° $a_{pmax}=17.0$	LNKT2007DN-ZR		
		KAPR=90° $a_{pmax}=22.0$	LNKT2510-ZR		

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Face milling tools	FMP12  B97	KAPR=90° $a_{pmax}=5.7$	WNHU0604□□PNR-GM WNMU060408PNN-GM	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloy face milling	• Tool diameter Ø50-Ø315 • 90° entering angle can be used for shoulder milling, face milling, slot milling, etc.; 6-flute double-sided groove milling cutter, equipped with wiper edge, suitable for high-feed processing; tool body with double negative angles, combined with unique insert structure to achieve double positive tool angle, reducing cutting force
	 B98	KAPR=90° $a_{pmax}=7.7$	WNHU0806□□PNR-GM WNMU080608PNN-GM WNHU080616PNR-LH		• Tool diameter Ø25-Ø50 • 90° entering angle can be used for shoulder milling, face milling, slot milling, etc.; 6-flute double-sided groove milling cutter, equipped with wiper edge, suitable for high-feed processing; tool body with double negative angles, combined with unique insert structure to achieve double positive tool angle, reducing cutting force
	 B98	KAPR=90° $a_{pmax}=5.7$	WNHU0604□□PNR-GM		• Tool diameter Ø25-Ø50 • 90° entering angle can be used for shoulder milling, face milling, slot milling, etc.; 6-flute double-sided groove milling cutter, equipped with wiper edge, suitable for high-feed processing; tool body with double negative angles, combined with unique insert structure to achieve double positive tool angle, reducing cutting force
	FMP17  B100-101	KAPR=88° $a_{pmax}=10.5$	SNGX1205PNN-GL/GM/GH/W SNMX120512-GL/GM/GH SNCU120420-W4	Steel, alloy steel, stainless steel, cast iron, and high-temperature alloy face milling.	• Tool diameter Ø50-Ø400 • 88° entering angle, strong tool functionality • Double-sided groove milling cutter, 8 cutting edges, good economy • Left and right use the same inserts, with the cutter divided into sparse and dense teeth. • Multiple groove types combined with various coating materials, widely used
	FMR01  B103	$a_{pmax}=5.0$	RCKT10T3MO-DM	Steel, alloy steel, stainless steel, cast iron, and difficult-to-machine material type profile milling	• Tool diameter Ø25-Ø50 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw clamping
	 B103	$a_{pmax}=6.0$	RCKT1204MO-DM/DR/ER/NM		
	FMR02  B105	$a_{pmax}=6.0$	RCKT1204MO-DM/DR/ER/NM	Steel, alloy steel, stainless steel, cast iron, hardened steel, and difficult-to-machine materials, profile milling, face milling	• Tool diameter Ø50-Ø160 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw tightening
	 B105	$a_{pmax}=8.0$	RCKT1606MO-DM/DR/ER/NM		
	 B105	$a_{pmax}=10.0$	RCKT2006MO-DR/ER		
	FMR03  B108	$a_{pmax}=4.0$	RDKW0803MO	Steel, alloy steel, stainless steel, cast iron, and difficult-to-machine material type profile milling	• Tool diameter Ø16-Ø50 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw tightening
	 B108	$a_{pmax}=5.0$	RDKW10T3MO		
	 B108	$a_{pmax}=6.0$	RDKW1204MO		
	FMR04  B109	$a_{pmax}=6.0$	RDKW1204MO	Steel, alloy steel, stainless steel, cast iron profile milling, face milling	• Tool diameter Ø50-Ø160 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds
	 B109	$a_{pmax}=8.0$	RDKW1605MO		
	 B109	$a_{pmax}=10.0$	RDKW2006MO		
	FMR11  B112	$a_{pmax}=5.0$	RQMW10T3MO-H RQMT10T3MO-M RQMT10T3MO-MM	Steel, alloy steel, stainless steel, cast iron, hardened steel and difficult-to-machine materials, cavity copy milling, face milling	• Tool diameter Ø20-Ø40 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy
	 B112	$a_{pmax}=6.0$	RQMW1204MO-H RQMT1204MO-M RQMT1204MO-MM		• Tool diameter Ø40-Ø80 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy
	 B113	$a_{pmax}=5.0$	RQMW10T3MO-H RQMT10T3MO-M RQMT10T3MO-MM		• Tool diameter Ø40-Ø80 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy
	 B113	$a_{pmax}=6.0$	RQMW1204MO-H RQMT1204MO-M RQMT1204MO-MM		• Tool diameter Ø40-Ø80 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Square shoulder milling tools	EMP01  B116-118	KAPR=90° $a_{pmax}=6.0$	APKT070204-APF/APM	Steel, alloy steel, stainless steel, difficult-to-machine materials, cast iron, aluminum alloy multi-functional milling	- Two interface forms of straight shank and end mill shank, tool diameter Ø10-Ø63 90° entering angle, suitable for shoulder milling, slot milling, ramp milling, etc - With wipers, also suitable for flat milling - The insert is a 3D helical edge, with low cutting resistance
		KAPR=90° $a_{pmax}=10.5$	APKT11T3□□-APF/APM APKT11T3□□-ALH		
		KAPR=90° $a_{pmax}=15.5$	APKT160408-APF/APM APKT160408-ALH		
	EMP02  B119	KAPR=90° $a_{pmax}=11.5$	APKT11T3□□-APF/APM/APL APKT11T3□□-ALH	Steel, alloy steel, stainless steel, difficult-to-machine materials, cast iron, and aluminum alloy face milling	- Tool diameter Ø50-Ø160 90° entering angle, suitable for shoulder milling - Equipped with wipers, also suitable for flat milling - The insert is a 3D helical edge, with low cutting resistance
		KAPR=90° $a_{pmax}=15.5$	APKT160408-APF/APM/APL APKT160408-ALH		
	EMP03  B120	KAPR=90° $a_{pmax}=39.0$	APKT11T3□□-APF/APM/APL APKT11T3□□-ALH	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, difficult-to-machine materials, and deep milling processing	- Tool diameter Ø50-Ø100 - Spiral vertical milling cutter with positive spiral angle, good chip removal - Used for side milling and slotting - With dense teeth structure for high processing efficiency
			APKT16-APF/APM/APL		
	EMP04  B121	KAPR=90° $a_{pmax}=29.4\sim58.0$	APKT11T3□□-APF/APM APKT11T3□□-ALH	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, difficult-to-machine materials, and deep milling processing	- Tool diameter Ø20-Ø40 - Spiral vertical milling cutter with positive spiral angle, good chip removal - Used for side milling and slotting - With dense teeth structure for high processing efficiency
	EMP05  B127  B128	KAPR=90° $a_{pmax}=20\sim40$	ADKT□□-GM	Drilling, milling, and multi-functional processing of steel, alloy steel, stainless steel, cast iron materials	- Tool diameter Ø16-Ø50 - Tool functions include drilling, slotting, shoulder milling - Slot milling, and ramp milling
	EMP09  B135  B136-137  B138  B139	KAPR=90° $a_{pmax}=8.0$	LNKT0804□□PNR-GM/GL LNMT080404PNR-GM	Shoulder and face milling of steel, alloy steel, stainless steel, and cast iron	- Tool diameter Ø25-Ø40 - Two interface forms: straight shank and end mill shank 90° entering angle, suitable for shoulder milling, slot milling, etc. Vertical installation of the insert, able to withstand greater cutting force
		KAPR=90° $a_{pmax}=11.5$	LNKT1206□□PNR-GM/GL LNMT120608PNR-GM		
		KAPR=90° $a_{pmax}=8.0$	LNKT0804□□PNR-GM/GL LNMT080404PNR-GM	Face milling of steel, alloy steel, stainless steel, cast iron	- Tool diameter Ø40-Ø125 90° entering angle, suitable for shoulder milling, face milling vertical installation of the insert, good tool rigidity
		KAPR=90° $a_{pmax}=11.5$	LNKT1206□□PNR-GM/GL LNMT120608PNR-GM		
		KAPR=90° $a_{pmax}=15$	LNKT1607□□PNR-GM/GL LNMT160708PNR-GM		
		KAPR=90° $a_{pmax}=33\sim63$	LNKT1206□□PNR-GM/GL LNMT120608PNR-GM	Deep milling of steel, alloy steel, stainless steel, cast iron	- Tool diameter Ø40-Ø80 - Used for side milling and slotting - Spiral cutting edge design, swift cutting
		KAPR=90° $a_{pmax}=30\sim53$	LNKT0804□□PNR-GM/GL LNMT080404PNR-GM LNKT1206□□PNR-GM/GL LNMT120608PNR-GM		

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Square shoulder milling tools	EMP09 BT <i>New</i>  B140	KAPR=90° $a_{pmax}=63\sim125$	LNKT1206□□PNR-GM/ GL LNMT120608PNR-GM	Deep milling of steel, alloy steel, stainless steel, cast iron	• Tool diameter $\varnothing 50\text{--}\varnothing 80$ • 90° entering angle, suitable for shoulder milling, face milling, slot milling, etc • Spiral cutting edge design, large rake angle, quick and smooth chip removal • Vertical installation of the insert, good tool rigidity, more stable processing
	EMP09 JT <i>New</i>  B140	KAPR=90° $a_{pmax}=85\sim125$			
	EMP13  B145	KAPR=90° $a_{pmax}=11.2$	AN□X1105□□PNR-GM/LH	Steel, alloy steel, cast iron, aluminum alloy multifunctional processing	• Tool diameter $\varnothing 25\text{--}\varnothing 160$ • Thickened insert design, combined with a double negative structure body, greatly enhances impact resistance while achieving double positive cutting angles and reducing cutting resistance • Reasonably designed, high-precision controlled cutting edge, capable of achieving high-quality 90° shoulder processing
	 B146	KAPR=90° $a_{pmax}=14.5$	AN□X1506□□PNR-GM/LH		
	 B147	KAPR=90° $a_{pmax}=43\sim64$	AN□X1105□□PNR-GM/LH		
	 B147	KAPR=90° $a_{pmax}=43\sim53$	AN□X1506□□PNR-GM/LH		
Profile milling tools	BMR01  B150	Refer to tool specifications for cutting depth details	ZDET□□CYR□□ ZPNT2204CYR□□ SPMT060304 SDMT□□	Steel, alloy steel, stainless steel, cast iron profile milling	• Tool diameter $\varnothing 20\text{--}\varnothing 63$ • Best suited for roughing of large molds • Arc edge with three-edge insert, economical
	BMR02  B152		ROHX□□	Steel, alloy steel, stainless steel, cast iron profile milling	• Tool diameter $\varnothing 12\text{--}\varnothing 20$ • Used for profile finishing • High precision and stable installation • Double-ended insert, economical
	BMR03  B154		XPHT□□R□□-GM	Steel, alloy steel, stainless steel, cast iron profile milling	• Tool diameter $\varnothing 16\text{--}\varnothing 50$ • Best suited for roughing of molds • Utilizes 3D complex groove insert, high arc accuracy • High rigidity cutter body
	 B155				
	 B156				
	 B157				

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth	Applicable insert	Application overview	Features
Profile milling tools	BMR04  B167  B168	Refer to tool specifications for cutting depth details	ZOHX□□	Steel, alloy steel, stainless steel, cast iron profile milling	• Tool diameter Ø12-Ø32 • High precision tool, used for profile finishing • Two groove types, suitable for different working conditions • High installation precision, good stability
	SMP01  B175  B176		XSEQ12□□	Steel, alloy steel, stainless steel, cast iron slot milling	• Tool diameter Ø63-Ø250 • Available in both key and core shaft connections • Slot width series: 4, 5, 6, 7, 8mm
Side and face milling tools	SMP03  B178  B179		MPHT□□	Steel, alloy steel, stainless steel, cast iron slot milling	• Tool diameter Ø80-Ø200 • Available in both key and core shaft connections • Slot width series: 8, 10, 12, 16, 18, 20mm
	SMP05  B182		QC16L□□ QC22L□□	Steel, alloy steel, stainless steel, cast iron grooving	• Tool diameter Ø25-Ø44
	SMP08 <i>New</i>  B184-185  B186-187		LNET10□□□□-GM LNET12□□□□-GM	Steel, alloy steel, stainless steel, cast iron slot milling	• Tool diameter Ø63-Ø250 • The positioning structure of the cutter body is optimized and the positioning is reliable. The insert adopts a vertical mounting structure, which has excellent impact resistance and makes cutting faster • The size of the tool tip arc can be customized according to different cutting widths and diameters. The optimized design of the tool body is matched with a high-precision insert to process the groove bottom surface with good quality and high precision • Tool diameter Ø63-Ø250 • Optimized design of cutter body positioning structure, reliable positioning • The insert adopts a vertical structure, which has excellent impact resistance and makes cutting faster • The size of the tool tip arc can be customized according to different cutting widths and diameters • The optimized design of the cutter body is matched with a high-precision insert to process the groove bottom with good surface quality and high precision

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Side and face milling tools	SMP09 <i>New</i>  B189-190  B191-192		LNGX1005□□-GM LNGX1407□□-GM	Steel, alloy steel, stainless steel, cast iron slot milling	• Tool diameter Ø80-Ø250 • Optimized design for tool body positioning, reliable positioning • Insert adopts vertical installation structure, excellent impact resistance, with a large front angle design, effectively reducing cutting forces, ensuring swift cutting • Tools and inserts can be customized to meet various width and arc size groove processing needs
					• Tool diameter Ø80-Ø315 • Optimized design for tool body positioning, reliable positioning • Insert adopts vertical installation structure, excellent impact resistance, with a large front angle design, effectively reducing cutting forces, ensuring swift cutting • Tools and inserts can be customized to meet various width and arc size groove processing needs
Special milling (high feed) tools	XMR01  B194  B195  B198  B199	Refer to tool specifications for cutting depth details	SDMT□□-DM/PM/NM	profile milling and face milling for steel, alloy steel, stainless steel, cast iron, and difficult-to-machine materials	• Tool diameter Ø20-Ø160 • Available in straight shank and collet chuck interfaces • Effectively dissipates radial cutting forces, enabling high feed cutting • Suitable for plunge milling operations • Double clamping for secure and reliable operation
	XMR03  B206		WPGT□□ZSR WPGT□□ZSR-PM	profile milling and face milling for steel, alloy steel, stainless steel, and cast iron materials	• Tool diameter Ø20-Ø160 • Available in straight shank and collet chuck interfaces • Effectively dissipates radial cutting forces, enabling high feed cutting • Double clamping for secure and reliable operation
	XMR12 <i>New</i>  B208  B209		ENMX120608-GM ENMX1206XR-GM ENMX1206R□-GM	Cavity milling and face milling of steel and alloy steel materials	• Tool Diameter Ø16-Ø63 • Three interface forms: straight handle, sleeve type and interchangeable type • The type of the assembly insert determines the function of the tool, enabling square shoulders, large feeds, profiling, etc • The insert adopts double-sided chipbreaker design and is extremely economical

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Boring and milling tools	XMP01  B215	KAPR=90° a _{pmax} =18~36	CNE121006A/B	Flat milling, side milling, slot milling, and hole milling for steel, alloy steel, and cast iron	• Tool diameter Ø80-Ø400 • 90° entering angle, with insert vertical installation structure, axial and radial cutting widths adjustable as required. Open chip groove design ensures smooth chip removal. Large bottom insert width, strong ability for spiral interpolation milling. Both types of groove insert are interchangeable, suitable for different machining conditions
	TMP01  B217	KAPR=90° a _{pmax} =9~28	MPHT□□	T-slot machining on cast iron workbenches	• Tool diameter Ø21-Ø60 • Machining nominal sizes of T-slots 12, 14, 18, 22, 28, 36 • Uses 86° diamond-shaped positive angle insert
Helical end mills	HMP01  B219	KAPR=90° a _{pmax} =55	APKT150412-PM/KM SPMT120408-PM/KM	Deep milling for steel, alloy steel, and cast iron	• Tool diameter Ø40, Ø80 • Uneven teeth pitch structure reduces vibration • Integral structure provides good rigidity; interchangeable head structure offers good economy
	 B220	KAPR=90° a _{pmax} =74~144			
	HMP01 EC  B221	KAPR=90° a _{pmax} =74~144			
Chamfering tools	CMZ01  B224	KAPR=30°	SPMT120408	Chamfering for steel, alloy steel, stainless steel, and cast iron	• Tool diameters Ø12, Ø25, Ø32, Ø36 • Also capable of small flat milling operations
	CMA01  B225	KAPR=45°		Chamfering for steel, alloy steel, stainless steel, and cast iron	• Tool diameters Ø12, Ø25, Ø32, Ø36 • Also capable of small flat milling operations
	CMD01  B226	KAPR=60°			

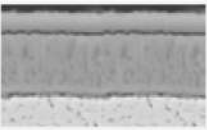
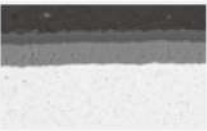
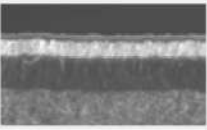
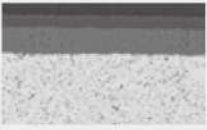


***Profile Milling Tool
Series***

Milling insert grades overview

Workpiece material	ISO code	Coating		Cermet	Cemented carbide	PCBN and PCD material
		CVD	PVD			
P Steel	P01					
	P10		YBG202 YBG205 YB9320	YNG151 YNG151C		
	P20	YBC302 YBM253				
	P30		YBG302			
	P40					
M Stainless steel	M01					
	M10	YBC302 YBM253	YBG202 YBG205 YB9320	YNG151 YNG151C		
	M20					
	M30		YBG302			
	M40					
K Cast iron	K01					BK1021 BK1041
	K10	YBD152 YBD203 YBD252	YBG105	YNG151 YNG151C	YD051	BK2531
	K20				YD201	
	K30					
	K40					
N Non ferrous metal	N01					DN1021
	N10				YD101	
	N20				YD201	
	N30					
S Heat resistant alloy & Ti alloy	S01					
	S10		YBG202 YBS203			
	S20		YBS303			
	S30					
H Super hard material	H01					
	H10					
	H20					
	H30					

Coated Cemented Carbide CVD

Grade	Coating structure	Micro-structure	ISO applied range	Application field
YBC302	Combination of high toughness and high strength substrate with TiCN, thin Al ₂ O ₃ , and TiN coatings		P15~35	Suitable for rough milling and semi-finish milling of P and M class materials with hardness up to HRC45
			M10~30	
YBM253	Combination of high toughness gradient alloy substrate with TiCN and ultrafine Al ₂ O ₃ coatings		M10~30	Suitable for semi-finish milling and rough milling of P and M class materials
YBD152	Excellent combination of high wear-resistant substrate with TiCN and thick Al ₂ O ₃ coatings		K05~25	Suitable for semi-finish milling and finish milling of K class materials
YBD203	Substrate with good toughness and wear resistance combined with high toughness and high strength TiCN and Al ₂ O ₃ coatings		K10~30	Suitable for general milling of K class materials such as ductile iron and malleable iron
YBD252	Substrate with high toughness combined with TiCN and thick Al ₂ O ₃ coatings		K15~35	Suitable for rough milling and semi-finish milling of K class materials

Application case

Component shape



Machine and cooling

CNC gantry milling machine, wet processing

Vertical machining center, dry processing

Horizontal machining center, dry processing

Workpiece material and hardness

Cast stainless steel HB220-260

Forging steel No. 45 HB240-270

HT250 HB220

Type of machining

Milling flat surfaces

Milling flat surfaces

Milling flat surfaces

Applicable tool

FMA04-160-C40-OD06-10

FMA01-125-B40-SE12-08

FMP02-100-B32-SE12-07

Applicable insert

YBM253/ODHT060512-GM

YBC302/SEET12T3-DR

YBD252/SEET120308PER-APM

Cutting parameters

Vc=120m/min, fz=0.15mm/z, a_p=2mmVc=212m/min, fz=0.2mm/z, a_p=3mmVc=160m/min, fz=0.2mm/z, a_p=1.5mm

Application results



Grade	Coating structure	ISO applied range	Application field
YBG105	Fine-grain alloy substrate + nano coating	K05~K20	Suitable for precision milling and semi-finish milling of K class materials
YBG202	Substrate with excellent deformation resistance + nano coating	P10~30	A highly versatile PVD grade, widely applicable to semi-finish milling of P, M, and S class materials
		M10~30	
		S05~20	
YBG205	Ultrafine carbide substrate + nano coating	P10~30	Suitable for precision milling and semi-finish milling of P and M class materials
		M10~30	
YBG302	Substrate with good toughness and strength + nano coating	P25~40	Suitable for rough milling of P and M class materials
		M25~40	
YB9320	High-toughness substrate + TiAlN-based nano-multilayer coating	P10~30	A highly versatile PVD grade, suitable for precision and semi-finish milling of P and M materials
		M10~30	
YBS203	Substrate material with excellent deformation resistance + nano coating	S10~20	A general grade for S-class machining, suitable for milling S-class difficult-to-machine materials
YBS303	Substrate with good toughness and strength + nano coating	S20~30	Suitable for milling titanium alloy materials
YBH053	Ultrafine carbide substrate + TiAlN-based nano-multilayer coating	H05~20	Suitable for precision milling of H-class hardened materials

Application case

Component shape



Machine and cooling

Machining center, dry cutting

Gantry milling machine, dry cutting

Workpiece material and hardness

Ductile cast iron HB 220

7CrSiMoV HRC25

Type of machining

Milling flat surfaces

Milling cavity

Applicable tool

EMP02-050-A22-AP11-06

BMR03-050-MT5-M

Applicable insert

YBG105/APKT11T308-APM

YBG302/XPHT50R2507- GM

Cutting parameters

Vc=235m/min, fz=0.15mm/z, ap=1~3mm

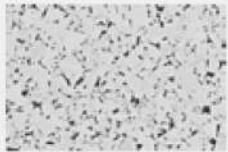
Vc=120m/min, fz=0.25mm/z, ap=8mm

Application results



Grade classification for milling inserts

Cemented Carbide

Grade	Coating structure	ISO applied range	Application field
YD101		N05~25	Suitable for finish milling and semi-finish milling of N-class materials
YD201		K15~35	Suitable for semi-finish milling and rough milling of K-class materials, as well as rough milling of N-class materials
		N15~30	

Application case

Component shape



Machine and cooling

Vertical machining center, wet processing

Gantry milling machine, wet processing

Gantry milling machine, dry cutting

Workpiece material and hardness

Aluminum alloy HB100

40CrMnMo HB240

HT250 HB220

Type of machining

Milling flat surfaces

Milling flat surfaces

Milling flat surfaces

Applicable tool

FMA01-100-B32-SE12-07

FMP01-100-B32-TP22-06

FME03-160-B40-SP15-10

Applicable insert

YD101/SEET12T3-LH

YD201/TPKN2204PDR

YD201/SPKN1504EDTR

Cutting parameters

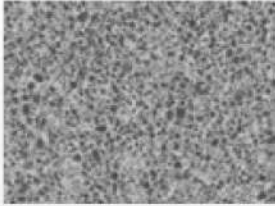
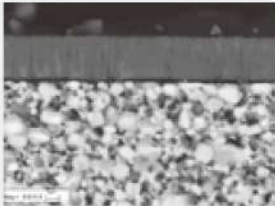
Vc=300-350m/min, $a_p=1\sim2\text{mm}$,
fz=0.2mm/zVc=170m/min, $a_p=5\sim7\text{mm}$,
fz=0.3mm/zVc=100-130m/min, $a_p=7\text{mm}$,
fz=0.35mm/z

Application results



Grade classification for milling inserts

Cermet

Grade	Coating structure	ISO applied range	Application field
YNG151		P05~20	Widely used in finish milling of P, M, and K-class materials
		M05~20	
		K05~20	
YNG151C		P01~20	Widely used in finish milling of P, M, and K-class materials
		M01~20	
		K01~20	

Application case

Component shape



Machine and cooling

Machining center, dry cutting

Machining center, dry cutting

Workpiece material and hardness

Grade 45 steel HB 170~220

NAK80 HRC42~48

Type of machining

Finish milling flat surfaces

Finish milling flat surfaces

Applicable tool

FMA03-160-B40-SE12-08

FME03-160-B40-SP12-10

Applicable insert

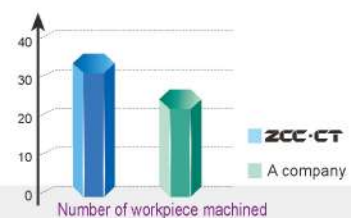
YNG151/SEEN1203AFTN

YNG151C/SPEN1203EDER

Cutting parameters

 $V_c=400\text{m/min}$, $f_z=0.1\text{mm/z}$, $a_p=0.3\text{mm}$ $V_c=420\text{m/min}$, $f_z=0.12\text{mm/z}$, $a_p=0.35\text{mm}$

Application results





SMP05

Slot Milling Tools

Side and Face
Milling Tools **SMP08**
SMP09

