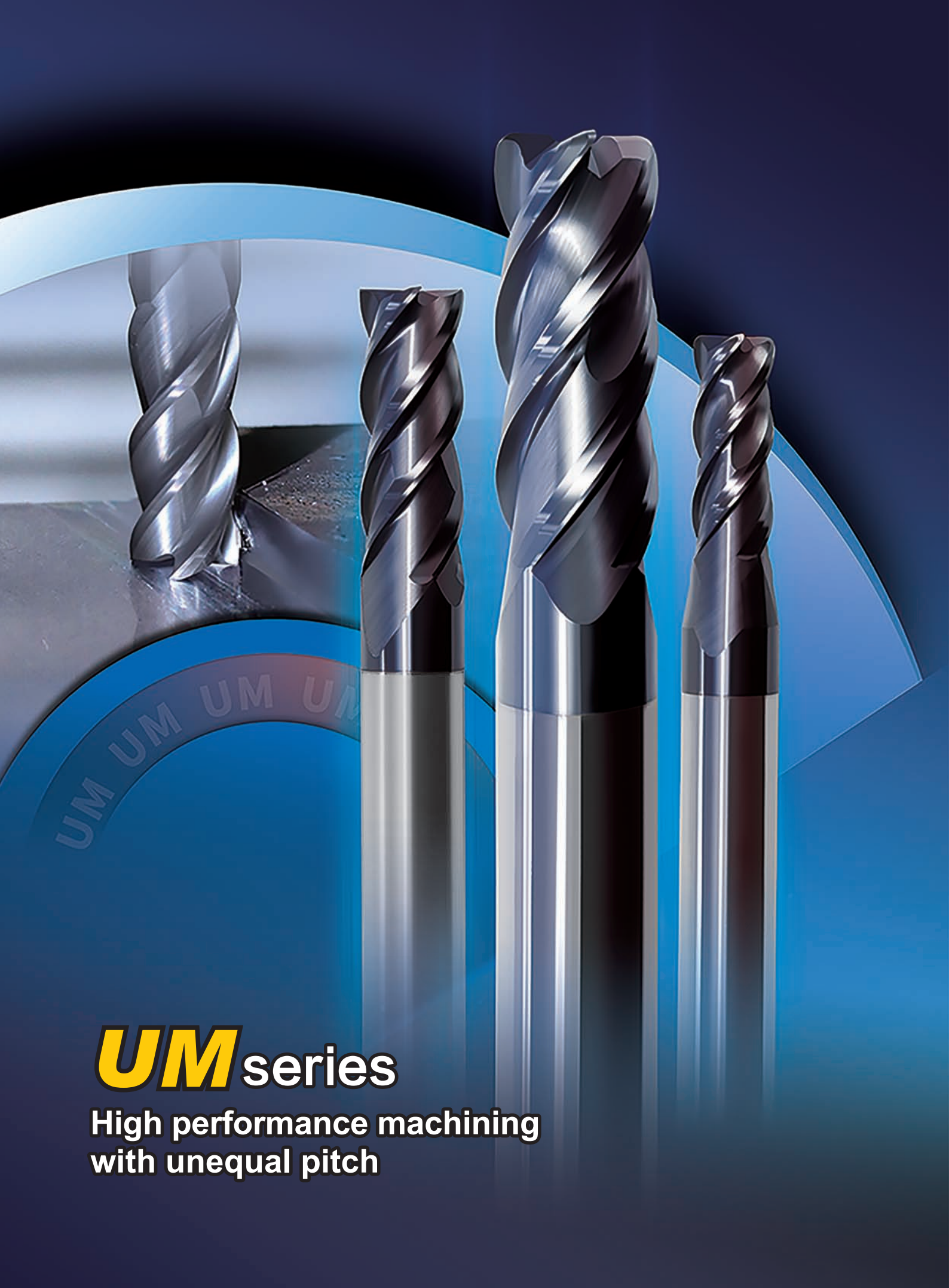




Milling Tools

Solid carbide end mills





UM series

High performance machining
with unequal pitch

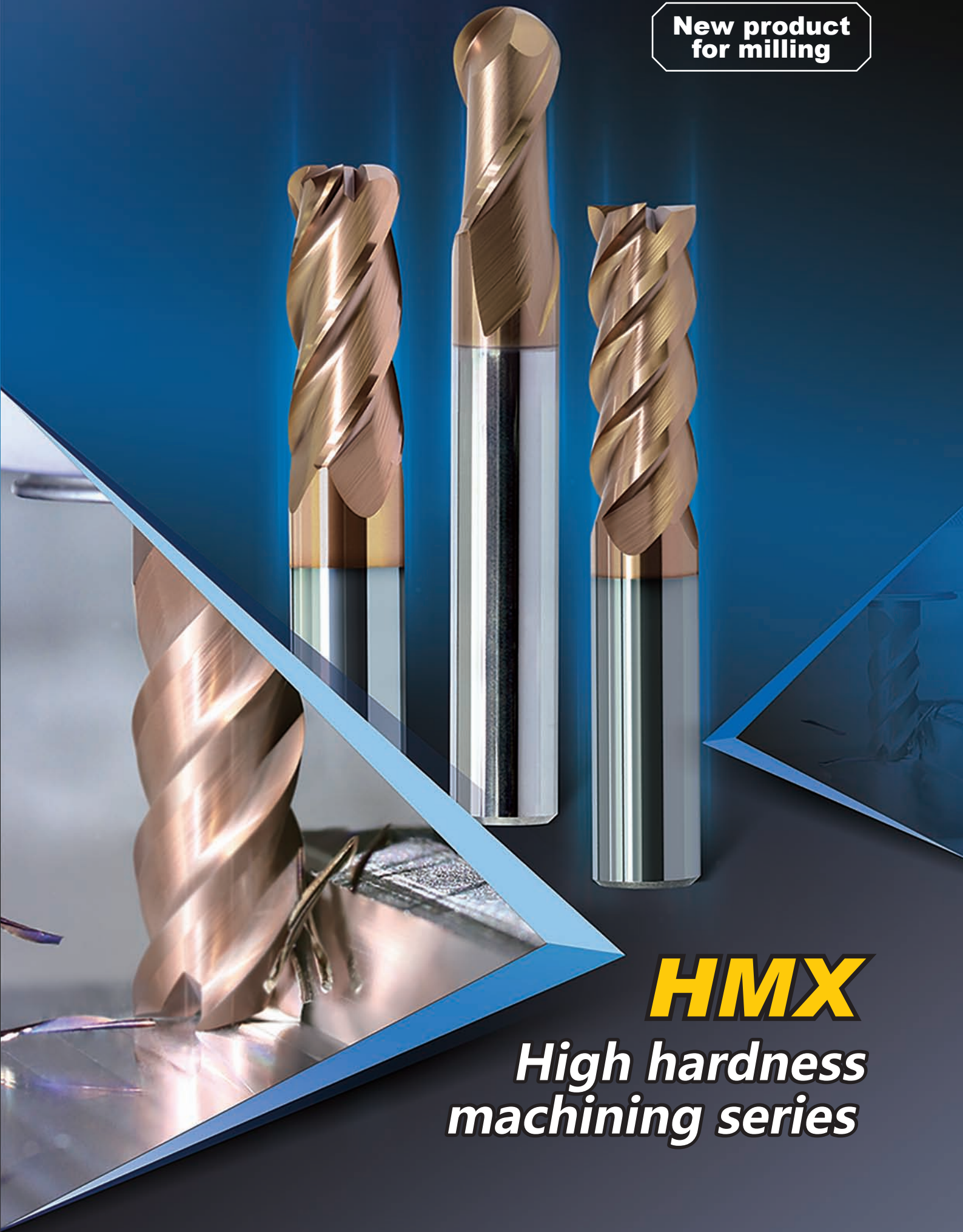
PML series





PM series

**New product
for milling**



HMX
***High hardness
machining series***

Selection guide for solid carbide end mills

- Tool shape
- Tool type
- Series of tools

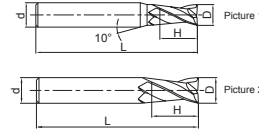
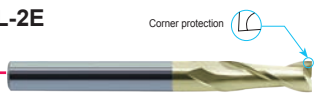
Solid Carbide End Mills PML series

Machining application

shape and size

2-flute flattened end mills with straight shank

PML-2E



- Very suitable for slot milling.
- Wide application.



Ordering number	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
PML-2E-D1.0	1.0	6	3	50	2	Picture 1	●
PML-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
PML-2E-D1.5	1.5	6	4	50	2	Picture 1	●
PML-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
PML-2E-D2.0	2.0	6	6	50	2	Picture 1	●
PML-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
PML-2E-D2.5	2.5	6	8	50	2	Picture 1	●
PML-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
PML-2E-D3.0	3.0	6	8	50	2	Picture 1	●
PML-2E-D3.5	3.5	6	10	50	2	Picture 1	●
PML-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
PML-2E-D4.0	4.0	6	11	50	2	Picture 1	●
PML-2E-D4.5	4.5	6	11	50	2	Picture 1	●
PML-2E-D5.0	5.0	6	13	50	2	Picture 1	●
PML-2E-D5.5	5.5	6	16	50	2	Picture 1	●
PML-2E-D6.0	6.0	6	16	50	2	Picture 2	●
PML-2E-D7.0	7.0	8	20	60	2	Picture 1	●
PML-2E-D8.0	8.0	8	20	60	2	Picture 2	●
PML-2E-D9.0	9.0	10	22	75	2	Picture 1	●
PML-2E-D10.0	10.0	10	25	75	2	Picture 2	●
PML-2E-D11.0	11.0	12	26	75	2	Picture 1	●
PML-2E-D12.0	12.0	12	30	75	2	Picture 2	●
PML-2E-D14.0	14.0	14	32	75	2	Picture 2	●
PML-2E-D16.0	16.0	16	45	100	2	Picture 2	●
PML-2E-D18.0	18.0	18	45	100	2	Picture 2	●
PML-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel		Hardened steel		Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	○

code key B231 Graphics category and identification B232 Cutting parameters B402 Non-standard customization B544-B545

Applicable workpiece material range

Helical angle, coating and cutting diameter tolerance, etc

Product features

Specification

Type, basic dimension, number of teeth and structure
























Code key, cutting parameters, graphics category and identification, Non-standard customization



Solid Carbide End Mills










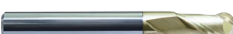


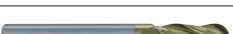











Solid carbide end mills overview	• B250-B257
Solid carbide end mills code key	• B258
Graphics category and identification	• B259
Detail information of solid carbide end mills	• B260-B465
High-performance VPM series for general machining	B260-B269
High-performance UM series for general machining	B270-B276
High-performance PML Series for general machining	B277-B305
High-performance PM Series for general machining	B306-B352
GM series for general machining	B353-B394
HMX series for machining high hardness steel	B395-B423
TM series for machining titanium	B424-B433
NM series for machining copper	B434-B439
AL/ALG series for machining aluminum	B440-B455
VSM/SM series for machining stainless steel, heat resistant alloy and hard-to-cut materials	B456-B463
CM series for general chamfering	B464-B465
Recommended cutting parameters	• B466-B564
Technical Information	• B565-B569
Customized non-standard order	• B570-B571
Interchangeable modular end mill series	• B572-B585
PM interchangeable modular end mills	B574-B576
HMX interchangeable modular end mills	B577-B579
XM interchangeable modular end mills	B580-B585
Recommended cutting parameters for interchangeable modular end mills	• B590-B591
Technical information for Interchangeable modular end mills	• B592
Interchangeable straight shank	B586-B587
Interchangeable taper milling shank	B588
Interchangeable HSK shank	• B589

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page			
						P	M	K	N	S	H		Specification	Cutting parameters			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy			High hardness steel Below 55HRC	Above 55HRC	
High-performance general milling	Flattened	4	VPM-4E (Unequal pitch)		Ø3.0~Ø20.0	○	○		○				○		B262	B466	
			VPM-4EBL/X (Unequal pitch)		Ø3.0~Ø20.0	○	○		○					○		B263	B466
			VPM-4EFP (Unequal pitch)		Ø3.0~Ø20.0	○	○		○					○		B264	B466
	Radius	4	VPM-4R (Unequal pitch)		Ø3.0~Ø12.0	○	○		○					○		B265 -266	B467
			VPM-4RBL/X (Unequal pitch)		Ø3.0~Ø12.0	○	○		○					○		B267 -268	B467
			VPM-4RFP (Unequal pitch)		Ø3.0~Ø12.0	○	○		○					○		B269	B467
	Flattened	4	UM-4E (Unequal pitch)		Ø4.0~Ø20.0	○	○	○	○			○	○		B271	B468 -469	
			UM-4EL (Unequal pitch)		Ø4.0~Ø20.0	○	○	○	○			○	○		B272	B468 -469	
			UM-4EFP (Unequal pitch)		Ø6.0~Ø20.0	○	○	○	○			○	○		B273	B470 -471	
	Radius	4	UM-4R (Unequal pitch)		Ø4.0~Ø20.0	○	○	○	○			○	○		B274	B472 -473	
			UM-4RL (Unequal pitch)		Ø6.0~Ø16.0	○	○	○	○			○	○		B275	B472 -473	
			UM-4RFP (Unequal pitch)		Ø6.0~Ø16.0	○	○	○	○			○	○		B276	B474	
	Flattened	2	PML-2E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○			○			B278	B475	
			PML-2F (Sharp)		Ø1.0~ Ø20.0	○	○	○	○			○			B279	B476	
			PML-2EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○			B280	B475	
			PML-2FL (Sharp)		Ø3.0~ Ø20.0	○	○	○	○			○			B281	B476	
			PML-2EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○			○			B282	B477	
		3	PML-3E-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○			B283	B478	
			PML-3EL-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○			B284	B478	
		4	PML-4E-G (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○			○			B285	B479 -480	
			PML-4F-G (Sharp)		Ø1.0~ Ø20.0	○	○	○	○			○			B286	B481 -482	
			PML-4EL-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○			B287	B479 -480	
	PML-4FL-G (Sharp)		Ø3.0~ Ø20.0	○	○	○	○			○			B288	B481 -482			

○Very suitable ○Suitable

Indexable milling tools
 Solid carbide end mills
 Solid carbide end mills overview

Solid carbide end mills overview
























Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material						Page		
						P	M	K	N	S	H	Specification	Cutting parameters	
						Carbon steel; alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy			Heat resistant alloy, Titanium alloy
High-performance general milling	Flattened	4	PML-4EX-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○		○		B289	B483
			PML-4E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○		○		B290	B484-485
			PML-4EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○		○		B291	B484-485
			PML-4E-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○		○		B292	B479-480
			PML-4EL-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○		○		B293	B479-480
			PML-4EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○		○		B294	B486-487
			PML-4EF		Ø6.0~ Ø20.0	○	○	○	○		○		B295	B488
	Ball nose	2	PML-2B		R0.5~R10.0	○	○	○	○		○		B297	B490-491
			PML-2BL		R1.0~R10.0	○	○	○	○		○		B298	B490-491
			PML-2BFP		R0.5~R10.0	○	○	○	○		○		B299	B490-491
		4	PML-4B		R1.5~R10.0	○	○	○	○		○		B300	B492
			PML-4BL		R1.5~R10.0	○	○	○	○		○		B301	B492
	Radius	2	PML-2R		Ø1.0~ Ø12.0	○	○	○	○		○		B302	B496
			PML-4R		Ø3.0~ Ø12.0	○	○	○	○		○		B303	B497
		4	PML-4R-H		Ø3.0~ Ø12.0	○	○	○	○		○		B304	B497
			PML-4RFP		Ø6.0~ Ø16.0	○	○	○	○		○		B305	B497
	Flattened	2	PM-2E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○		○	○	B308	B475
			PM-2F (Sharp)		Ø1.0~ Ø20.0	○	○	○	○		○	○	B309	B476
			PM-2EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○		○	○	B310	B475
			PM-2FL (Sharp)		Ø3.0~ Ø20.0	○	○	○	○		○	○	B311	B476
			PM-2EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○		○	○	B312	B477
PM-2EBL/X (Corner protection)				Ø3.0~ Ø12.0	○	○	○	○		○	○	B313	B475	

○Very suitable ○Suitable

Indexable milling tools

Solid carbide end mills
























Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page	
						P	M	K	N	S	H		Specification	Cutting parameters	
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy			High hardness steel Below 55HRC Above 55HRC
High-performance general milling	Flattened	3	PM-3E-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B314	B478
			PM-3EL-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B315	B478
		4	PM-4E-G (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○			○	○	B316-317	B479-480
			PM-4F-G (Sharp)		Ø1.0~ Ø20.0	○	○	○	○			○	○	B318	B481-482
			PM-4EL-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B319	B479-480
			PM-4FL-G (Sharp)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B320	B481-482
			PM-4EX-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B321	B483
			PM-4EBL/X-G (Corner protection)		Ø3.0~ Ø12.0	○	○	○	○			○	○	B322	B479-480
			PM-4E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○			○	○	B323-324	B484-485
			PM-4EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B325	B484-485
			PM-4E-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B326	B479-480
			PM-4EL-H (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○			○	○	B327	B479-480
			PM-4EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○			○	○	B328	B486-487
			PM-4EBL/X (Corner protection)		Ø3.0~ Ø12.0	○	○	○	○			○	○	B329	B484-485
	6	PM-6E (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○			○	○	B330	B488	
		PM-6EL (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○			○	○	B331	B489	
	Ball nose	2	PM-2B		R0.5~R10.0	○	○	○	○			○	○	B332	B490-491
			PM-2BL/M/X		R1.0~R10.0	○	○	○	○			○	○	B333	B490-491
			PM-2BFP		R0.5~R10.0	○	○	○	○			○	○	B334	B490-491
		4	PM-4B		R1.5~R10.0	○	○	○	○			○	○	B335	B492
PM-4BL/M/X				R1.5~R10.0	○	○	○	○			○	○	B336	B492	
Taper neck ball nose	2	PM-2BC		R0.25~R2.0	○	○	○	○			○	○	B337-340	B493-495	
Radius	2	PM-2R		Ø1.0~ Ø12.0	○	○	○	○			○	○	B341-342	B496	

○Very suitable ○Suitable

Indexable milling tools
 Solid carbide end mills
 Solid carbide end mills overview

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page	
						P	M	K	N	S	H	Specification	Cutting parameters		
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy			Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC Above 55HRC
High-performance general milling	Radius	4	PM-4R		Ø3.0~ Ø12.0	○	○	○	○			○	○	B343-344	B497
			PM-4RBL/M/X		Ø4.0~ Ø12.0	○	○	○	○			○	○	B345-346	B497
			PM-4R-H		Ø3.0~ Ø12.0	○	○	○	○			○	○	B347-348	B497
			PM-4RBL/M/X-H		Ø4.0~ Ø12.0	○	○	○	○			○	○	B349	B497
			PM-4RFP		Ø6.0~ Ø16.0	○	○	○	○			○	○	B350	B497
	High-feed-rate		PM-4H		Ø3.0~ Ø12.0	○	○	○	○			○	○	B351	B498-499
			PM-4HL		Ø4.0~ Ø12.0	○	○	○	○			○	○	B352	B498-499
General milling	Flattened	2	GM-2E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○					B355	B500
			GM-2F (Sharp)		Ø1.0~ Ø20.0	○	○	○	○					B356	B501
			GM-2EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○					B357	B500
			GM-2FL (Sharp)		Ø3.0~ Ø20.0	○	○	○	○					B358	B501
			GM-2EX (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○					B359	B502
			GM-2EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○					B360	B503
			GM-2EBL/X (Corner protection)		Ø3.0~ Ø12.0	○	○	○	○					B361	B500
		3	GM-3E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○					B362-363	B504
			GM-3EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○					B364	B504
		4	GM-4E-G (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○					B365-366	B505
			GM-4F-G (Sharp)		Ø1.0~ Ø20.0	○	○	○	○					B367	B506
			GM-4EL-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○					B368	B505
			GM-4FL-G (Sharp)		Ø3.0~ Ø20.0	○	○	○	○					B369	B506
			GM-4EX-G (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○					B370	B507
			GM-4EBL/X-G (Corner protection)		Ø3.0~ Ø12.0	○	○	○	○					B371	B505
	GM-4E (Corner protection)		Ø1.0~ Ø20.0	○	○	○	○					B372-373	B508		
















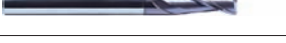






○Very suitable ○Suitable

Indexable milling tools

Solid carbide end mills

Solid carbide end mills overview

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page			
						P	M	K	N	S	H		Specification	Cutting parameters			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy			High hardness steel Below 55HRC	Above 55HRC	
General milling	Flattened	4	GM-4EL (Corner protection)		Ø3.0~ Ø20.0	○	○	○	○						B374	B508	
			GM-4EFP (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○							B375	B509
			GM-4EBL/X (Corner protection)		Ø3.0~ Ø12.0	○	○	○	○							B376	B508
		6	GM-6E (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○							B377	B510
			GM-6EL (Corner protection)		Ø6.0~ Ø20.0	○	○	○	○							B378	B511
	Long neck flattened	2	GM-2EP		Ø0.3~ Ø5.0	○	○	○	○						B379-380	B512-513	
	Tiny head flattened		GM-2ES		Ø0.3~ Ø3.0	○	○	○	○						B381	B514	
	Ball nose	2	GM-2B		R0.5~R10.0	○	○	○	○						B382	B515	
			GM-2BL/M/X		R1.0~R10.0	○	○	○	○						B383	B515	
		4	GM-2BFP		R0.5~R10.0	○	○	○	○						B384	B515	
			GM-4B		R1.5~R10.0	○	○	○	○						B385	B516	
	Tiny ball nose	2	GM-4BL/M/X		R1.5~R10.0	○	○	○	○						B386	B516	
			GM-2BS		R0.15~ R1.5	○	○	○	○						B387	B517	
	Long neck ball nose	2	GM-2BP		R0.15~R2.5	○	○	○	○						B388-389	B518-519	
	Radius		GM-2R		Ø1.0~Ø12.0	○	○	○	○						B390	B520	
		4	GM-4R		Ø1.0~Ø12.0	○	○	○	○						B391	B521	
			GM-4RL/M/X		Ø4.0~Ø16.0	○	○	○	○						B392-393	B521	
	Corrugated edge	4	GM-4W		Ø6.0~Ø20.0	○	○	○	○						B394	B522-523	
	Machining high hardness steel	Flattened	2	HMX-2E (Corner protection)		Ø1.0~Ø20.0				○			○	○	B396-397	B524	
				HMX-2EFP (Corner protection)		Ø6.0~Ø20.0				○				○	○	B398	B525
HMX-2EBL/X (Corner protection)				Ø3.0~Ø12.0				○				○	○	B399	B524		
4			HMX-4E (Corner protection)		Ø1.0~Ø20.0				○				○	○	B400-401	B526	
























○Very suitable ○Suitable

Indexable milling tools

Solid carbide end mills

Solid carbide end mills overview

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material						Page							
						P	M	K	N	S	H	Specification	Cutting parameters						
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy			Heat resistant alloy, Titanium alloy	High hardness steel Below 55HRC Above 55HRC				
Machining high hardness steel	Flattened	4	HMX-4EL (Corner protection)		Ø3.0~Ø20.0							○	○	B402	B526				
			HMX-4EFP (Corner protection)		Ø6.0~Ø20.0								○	○	B403	B527			
			HMX-4EBL/X (Corner protection)		Ø3.0~Ø12.0									○	○	B404	B526		
		6	HMX-6E (Corner protection)		Ø6.0~Ø20.0									○	○	B405	B528		
			HMX-6EL (Corner protection)		Ø6.0~Ø20.0									○	○	B406	B529		
	Long neck flattened		HMX-2EP		Ø0.3~Ø5.0								○	○	B407-408	B530-531			
	Tiny head flattened		HMX-2ES		Ø0.3~Ø3.0								○	○	B409	B532			
	Ball nose	2	HMX-2B		R0.5~R10.0									○	○	B410	B533		
			HMX-2BL/M/X		R1.0~R10.0										○	○	B411	B533	
			HMX-2BFP		R0.5~R10.0										○	○	B412	B533	
	Ball nose	4	HMX-4B		R1.5~R10.0										○	○	B413	B534	
			HMX-4BL		R1.5~R10.0											○	○	B414	B534
	Tiny ball nos	2	HMX-2BS		R0.15~R1.5										○	○	B415	B535	
	Long neck ball nose		HMX-2BP		R0.15~R2.5											○	○	B416-417	B536-537
	Radius	4	HMX-4R		Ø1.0~Ø12.0										○	○	B418-419	B538	
			HMX-4RBL/M/X		Ø4.0~Ø12.0											○	○	B420	B538
			HMX-4RF		Ø6.0~Ø12.0											○	○	B421	B538
			HMX-4RP		Ø6.0~Ø16.0											○	○	B422	B538
		6	HMX-6R-MAX		Ø6.0~Ø20.0											○	○	B423	B539
	Machining titanium	Flattened	4	TM-4E		Ø6.0~Ø25.0	○								○		B425	B541	
Ball nose		TM-4B			R3.0~R10.0	○	○								○		B426	B540	
Radius		TM-4R			Ø6.0~Ø25.0	○	○									○		B427-429	B540
		TM-4RP			Ø8.0~Ø25.0	○	○									○		B430	B540
























○Very suitable ○Suitable

Indexable milling tools

Solid carbide end mills



















Solid carbide end mills overview

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material						Page	
						P	M	K	N	S	H	Specification	Cutting parameters
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy		
Machining titanium	Radius	5	TM-5R		Ø6.0~Ø25.0	○	○				○	B431-432	B542
		6	TM-6R		Ø10.0~Ø25.0	○	○				○	B433	B543
Copper machining	Flattened	2	NM-2E		Ø1.0~Ø12.0					○	○	B435	B544
		4	NM-4E		Ø3.0~Ø12.0					○	○	B436	B545
	Long neck flattened		NM-2EP		Ø0.5~Ø5.0					○	○	B437	B546
	Ball nose	2	NM-2B		R0.5~R6.0					○	○	B438	B547
	Long neck Ball nose		NM-2BP		R0.25~R2.5					○	○	B439	B548
Machining aluminum	Flattened	2	AL-2E		Ø1.0~Ø20.0					○		B441	B549
			AL-2EL		Ø3.0~Ø20.0					○		B442	B549
		3	AL-3E		Ø1.0~Ø20.0					○		B443	B550
			AL-3EL		Ø3.0~Ø20.0					○		B444	B550
	Ball nose	2	AL-2B		R1.0~R6.0					○		B445	B551
	Corrugated edge	3	AL-3W		Ø6.0~Ø20.0					○		B446	B552
	Radius (Super high speed)	2	AL-2R-AIR		Ø6.0~Ø20.0					○		B447	B553
			AL-2RL-AIR		Ø6.0~Ø20.0					○		B448	B553
		3	AL-3R-AIR		Ø12.0~Ø20.0					○		B449	B554
			AL-3RL-AIR		Ø12.0~Ø20.0					○		B450	B554
	Flattened (Sharp edge)	2	ALG-2E		Ø1.0~Ø20.0					○		B452	B555
		3	ALG-3E		Ø1.0~Ø20.0					○		B453	B556
	Radius	2	ALG-2R		Ø1.0~Ø12.0					○		B454	B557
3		ALG-3R		Ø1.0~Ø12.0					○		B455	B558	
Machining of hard-to-cut materials	Flattened	3	SM-3E		Ø3.0~Ø20.0	○	○			○		B458	B559
		4	VSM-4E (Unequal pitch)		Ø4.0~Ø20.0	○	○			○		B459	B560

○Very suitable ○Suitable

Solid carbide end mills overview

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material								Page			
						P	M	K	N	S	H		Specification	Cutting parameters			
						Carbon steel, alloy steel	Pre-hardened steel	Stainless steel	Cast iron	Copper alloy	Aluminum alloy	Heat resistant alloy, Titanium alloy			High hardness steel Below 55HRC Above 55HRC		
Machining of hard-to-cut materials	Flattened	4	VSM-4EFP (Unequal pitch)		Ø6.0~Ø16.0	○		○				○			B460	B560	
	Radius		SM-4R		Ø6.0~Ø12.0	○		○				○				B461	B561
			VSM-4R (Unequal pitch)		Ø6.0~Ø20.0	○		○				○				B462	B562
			VSM-4RFP (Unequal pitch)		Ø6.0~Ø16.0	○		○				○				B463	B562
Chamfering	Flattened	2	CM-2E		Ø3.0~Ø16.0	○	○	○	○	○	○	○	○		B464	B563	
		4	CM-4E		Ø3.0~Ø16.0	○	○	○	○	○	○	○	○		B465	B564	
High general performance	Flattened	4	PM-4E		Ø10~Ø32	○	○	○	○			○	○		B574	B590	
	Ballnose	2/4	PM-2B/4B		R5.0~R16.0	○	○	○	○			○	○		B575	B590	
	Radius	4	PM-4R		Ø10~Ø32	○	○	○	○			○	○		B576	B590	
Flattened			4	HMX-4E		Ø10~Ø32				○			○	○		B577	B590
Machining high hardness steel	Ballnose	2/4	HMX-2B/4B		R5.0~R16.0				○			○	○		B578	B590	
	Radius	4	HMX-4R		Ø10~Ø32				○			○	○		B579	B590	
			Flattened	2	XM-2E		Ø10~Ø16	○	○	○	○			○	○		B580
Economical general machining	Radius	2	XM-2R		Ø10~Ø16	○	○	○	○			○	○		B581	B591	
	Ballnose		XM-2B		Ø5.0~Ø8.0	○	○	○	○			○	○		B582	B591	
	Chamfer		XM-2C		Ø10~Ø16	○	○	○	○			○	○		B583	B591	
	Arc chamfering		XM-2CR		Ø10~Ø16	○	○	○	○			○	○		B584	B591	
	Deep-feed		2	XM-2H		Ø10~Ø16	○	○	○	○			○	○		B585	B591

○Very suitable ○Suitable

Indexable milling tools

Solid carbide end mills

Solid carbide end mills overview

Solid carbide end mills code key

VPM/UM	High performance general machining with unequal pitch
PML/PM	High-performance general milling
GM	General milling
HMX	Machining hardened material
TM	Machining titanium
NM	Machining copper
AL/ALG	Machining aluminum
SM/VSM	Machining of hard-to-cut materials
CM	General chamfering

End mill category

E	Corner protection flattened
F	Sharp flattened
B	Ball nose
R	Radius
W	Corrugated edge
H	High-feed-rate

End mill type

S	Tiny diameter
P	Straight neck
C	Taper neck
Default	Standard

Structure type

Radius of nose arc or radius of ball nose

GM - 2 E L P - D12 R0.5 - M08

Number of teeth

Length category

L	Long cutting edge
X	Extra long cutting edge
BL/M/X	Long shank type
F	Short cutting edge
Default	Standard

Tool diameter

Other

G	30° taper 4-flute flattened end mills
H	38° helical angle
M	Neck length
F	Slim shank:Ø3mm
S	Slim shank:Ø4mm
AIR	End mill for machining aluminum with super high speed

● For unequal pitch end mills, letter "V" is added before category code.

● 2-flute end face mill with taper shank
PM-2BC05-R0.25-M03.

— Taper

Solid carbide end mills overview

Coating of mills

	Super nanometer crystal TiAlCrN coating
	Super crystal nano heat resistant TiAlN coatings
	Nano TiAlN coating
	TiAlN coating
	AlTiN coating
	CrN coating
	AlCrXN coating
	Nano AlCrXN coating

End tooth type of mills

	2-flute flattened end mills		6-flute flattened end mills
	2-flute ball nose end mills		6-flute R end mills
	2-flute R end mills		2-flute flattened end mills
	3-flute flattened end mills		2-flute R end mills
	3-flute R end mills		2-flute ball nose end mills
	4-flute flattened end mills		2-flute chamfered end mills
	4-flute ball nose end mills		2-flute fillet end mills
	4-flute R end mills		2-flute high feed end mills
	5-flute R end mills		

Helical angle

	β is helical angle: 30°, 35°, 38°, 45°, 55°
--	--

Cutting diameter tolerance

	Cutting diameter tolerance
--	----------------------------

Radius tolerance of ball nose end mills

	Radius tolerance
--	------------------

Nose type

	Corner protection
	Sharp

Machining operation

	Flattened end mills for side machining
	Flattened end mills for shoulder machining
	Flattened end mills for straight slot machining
	Flattened end mills for deep slot machining
	Ball nose end mills for profile machining
	Ball nose end mills for cavity machining
	Ball nose end mills for slot machining
	Ball nose end mills for deep slot machining
	R end mills for side machining
	R end mills for slot machining
	R end mills for profile machining
	Chamfering
	Centering hole processing


Indexable milling tools

Solid carbide end mills

Solid carbide end mills overview

High Performance Endmills for General Machining

VPM series



The special forming flutes are designed with large chip spaces which will help to improve full slot milling at large depths of cut. It is suitable for various kinds of efficient working conditions.

$\alpha_1 \neq \alpha_2$

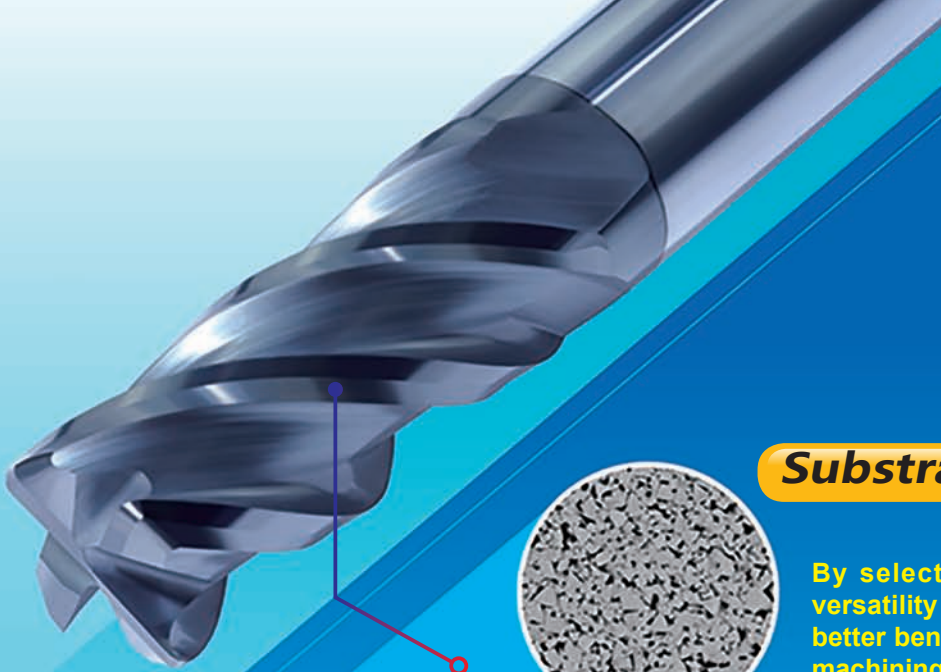
The unequal helical structure greatly improves the vibration resistance and significantly avoids the risks of premature chipping.

The unequal pitch structure leads to high efficiency milling with low vibration.

Application range

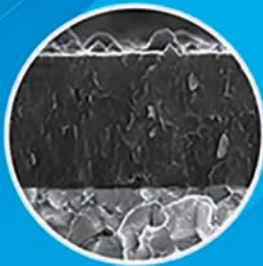
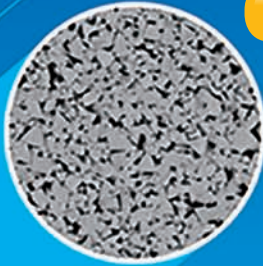
The high anti-vibration structure which is suitable for mold cavity milling. While applying with high cutting parameters, there is no need to reduce the speed when turning corners. By using the high ductility substrate and high rigidity structure, it helps to achieve full slot milling at large depths of cut ($ap=d$).

By applying the new generation coating technology, it could meet the needs of sorts of general high performance steel machining for dry and wet conditions.



Substrate and coating

By selecting the substrate with high versatility and wear resistance, it offers better bending stiffness to meet efficient machining requirements.



Coating grades with lower friction coefficient, especially are suitable for machining carbon steel, mild steel, stainless steel and other viscous materials.

⚙️ CASE 1

Cutting tool : VPM-4E-D8.0
 Method: Side milling
 Working piece material : 45#
 Cutting parameters : $V_c=190\text{m/min}$,
 $f_z=0.08\text{mm/z}$, $a_p=12\text{mm}$, $a_e=2.4\text{mm}$,
 CNC Machine type :
 5-Axis Vertical Machining Center
 Cooling method : Emulsion
 Overhang : 24mm

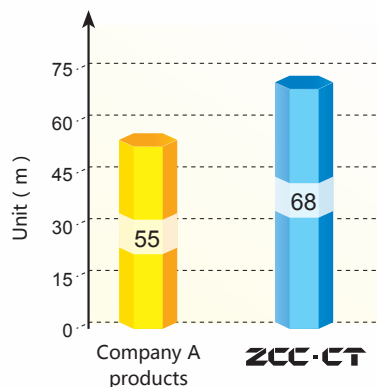


Test result: After processing 120 meters, the normal flank wear of our cutting tool reaches 0.039mm which can still work.

⚙️ CASE 2

Cutting tool: VPM-4E-D8.0
 Method: Slot milling
 Working piece material: 45#
 Cutting parameters: $V_c=150\text{m/min}$,
 $f_r=0.2\text{mm/r}$, $a_p=8\text{mm}$
 CNC Machine type: 5-Axis Vertical
 Machining Center
 Cooling method: Emulsion
 Overhang : 24mm

Comparison on slot milling length



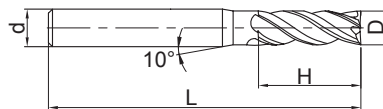
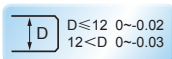
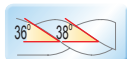
4-flute unequal pitch flattened end mill with straight shank



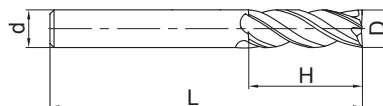
VPM-4E



- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
VPM-4E-D3.0S	3.0	4	8	50	4	Picture 1	●
VPM-4E-D3.0	3.0	6	8	50	4	Picture 1	●
VPM-4E-D3.5S	3.5	4	10	50	4	Picture 1	●
VPM-4E-D3.5	3.5	6	10	50	4	Picture 1	●
VPM-4E-D4.0S	4.0	4	11	50	4	Picture 2	●
VPM-4E-D4.0	4.0	6	11	50	4	Picture 1	●
VPM-4E-D4.5	4.5	6	11	50	4	Picture 1	●
VPM-4E-D5.0	5.0	6	13	50	4	Picture 1	●
VPM-4E-D5.5	5.5	6	16	50	4	Picture 1	●
VPM-4E-D6.0	6.0	6	16	50	4	Picture 2	●
VPM-4E-D7.0	7.0	8	20	60	4	Picture 1	●
VPM-4E-D8.0	8.0	8	20	60	4	Picture 2	●
VPM-4E-D9.0	9.0	10	22	75	4	Picture 1	●
VPM-4E-D10.0	10.0	10	25	75	4	Picture 2	●
VPM-4E-D11.0	11.0	12	26	75	4	Picture 1	●
VPM-4E-D12.0	12.0	12	30	75	4	Picture 2	●
VPM-4E-D14.0	14.0	14	32	75	4	Picture 2	●
VPM-4E-D16.0	16.0	16	45	100	4	Picture 2	●
VPM-4E-D18.0	18.0	18	45	100	4	Picture 2	●
VPM-4E-D20.0	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

VPM series

▶▶ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○			○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B466

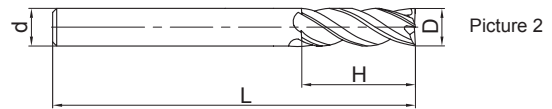
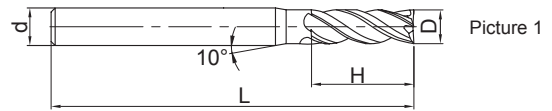
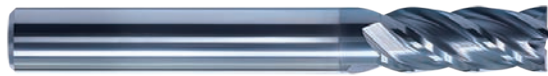
Non-standard customization

B570-B571

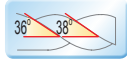
4-flute flattened endmills with long shank



VPM-4EBL/X



● VPM-4E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
VPM-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
VPM-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
VPM-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
VPM-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
VPM-4EBL-D5.0	5.0	6	13	75	4	Picture 1	○
VPM-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
VPM-4EBX-D6.0	6.0	6	16	100	4	Picture 2	○
VPM-4EBL-D8.0	8.0	8	20	75	4	Picture 2	○
VPM-4EBX-D8.0	8.0	8	20	100	4	Picture 2	○
VPM-4EBL-D10.0	10.0	10	25	100	4	Picture 2	○
VPM-4EBL-D12.0	12.0	12	30	100	4	Picture 2	○
VPM-4EBL-D16.0	16.0	16	45	150	4	Picture 2	○
VPM-4EBL-D20.0	20.0	20	45	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
VPM series

▶ Applicable workpiece material table ● Very suitable ○ Suitable

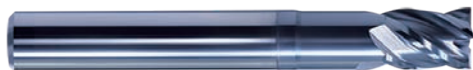
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○					



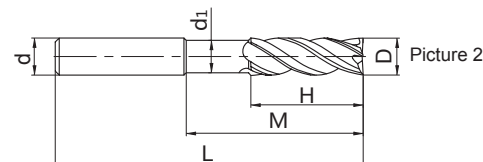
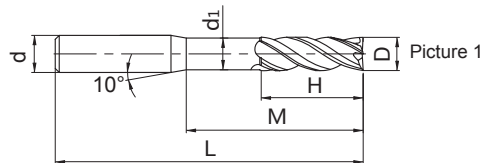
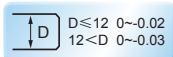
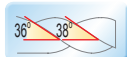
4-flute unequal pitch flattened end mill with long neck, short cutting edge and straight shank



VPM-4EFP



- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Type	Basic dimension(mm)						Number of teeth Z	Geometry	Stock
	D	d	H	M	d ₁	L			
VPM-4EFP-D3.0S	3.0	4	4.5	15	2.8	75	4	Picture 1	○
VPM-4EFP-D3.0	3.0	6	4.5	15	2.8	75	4	Picture 1	○
VPM-4EFP-D4.0S	4.0	4	6.0	20	3.8	75	4	Picture 2	○
VPM-4EFP-D4.0	4.0	6	6.0	20	3.8	75	4	Picture 1	○
VPM-4EFP-D5.0	5.0	6	8.0	25	4.8	75	4	Picture 1	○
VPM-4EFP-D6.0	6.0	6	9.0	30	5.8	75	4	Picture 2	○
VPM-4EFP-D8.0	8.0	8	12.0	40	7.8	100	4	Picture 2	○
VPM-4EFP-D10.0	10.0	10	15.0	50	9.5	100	4	Picture 2	○
VPM-4EFP-D12.0	12.0	12	18.0	50	11.5	100	4	Picture 2	○
VPM-4EFP-D16.0	16.0	16	24.0	60	15.5	150	4	Picture 2	○
VPM-4EFP-D20.0	20.0	20	30.0	60	19.5	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

VPM series

▶▶ Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○			○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B466

Non-standard customization

B570-B571

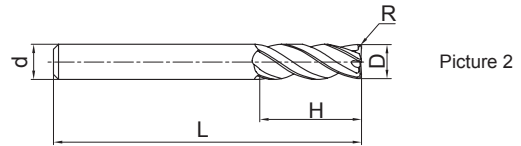
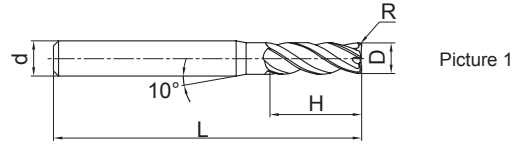
4-flute unequal pitch radius end mill with straight shank



VPM-4R



- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
VPM-4R-D3.0R0.2S	3.0	0.2	4	8	50	4	Picture 1	●
VPM-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
VPM-4R-D3.0R0.3S	3.0	0.3	4	8	50	4	Picture 1	●
VPM-4R-D3.0R0.3	3.0	0.3	6	8	50	4	Picture 1	●
VPM-4R-D4.0R0.2S	4.0	0.2	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.2	4.0	0.2	6	11	50	4	Picture 1	●
VPM-4R-D4.0R0.3S	4.0	0.3	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.3	4.0	0.3	6	11	50	4	Picture 1	●
VPM-4R-D4.0R0.5S	4.0	0.5	4	11	50	4	Picture 2	●
VPM-4R-D4.0R0.5	4.0	0.5	6	11	50	4	Picture 1	●
VPM-4R-D5.0R0.3	5.0	0.3	6	13	50	4	Picture 1	●
VPM-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
VPM-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
VPM-4R-D6.0R0.3	6.0	0.3	6	16	50	4	Picture 2	●
VPM-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
VPM series

▶ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○			○				



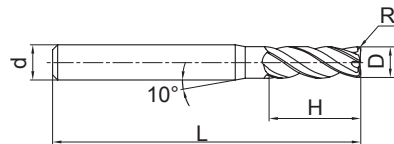
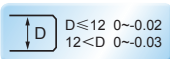
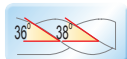
4-flute unequal pitch R end mill with straight shank



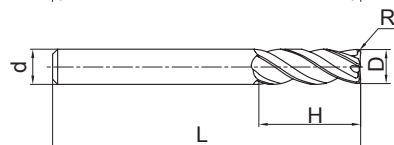
VPM-4R



- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
VPM-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
VPM-4R-D8.0R0.3	8.0	0.3	8	20	60	4	Picture 2	●
VPM-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
VPM-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
VPM-4R-D10.0R0.3	10.0	0.3	10	25	75	4	Picture 2	●
VPM-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
VPM-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
VPM-4R-D10.0R1.5	10.0	1.5	10	25	75	4	Picture 2	●
VPM-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
VPM-4R-D12.0R0.3	12.0	0.3	12	30	75	4	Picture 2	●
VPM-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
VPM-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
VPM-4R-D12.0R1.5	12.0	1.5	12	30	75	4	Picture 2	●
VPM-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

VPM series

▶▶ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○			○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B467

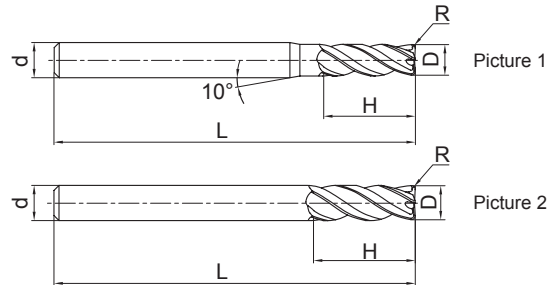
Non-standard customization

B570-B571

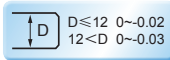
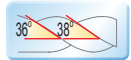
4-flute radius endmills with long shank



VPM-4RBL/X



● VPM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
VPM-4RBL-D3.0R0.2S	3.0	0.2	4	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.2	3.0	0.2	6	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.3S	3.0	0.3	4	8	75	4	Picture 1	○
VPM-4RBL-D3.0R0.3	3.0	0.3	6	8	75	4	Picture 1	○
VPM-4RBL-D4.0R0.2S	4.0	0.2	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.2	4.0	0.2	6	11	75	4	Picture 1	○
VPM-4RBL-D4.0R0.3S	4.0	0.3	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.3	4.0	0.3	6	11	75	4	Picture 1	○
VPM-4RBL-D4.0R0.5S	4.0	0.5	4	11	75	4	Picture 2	○
VPM-4RBL-D4.0R0.5	4.0	0.5	6	11	75	4	Picture 1	○
VPM-4RBL-D6.0R0.3	6.0	0.3	6	16	75	4	Picture 2	○
VPM-4RBL-D6.0R0.5	6.0	0.5	6	16	75	4	Picture 2	○
VPM-4RBL-D6.0R1.0	6.0	1.0	6	16	75	4	Picture 2	○
VPM-4RBL-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	○
VPM-4RBL-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	○
VPM-4RBL-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
VPM series

▶ Applicable workpiece material table ● Very suitable ○ Suitable

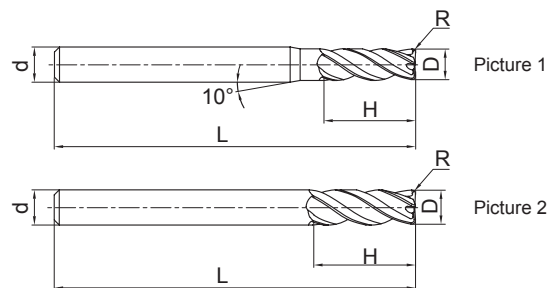
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○					



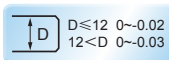
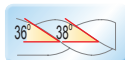
4-flute radius endmills with long shank



VPM-4RBL/X



● VPM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
VPM-4RBL-D8.0R0.3	8.0	0.3	8	20	75	4	Picture 2	○
VPM-4RBL-D8.0R0.5	8.0	0.5	8	20	75	4	Picture 2	○
VPM-4RBL-D8.0R1.0	8.0	1.0	8	20	75	4	Picture 2	○
VPM-4RBX-D8.0R0.3	8.0	0.3	8	20	100	4	Picture 2	○
VPM-4RBX-D8.0R0.5	8.0	0.5	8	20	100	4	Picture 2	○
VPM-4RBX-D8.0R1.0	8.0	1.0	8	20	100	4	Picture 2	○
VPM-4RBL-D10.0R0.3	10.0	0.3	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R0.5	10.0	0.5	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R1.0	10.0	1.0	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R1.5	10.0	1.5	10	25	100	4	Picture 2	○
VPM-4RBL-D10.0R2.0	10.0	2.0	10	25	100	4	Picture 2	○
VPM-4RBL-D12.0R0.3	12.0	0.3	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R0.5	12.0	0.5	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R1.0	12.0	1.0	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R1.5	12.0	1.5	12	30	100	4	Picture 2	○
VPM-4RBL-D12.0R2.0	12.0	2.0	12	30	100	4	Picture 2	○

● Stock available ○ Make-to-order

▶▶ Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
●	●	●	●	○			●				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B467

Non-standard customization

B570-B571

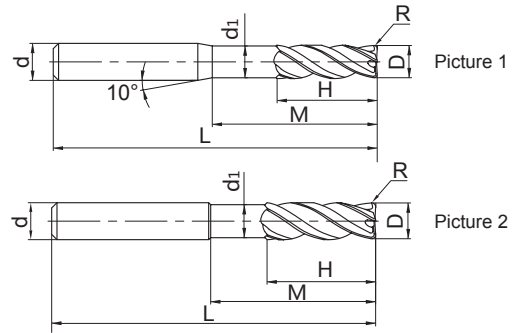
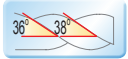
4-flute long neck and short cutting edge
unequal pitch R end mill with straight shank



VPM-4RFP



- Suitable for high-efficient machining of ordinary steel and cast iron.
- Differential helical angle and pitch design offer high vibration resistance.
- Suitable for machining of large depth and width of cut.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	d	H	M	d1	L			
VPM-4RFP-D3.0R0.2S	3.0	0.2	4	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.2	3.0	0.2	6	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.3S	3.0	0.3	4	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D3.0R0.3	3.0	0.3	6	3	9	2.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.2S	4.0	0.2	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.2	4.0	0.2	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.3S	4.0	0.3	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.3	4.0	0.3	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D4.0R0.5S	4.0	0.5	4	4	12	3.8	75	4	Picture 2	○
VPM-4RFP-D4.0R0.5	4.0	0.5	6	4	12	3.8	75	4	Picture 1	○
VPM-4RFP-D6.0R0.3	6.0	0.3	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D6.0R0.5	6.0	0.5	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D6.0R1.0	6.0	1.0	6	6	18	5.8	75	4	Picture 2	○
VPM-4RFP-D8.0R0.3	8.0	0.3	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D8.0R0.5	8.0	0.5	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D8.0R1.0	8.0	1.0	8	8	24	7.8	75	4	Picture 2	○
VPM-4RFP-D10.0R0.3	10.0	0.3	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R0.5	10.0	0.5	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R1.0	10.0	1.0	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R1.5	10.0	1.5	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D10.0R2.0	10.0	2.0	10	10	30	9.5	100	4	Picture 2	○
VPM-4RFP-D12.0R0.3	12.0	0.3	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R0.5	12.0	0.5	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R1.0	12.0	1.0	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R1.5	12.0	1.5	12	12	36	11.5	100	4	Picture 2	○
VPM-4RFP-D12.0R2.0	12.0	2.0	12	12	36	11.5	100	4	Picture 2	○

● Stock available ○ Make-to-order

➤ Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○			○				

Code key

B258

Graphics category and identification B259

Cutting parameters B467

Non-standard customization B570-B571

Indexable milling tools
Solid carbide end mills
VPM series

High-performance general machining end mills

UM Series

- Unequal pitch and variable inclined angle design reduce vibration risk and ensure better machining stability.
- Variable flute depth design improves rigidity for higher chip removal capacity.

Application range:

Suitable for high effectively machining of cast iron, carbon, alloy steel, pre-hardened steel, quenched and tempered steel, hardened steel under HRC55, ect.

Excellent machining stability under weak rigidity working condition such as thin-walled parts, parts corner, large overhang, etc.

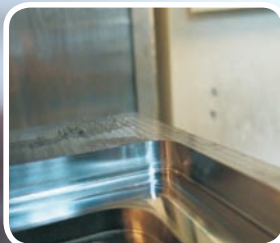
Machining case:

Work piece material: 42CrMo (HRC35)

Cutting style: side milling

Tool type: UM-4E-D10.0

Cutting parameters: $n=6000\text{r/min}$,
 $f_z=0.16\text{mm/z}$,
 $a_p=10\text{mm}$, $a_e=1\text{mm}$



$\alpha_1 \neq \alpha_2$

α_1

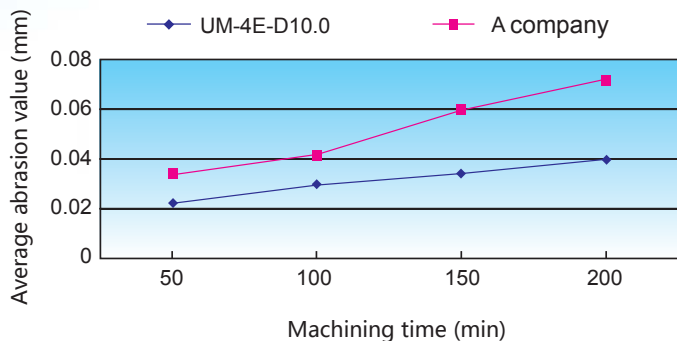
α_2

$\beta_1 \neq \beta_2$

β_2

β_1

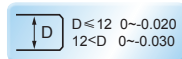
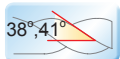
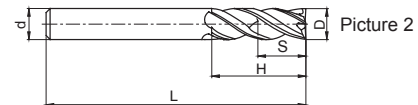
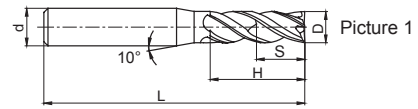
Comparison of tool wear



4-flute unequal pitch flattened end mill with straight shank



UM-4E



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	d	H	S	L			
UM-4E-D4.0S	4.0	4	11	6.00	50	4	Picture 2	○
UM-4E-D4.0	4.0	6	11	6.00	50	4	Picture 1	○
UM-4E-D4.5	4.5	6	11	6.75	50	4	Picture 1	○
UM-4E-D5.0	5.0	6	13	7.50	50	4	Picture 1	○
UM-4E-D5.5	5.5	6	16	8.25	50	4	Picture 1	○
UM-4E-D6.0	6.0	6	16	9.00	50	4	Picture 2	○
UM-4E-D7.0	7.0	8	20	10.50	60	4	Picture 1	○
UM-4E-D8.0	8.0	8	20	12.00	60	4	Picture 2	○
UM-4E-D9.0	9.0	10	22	13.50	75	4	Picture 1	○
UM-4E-D10.0	10.0	10	25	15.00	75	4	Picture 2	○
UM-4E-D11.0	11.0	12	26	16.50	75	4	Picture 1	○
UM-4E-D12.0	12.0	12	30	18.00	75	4	Picture 2	○
UM-4E-D14.0	14.0	14	32	21.00	75	4	Picture 2	○
UM-4E-D16.0	16.0	16	45	24.00	100	4	Picture 2	○
UM-4E-D18.0	18.0	18	45	27.00	100	4	Picture 2	○
UM-4E-D20.0	20.0	20	45	30.00	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
UM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○





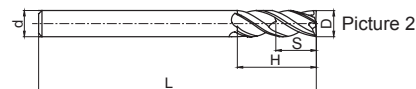
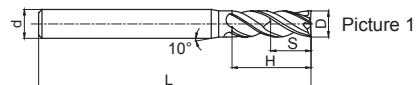
B MILLING / Solid Carbide End Mills

High-performance general milling UM series

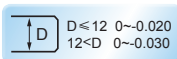
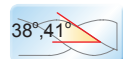
4-flute long cutting edge and unequal pitch flattened end mill with straight shank



UM-4EL



● UM-4E series with long cutting edge.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	d	H	S	L			
UM-4EL-D4.0	4.0	6	15	6.00	75	4	Picture 1	○
UM-4EL-D5.0	5.0	6	20	7.50	75	4	Picture 1	○
UM-4EL-D6.0	6.0	6	20	9.00	75	4	Picture 2	○
UM-4EL-D8.0	8.0	8	25	12.00	100	4	Picture 2	○
UM-4EL-D10.0	10.0	10	30	15.00	100	4	Picture 2	○
UM-4EL-D12.0	12.0	12	35	18.00	100	4	Picture 2	○
UM-4EL-D14.0	14.0	14	40	21.00	100	4	Picture 2	○
UM-4EL-D16.0	16.0	16	50	24.00	150	4	Picture 2	○
UM-4EL-D20.0	20.0	20	55	30.00	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

UM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B468-B469

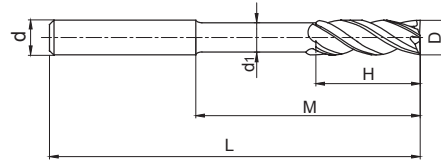
Non-standard customization

B570-B571

4-flute unequal pitch flattened end mill with long neck, short cutting edge and straight shank



UM-4EFP



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d1	L		
UM-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
UM-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
UM-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
UM-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
UM-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
UM-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
UM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○





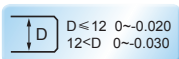
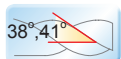
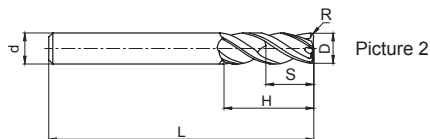
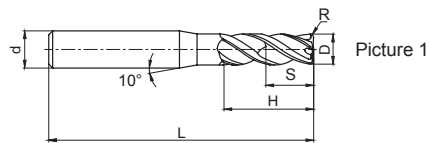
B MILLING Solid Carbide End Mills

High-performance general milling UM series

4-flute unequal pitch R end mill with straight shank



UM-4R



Type	Basic dimension(mm)						Number of teeth Z	Geometry	Stock
	D	S	d	H	S	L			
UM-4R-D4.0R0.3	4.0	0.3	6	10	6.0	50	4	Picture 1	○
UM-4R-D4.0R0.5	4.0	0.5	6	10	6.0	50	4	Picture 1	○
UM-4R-D5.0R0.5	5.0	0.5	6	13	7.5	50	4	Picture 1	○
UM-4R-D5.0R1.0	5.0	1.0	6	13	7.5	50	4	Picture 1	○
UM-4R-D6.0R0.5	6.0	0.5	6	16	9.0	50	4	Picture 2	○
UM-4R-D6.0R1.0	6.0	1.0	6	16	9.0	50	4	Picture 2	○
UM-4R-D8.0R0.5	8.0	0.5	8	20	12.0	60	4	Picture 2	○
UM-4R-D8.0R1.0	8.0	1.0	8	20	12.0	60	4	Picture 2	○
UM-4R-D10.0R0.5	10.0	0.5	10	25	15.0	75	4	Picture 2	○
UM-4R-D10.0R1.0	10.0	1.0	10	25	15.0	75	4	Picture 2	○
UM-4R-D10.0R2.0	10.0	2.0	10	25	15.0	75	4	Picture 2	○
UM-4R-D10.0R3.0	10.0	3.0	10	25	15.0	75	4	Picture 2	○
UM-4R-D12.0R0.5	12.0	0.5	12	30	18.0	75	4	Picture 2	○
UM-4R-D12.0R1.0	12.0	1.0	12	30	18.0	75	4	Picture 2	○
UM-4R-D12.0R2.0	12.0	2.0	12	30	18.0	75	4	Picture 2	○
UM-4R-D12.0R3.0	12.0	3.0	12	30	18.0	75	4	Picture 2	○
UM-4R-D16.0R1.0	16.0	1.0	16	45	24.0	100	4	Picture 2	○
UM-4R-D16.0R2.0	16.0	2.0	16	45	24.0	100	4	Picture 2	○
UM-4R-D16.0R3.0	16.0	3.0	16	45	24.0	100	4	Picture 2	○
UM-4R-D20.0R1.0	20.0	1.0	20	45	30.0	100	4	Picture 2	○
UM-4R-D20.0R2.0	20.0	2.0	20	45	30.0	100	4	Picture 2	○
UM-4R-D20.0R3.0	20.0	3.0	20	45	30.0	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B472-B473

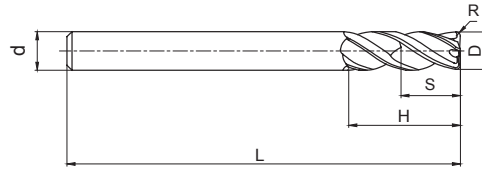
Non-standard customization

B570-B571

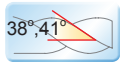
4-flute long cutting edge and unequal pitch R end mill with straight shank



UM-4RL



● UM-4R series with cutting edge.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	R	d	H	S	L		
UM-4RL-D6.0R0.5	6.0	0.5	6	16	9.0	75	4	○
UM-4RL-D6.0R1.0	6.0	1.0	6	16	9.0	75	4	○
UM-4RL-D8.0R0.5	8.0	0.5	8	20	12.0	100	4	○
UM-4RL-D8.0R1.0	8.0	1.0	8	20	12.0	100	4	○
UM-4RL-D10.0R0.5	10.0	0.5	10	25	15.0	100	4	○
UM-4RL-D10.0R1.0	10.0	1.0	10	25	15.0	100	4	○
UM-4RL-D10.0R2.0	10.0	2.0	10	25	15.0	100	4	○
UM-4RL-D12.0R0.5	12.0	0.5	12	30	18.0	100	4	○
UM-4RL-D12.0R1.0	12.0	1.0	12	30	18.0	100	4	○
UM-4RL-D12.0R2.0	12.0	2.0	12	30	18.0	100	4	○
UM-4RL-D16.0R1.0	16.0	1.0	16	45	24.0	150	4	○
UM-4RL-D16.0R2.0	16.0	2.0	16	45	24.0	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
UM series

Applicable workpiece material table ○ Very suitable ○ Suitable

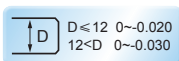
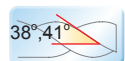
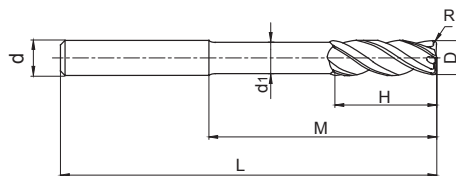
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○



4-flute long neck and short cutting edge
unequal pitch R end mill with straight shank



UM-4RFP



Type	Basic dimension(mm)							Number of teeth Z	Stock
	D	R	d	d ₁	H	M	L		
UM-4RFP-D6.0R0.5	6.0	0.5	6	5.8	6	18	75	4	○
UM-4RFP-D6.0R1.0	6.0	1.0	6	5.8	6	18	75	4	○
UM-4RFP-D8.0R0.5	8.0	0.5	8	7.7	8	24	100	4	○
UM-4RFP-D8.0R1.0	8.0	1.0	8	7.7	8	24	100	4	○
UM-4RFP-D10.0R0.5	10.0	0.5	10	9.6	10	30	100	4	○
UM-4RFP-D10.0R1.0	10.0	1.0	10	9.6	10	30	100	4	○
UM-4RFP-D10.0R2.0	10.0	2.0	10	9.6	10	30	100	4	○
UM-4RFP-D12.0R0.5	12.0	0.5	12	11.5	12	36	100	4	○
UM-4RFP-D12.0R1.0	12.0	1.0	12	11.5	12	36	100	4	○
UM-4RFP-D12.0R2.0	12.0	2.0	12	11.5	12	36	100	4	○
UM-4RFP-D16.0R1.0	16.0	1.0	16	15.5	16	40	150	4	○
UM-4RFP-D16.0R2.0	16.0	2.0	16	15.5	16	40	150	4	○

● Stock available ○ Make-to-order

Indexable
milling tools

Solid carbide
end mills

UM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B474

Non-standard customization

B570-B571

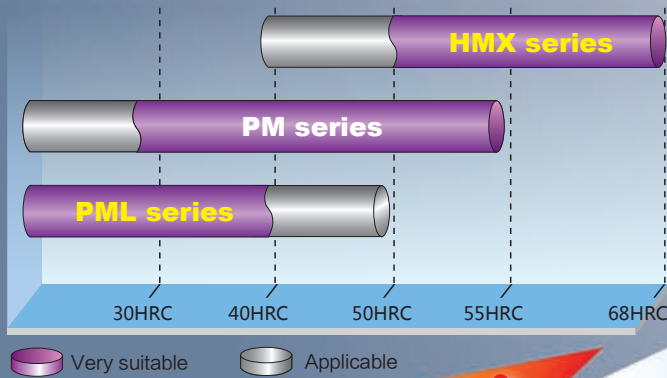
High performance universal machining

PMIL series

Applicable of high efficiency machining in a variety of materials under HRC50, while significantly promoting machinability of soft materials such as carbon steel, low carbon alloy steel under HRC40!

PML, PM, HMX high performance solid carbide endmills series

Recommendation for steel materials machining application



Application range:

Applicable to high-efficiency machining in a variety of materials under HRC50, e.g. non-ferrous alloy, steel, pre-hardened steel, stainless steel, especially suitable for soft materials such as carbon steel, low carbon alloy steel under HRC40. With excellent cutting performance in both dry and wet cutting.

New technology
Perfect transformation

Unique cutting edge design, balancing edges strength and sharpness, with low cutting force.

Light yellow coating allows for better wear observation.

Advanced coating after-treatment technology, for closer combination with substrate, lower friction and superior surface quality.

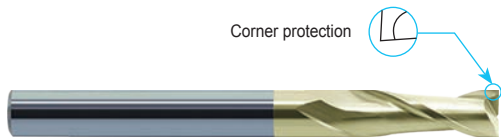
With new superlattice coatings technology, for excellent wear resistance, oxidation resistance, thermal stability and lubrication performance.



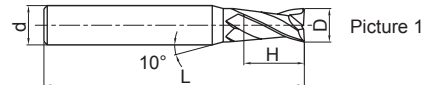
2-flute flattened end mills with straight shank



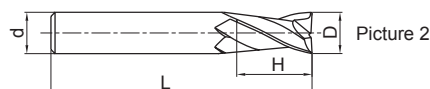
PML-2E



Corner protection

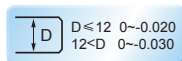
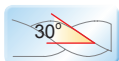


Picture 1



Picture 2

- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
PML-2E-D1.0	1.0	6	3	50	2	Picture 1	●
PML-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
PML-2E-D1.5	1.5	6	4	50	2	Picture 1	●
PML-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
PML-2E-D2.0	2.0	6	6	50	2	Picture 1	●
PML-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
PML-2E-D2.5	2.5	6	8	50	2	Picture 1	●
PML-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
PML-2E-D3.0	3.0	6	8	50	2	Picture 1	●
PML-2E-D3.5	3.5	6	10	50	2	Picture 1	●
PML-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
PML-2E-D4.0	4.0	6	11	50	2	Picture 1	●
PML-2E-D4.5	4.5	6	11	50	2	Picture 1	●
PML-2E-D5.0	5.0	6	13	50	2	Picture 1	●
PML-2E-D5.5	5.5	6	16	50	2	Picture 1	●
PML-2E-D6.0	6.0	6	16	50	2	Picture 2	●
PML-2E-D7.0	7.0	8	20	60	2	Picture 1	●
PML-2E-D8.0	8.0	8	20	60	2	Picture 2	●
PML-2E-D9.0	9.0	10	22	75	2	Picture 1	●
PML-2E-D10.0	10.0	10	25	75	2	Picture 2	●
PML-2E-D11.0	11.0	12	26	75	2	Picture 1	●
PML-2E-D12.0	12.0	12	30	75	2	Picture 2	●
PML-2E-D14.0	14.0	14	32	75	2	Picture 2	●
PML-2E-D16.0	16.0	16	45	100	2	Picture 2	●
PML-2E-D18.0	18.0	18	45	100	2	Picture 2	●
PML-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

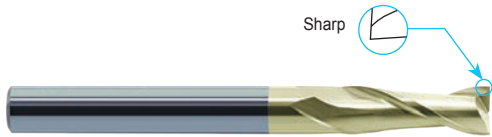
Non-standard customization

B570-B571

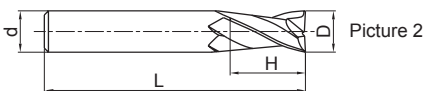
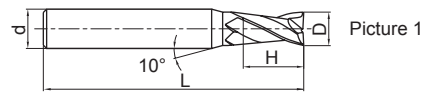
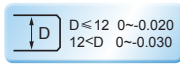
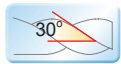
2-flute flattened end mills with straight shank



PML-2F



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-2F-D1.0S	1.0	4	3	50	2	Picture 1	○
PML-2F-D1.0	1.0	6	3	50	2	Picture 1	○
PML-2F-D1.5S	1.5	4	4	50	2	Picture 1	○
PML-2F-D1.5	1.5	6	4	50	2	Picture 1	○
PML-2F-D2.0S	2.0	4	6	50	2	Picture 1	○
PML-2F-D2.0	2.0	6	6	50	2	Picture 1	○
PML-2F-D2.5S	2.5	4	8	50	2	Picture 1	○
PML-2F-D2.5	2.5	6	8	50	2	Picture 1	○
PML-2F-D3.0S	3.0	4	8	50	2	Picture 1	○
PML-2F-D3.0	3.0	6	8	50	2	Picture 1	○
PML-2F-D3.5	3.5	6	10	50	2	Picture 1	○
PML-2F-D4.0S	4.0	4	11	50	2	Picture 2	○
PML-2F-D4.0	4.0	6	11	50	2	Picture 1	○
PML-2F-D4.5	4.5	6	11	50	2	Picture 1	○
PML-2F-D5.0	5.0	6	13	50	2	Picture 1	○
PML-2F-D5.5	5.5	6	16	50	2	Picture 1	○
PML-2F-D6.0	6.0	6	16	50	2	Picture 2	○
PML-2F-D7.0	7.0	8	20	60	2	Picture 1	○
PML-2F-D8.0	8.0	8	20	60	2	Picture 2	○
PML-2F-D9.0	9.0	10	22	75	2	Picture 1	○
PML-2F-D10.0	10.0	10	25	75	2	Picture 2	○
PML-2F-D11.0	11.0	12	26	75	2	Picture 1	○
PML-2F-D12.0	12.0	12	30	75	2	Picture 2	○
PML-2F-D14.0	14.0	14	32	75	2	Picture 2	○
PML-2F-D16.0	16.0	16	45	100	2	Picture 2	○
PML-2F-D18.0	18.0	18	45	100	2	Picture 2	○
PML-2F-D20.0	20.0	20	45	100	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key **B258** Graphics category and identification **B259** Cutting parameters **B476** Non-standard customization **B570-B571**

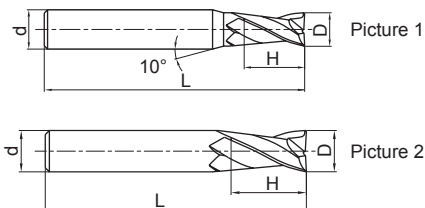
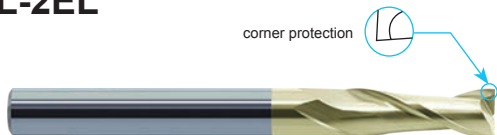
Indexable milling tools
Solid carbide end mills
PML series

High-performance general milling PML series

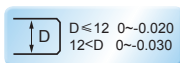
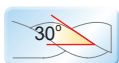
2-flute flattened end mills with straight shank and long cutting edge



PML-2EL



● PML-2E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-2EL-D3.0	3.0	6	12	75	2	Picture 1	○
PML-2EL-D4.0	4.0	6	15	75	2	Picture 1	○
PML-2EL-D5.0	5.0	6	20	75	2	Picture 1	○
PML-2EL-D6.0	6.0	6	20	75	2	Picture 2	○
PML-2EL-D8.0	8.0	8	25	100	2	Picture 2	○
PML-2EL-D10.0	10.0	10	30	100	2	Picture 2	○
PML-2EL-D12.0	12.0	12	35	100	2	Picture 2	○
PML-2EL-D14.0	14.0	14	40	100	2	Picture 2	○
PML-2EL-D16.0	16.0	16	50	150	2	Picture 2	○
PML-2EL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○		○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

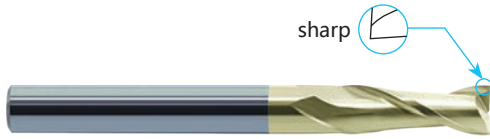
Non-standard customization

B570-B571

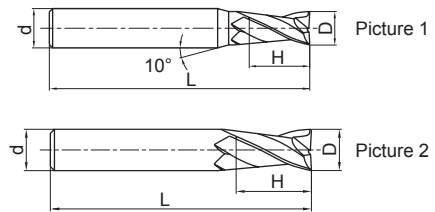
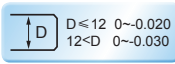
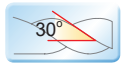
2-flute flattened end mills with straight shank and long cutting edge



PML-2FL



● PML-2F series with long cutting edge.



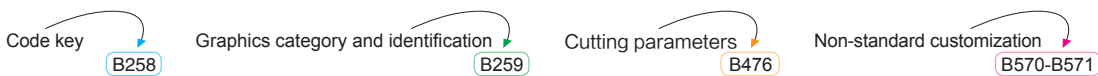
Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-2FL-D3.0	3.0	6	12	75	2	Picture 1	○
PML-2FL-D4.0	4.0	6	15	75	2	Picture 1	○
PML-2FL-D5.0	5.0	6	20	75	2	Picture 1	○
PML-2FL-D6.0	6.0	6	20	75	2	Picture 2	○
PML-2FL-D8.0	8.0	8	25	100	2	Picture 2	○
PML-2FL-D10.0	10.0	10	30	100	2	Picture 2	○
PML-2FL-D12.0	12.0	12	35	100	2	Picture 2	○
PML-2FL-D14.0	14.0	14	40	100	2	Picture 2	○
PML-2FL-D16.0	16.0	16	50	150	2	Picture 2	○
PML-2FL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

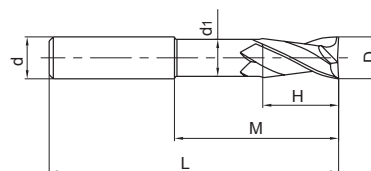
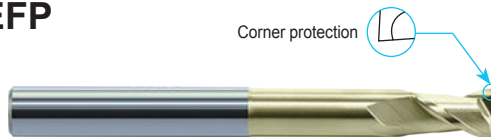
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○			○	○	



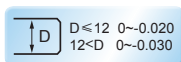
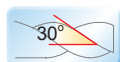
2-flute flattened end mills with straight shank, long neck and short cutting edge



PML-2EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d1	L		
PML-2EFP-D6.0	6.0	6	9	30	5.8	75	2	○
PML-2EFP-D8.0	8.0	8	12	40	7.8	100	2	○
PML-2EFP-D10.0	10.0	10	15	50	9.6	100	2	○
PML-2EFP-D12.0	12.0	12	18	50	11.5	100	2	○
PML-2EFP-D16.0	16.0	16	24	50	15.5	150	2	○
PML-2EFP-D20.0	20.0	20	30	60	19.5	150	2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B477

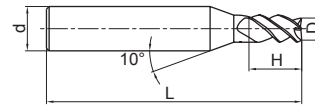
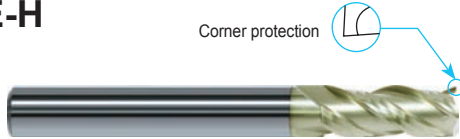
Non-standard customization

B570-B571

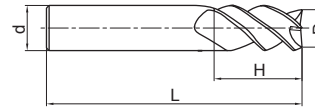
3-flute flattened end mills with straight shank



PML-3E-H

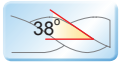


Picture 1



Picture 2

- Especially suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-3E-D3.0S-H	3.0	4	8	50	3	Picture 1	○
PML-3E-D3.0-H	3.0	6	8	50	3	Picture 1	○
PML-3E-D3.5-H	3.5	6	10	50	3	Picture 1	○
PML-3E-D4.0S-H	4.0	4	11	50	3	Picture 2	○
PML-3E-D4.0-H	4.0	6	11	50	3	Picture 1	○
PML-3E-D4.5-H	4.5	6	11	50	3	Picture 1	○
PML-3E-D5.0-H	5.0	6	13	50	3	Picture 1	○
PML-3E-D5.5-H	5.5	6	16	50	3	Picture 1	○
PML-3E-D6.0-H	6.0	6	16	50	3	Picture 2	○
PML-3E-D7.0-H	7.0	8	20	60	3	Picture 1	○
PML-3E-D8.0-H	8.0	8	20	60	3	Picture 2	○
PML-3E-D9.0-H	9.0	10	22	75	3	Picture 1	○
PML-3E-D10.0-H	10.0	10	25	75	3	Picture 2	○
PML-3E-D11.0-H	11.0	12	26	75	3	Picture 1	○
PML-3E-D12.0-H	12.0	12	30	75	3	Picture 2	○
PML-3E-D14.0-H	14.0	14	32	75	3	Picture 2	○
PML-3E-D16.0-H	16.0	16	45	100	3	Picture 2	○
PML-3E-D18.0-H	18.0	18	45	100	3	Picture 2	○
PML-3E-D20.0-H	20.0	20	45	100	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ○Very suitable ○Suitable

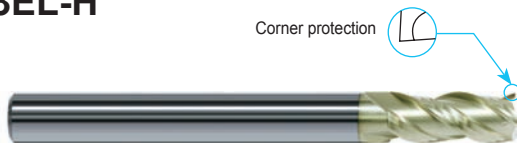
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



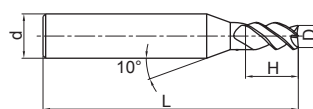
3-flute flattened end mills with straight shank and long cutting edge



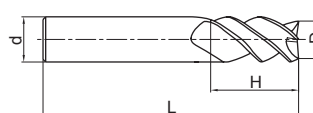
PML-3EL-H



Corner protection

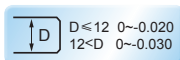
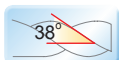


Picture 1



Picture 2

● PML-3E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-3EL-D3.0-H	3.0	6	12	75	3	Picture 1	○
PML-3EL-D4.0-H	4.0	6	15	75	3	Picture 1	○
PML-3EL-D5.0-H	5.0	6	20	75	3	Picture 1	○
PML-3EL-D6.0-H	6.0	6	20	75	3	Picture 2	○
PML-3EL-D8.0-H	8.0	8	25	100	3	Picture 2	○
PML-3EL-D10.0-H	10.0	10	30	100	3	Picture 2	○
PML-3EL-D12.0-H	12.0	12	35	100	3	Picture 2	○
PML-3EL-D14.0-H	14.0	14	40	100	3	Picture 2	○
PML-3EL-D16.0-H	16.0	16	50	150	3	Picture 2	○
PML-3EL-D20.0-H	20.0	20	55	150	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B478

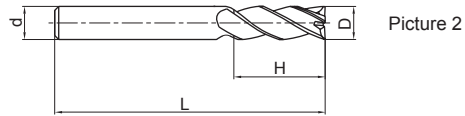
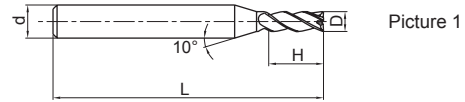
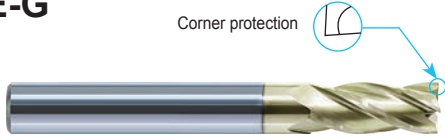
Non-standard customization

B570-B571

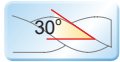
4-flute flattened end mills with straight shank



PML-4E-G



● Very suitable for side milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4E-D1.0S-G	1.0	4	3	50	4	Picture 1	●
PML-4E-D1.0-G	1.0	6	3	50	4	Picture 1	●
PML-4E-D1.5S-G	1.5	4	4	50	4	Picture 1	●
PML-4E-D1.5-G	1.5	6	4	50	4	Picture 1	●
PML-4E-D2.0S-G	2.0	4	6	50	4	Picture 1	●
PML-4E-D2.0-G	2.0	6	6	50	4	Picture 1	●
PML-4E-D2.5S-G	2.5	4	8	50	4	Picture 1	●
PML-4E-D2.5-G	2.5	6	8	50	4	Picture 1	●
PML-4E-D3.0S-G	3.0	4	8	50	4	Picture 1	●
PML-4E-D3.0-G	3.0	6	8	50	4	Picture 1	●
PML-4E-D3.5-G	3.5	6	10	50	4	Picture 1	●
PML-4E-D4.0S-G	4.0	4	11	50	4	Picture 2	●
PML-4E-D4.0-G	4.0	6	11	50	4	Picture 1	●
PML-4E-D4.5-G	4.5	6	11	50	4	Picture 1	●
PML-4E-D5.0-G	5.0	6	13	50	4	Picture 1	●
PML-4E-D5.5-G	5.5	6	16	50	4	Picture 1	●
PML-4E-D6.0-G	6.0	6	16	50	4	Picture 2	●
PML-4E-D7.0-G	7.0	8	20	60	4	Picture 1	●
PML-4E-D8.0-G	8.0	8	20	60	4	Picture 2	●
PML-4E-D9.0-G	9.0	10	22	75	4	Picture 1	●
PML-4E-D10.0-G	10.0	10	25	75	4	Picture 2	●
PML-4E-D11.0-G	11.0	12	26	75	4	Picture 1	●
PML-4E-D12.0-G	12.0	12	30	75	4	Picture 2	●
PML-4E-D14.0-G	14.0	14	32	75	4	Picture 2	●
PML-4E-D16.0-G	16.0	16	45	100	4	Picture 2	●
PML-4E-D18.0-G	18.0	18	45	100	4	Picture 2	●
PML-4E-D20.0-G	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

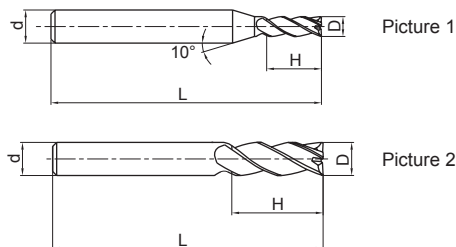
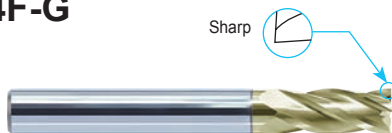
Code key **B258** Graphics category and identification **B259** Cutting parameters **B479-B480** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
PML series

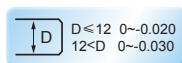
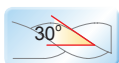
4-flute flattened end mills with straight shank



PML-4F-G



● Very suitable for side milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4F-D1.0S-G	1.0	4	3	50	4	Picture 1	○
PML-4F-D1.0-G	1.0	6	3	50	4	Picture 1	○
PML-4F-D1.5S-G	1.5	4	4	50	4	Picture 1	○
PML-4F-D1.5-G	1.5	6	4	50	4	Picture 1	○
PML-4F-D2.0S-G	2.0	4	6	50	4	Picture 1	○
PML-4F-D2.0-G	2.0	6	6	50	4	Picture 1	○
PML-4F-D2.5S-G	2.5	4	8	50	4	Picture 1	○
PML-4F-D2.5-G	2.5	6	8	50	4	Picture 1	○
PML-4F-D3.0S-G	3.0	4	8	50	4	Picture 1	○
PML-4F-D3.0-G	3.0	6	8	50	4	Picture 1	○
PML-4F-D3.5-G	3.5	6	10	50	4	Picture 1	○
PML-4F-D4.0S-G	4.0	4	11	50	4	Picture 2	○
PML-4F-D4.0-G	4.0	6	11	50	4	Picture 1	○
PML-4F-D4.5-G	4.5	6	11	50	4	Picture 1	○
PML-4F-D5.0-G	5.0	6	13	50	4	Picture 1	○
PML-4F-D5.5-G	5.5	6	16	50	4	Picture 1	○
PML-4F-D6.0-G	6.0	6	16	50	4	Picture 2	○
PML-4F-D7.0-G	7.0	8	20	60	4	Picture 1	○
PML-4F-D8.0-G	8.0	8	20	60	4	Picture 2	○
PML-4F-D9.0-G	9.0	10	22	75	4	Picture 1	○
PML-4F-D10.0-G	10.0	10	25	75	4	Picture 2	○
PML-4F-D11.0-G	11.0	12	26	75	4	Picture 1	○
PML-4F-D12.0-G	12.0	12	30	75	4	Picture 2	○
PML-4F-D14.0-G	14.0	14	32	75	4	Picture 2	○
PML-4F-D16.0-G	16.0	16	45	100	4	Picture 2	○
PML-4F-D18.0-G	18.0	18	45	100	4	Picture 2	○
PML-4F-D20.0-G	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

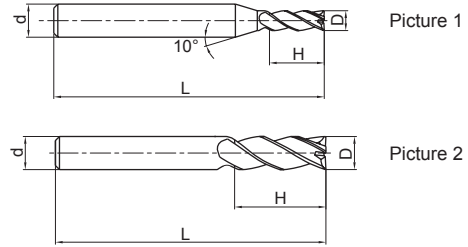
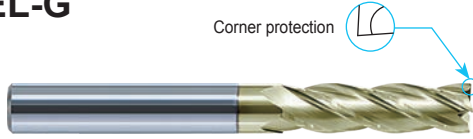
Non-standard customization

B570-B571

4-flute flattened end mills with straight shank and long cutting edge



PML-4EL-G



● PML-4E-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4EL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

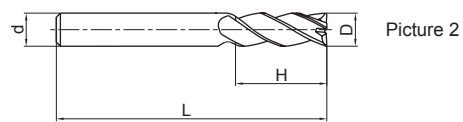
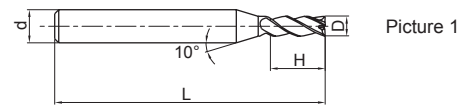
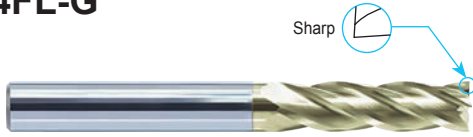
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○		○	○	



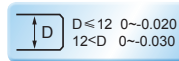
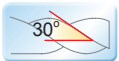
4-flute flattened end mills with straight shank and long cutting edge



PML-4FL-G



● PML-4F-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4FL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PML-4FL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PML-4FL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PML-4FL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PML-4FL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PML-4FL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PML-4FL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PML-4FL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PML-4FL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PML-4FL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

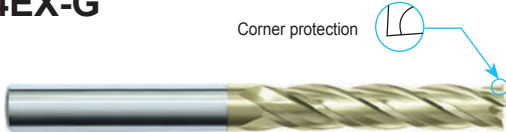
Non-standard customization

B570-B571

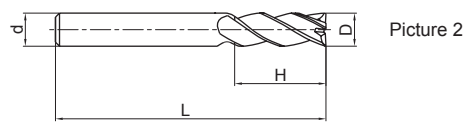
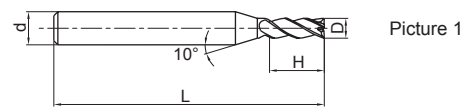
4-flute flattened end mills with straight shank and extra long cutting edge



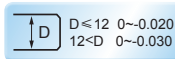
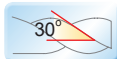
PML-4EX-G



Corner protection

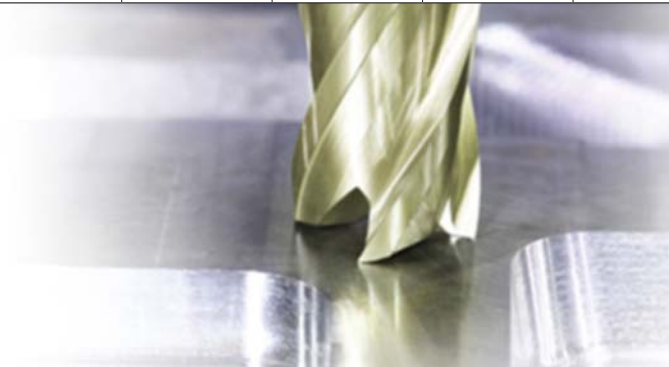


● Extra long cutting edge, for deep side wall machining.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	○
PML-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	○
PML-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	○
PML-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	○
PML-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	○
PML-4EX-D10.0-G	10.0	10	50	110	4	Picture 2	○
PML-4EX-D12.0-G	12.0	12	50	110	4	Picture 2	○
PML-4EX-D16.0-G	16.0	16	70	150	4	Picture 2	○
PML-4EX-D20.0-G	20.0	20	75	150	4	Picture 2	○

● Stock available ○ Make-to-order



Indexable milling tools

Solid carbide end mills

PML series

Applicable workpiece material table ● Very suitable ○ Suitable

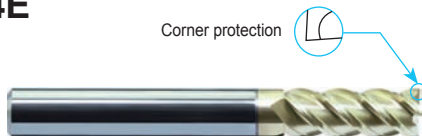
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



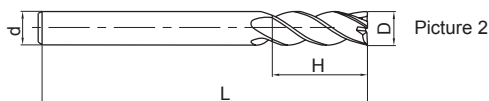
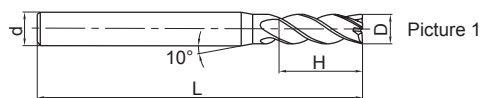
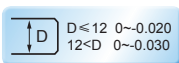
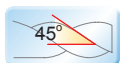
4-flute flattened end mills with straight shank



PML-4E



- Very suitable for side milling and shallow slot machining.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4E-D1.0S	1.0	4	3	50	4	Picture 1	○
PML-4E-D1.0	1.0	6	3	50	4	Picture 1	○
PML-4E-D1.5S	1.5	4	4	50	4	Picture 1	○
PML-4E-D1.5	1.5	6	4	50	4	Picture 1	○
PML-4E-D2.0S	2.0	4	6	50	4	Picture 1	○
PML-4E-D2.0	2.0	6	6	50	4	Picture 1	○
PML-4E-D2.5S	2.5	4	8	50	4	Picture 1	○
PML-4E-D2.5	2.5	6	8	50	4	Picture 1	○
PML-4E-D3.0S	3.0	4	8	50	4	Picture 1	○
PML-4E-D3.0	3.0	6	8	50	4	Picture 1	○
PML-4E-D3.5	3.5	6	10	50	4	Picture 1	○
PML-4E-D4.0S	4.0	4	11	50	4	Picture 2	○
PML-4E-D4.0	4.0	6	11	50	4	Picture 1	○
PML-4E-D4.5	4.5	6	11	50	4	Picture 1	○
PML-4E-D5.0	5.0	6	13	50	4	Picture 1	○
PML-4E-D5.5	5.5	6	16	50	4	Picture 1	○
PML-4E-D6.0	6.0	6	16	50	4	Picture 2	○
PML-4E-D7.0	7.0	8	20	60	4	Picture 1	○
PML-4E-D8.0	8.0	8	20	60	4	Picture 2	○
PML-4E-D9.0	9.0	10	22	75	4	Picture 1	○
PML-4E-D10.0	10.0	10	25	75	4	Picture 2	○
PML-4E-D11.0	11.0	12	26	75	4	Picture 1	○
PML-4E-D12.0	12.0	12	30	75	4	Picture 2	○
PML-4E-D14.0	14.0	14	32	75	4	Picture 2	○
PML-4E-D16.0	16.0	16	45	100	4	Picture 2	○
PML-4E-D18.0	18.0	18	45	100	4	Picture 2	○
PML-4E-D20.0	20.0	20	45	100	4	Picture 2	○

Applicable workpiece material table ● Very suitable ○ Suitable

● Stock available ○ Make-to-order

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B484-B485

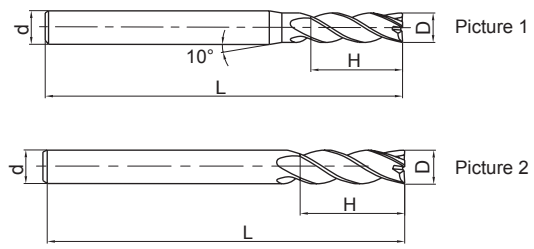
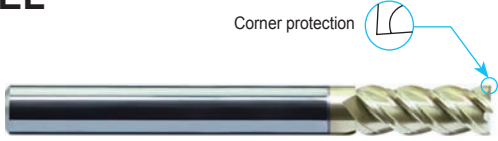
Non-standard customization

B570-B571

4-flute flattened end mills with straight shank and long cutting edge



PML-4EL



● PML-4E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4EL-D3.0	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

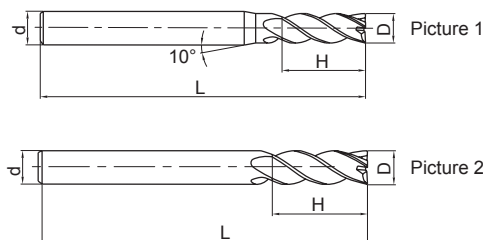
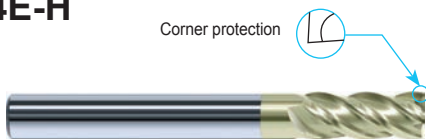
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○			○	○	



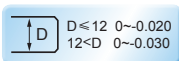
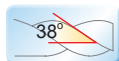
4-flute flattened end mills with straight shank



PML-4E-H



● Most suitable for slot milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4E-D3.0S-H	3.0	4	8	50	4	Picture 1	○
PML-4E-D3.0-H	3.0	6	8	50	4	Picture 1	○
PML-4E-D3.5-H	3.5	6	10	50	4	Picture 1	○
PML-4E-D4.0S-H	4.0	4	11	50	4	Picture 2	○
PML-4E-D4.0-H	4.0	6	11	50	4	Picture 1	○
PML-4E-D4.5-H	4.5	6	11	50	4	Picture 1	○
PML-4E-D5.0-H	5.0	6	13	50	4	Picture 1	○
PML-4E-D5.5-H	5.5	6	16	50	4	Picture 1	○
PML-4E-D6.0-H	6.0	6	16	50	4	Picture 2	○
PML-4E-D7.0-H	7.0	8	20	60	4	Picture 1	○
PML-4E-D8.0-H	8.0	8	20	60	4	Picture 2	○
PML-4E-D9.0-H	9.0	10	22	75	4	Picture 1	○
PML-4E-D10.0-H	10.0	10	25	75	4	Picture 2	○
PML-4E-D11.0-H	11.0	12	26	75	4	Picture 1	○
PML-4E-D12.0-H	12.0	12	30	75	4	Picture 2	○
PML-4E-D14.0-H	14.0	14	32	75	4	Picture 2	○
PML-4E-D16.0-H	16.0	16	45	100	4	Picture 2	○
PML-4E-D18.0-H	18.0	18	45	100	4	Picture 2	○
PML-4E-D20.0-H	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

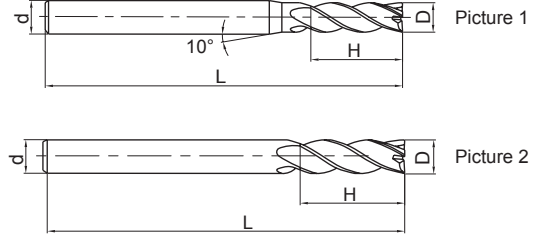
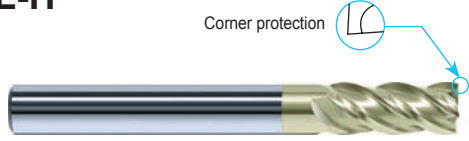
Non-standard customization

B570-B571

4-flute flattened end mills with straight shank and long cutting edge



PML-4EL-H



● PML-4E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PML-4EL-D3.0-H	3.0	6	12	75	4	Picture 1	○
PML-4EL-D4.0-H	4.0	6	15	75	4	Picture 1	○
PML-4EL-D5.0-H	5.0	6	20	75	4	Picture 1	○
PML-4EL-D6.0-H	6.0	6	20	75	4	Picture 2	○
PML-4EL-D8.0-H	8.0	8	25	100	4	Picture 2	○
PML-4EL-D10.0-H	10.0	10	30	100	4	Picture 2	○
PML-4EL-D12.0-H	12.0	12	35	100	4	Picture 2	○
PML-4EL-D14.0-H	14.0	14	40	100	4	Picture 2	○
PML-4EL-D16.0-H	16.0	16	50	150	4	Picture 2	○
PML-4EL-D20.0-H	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	○

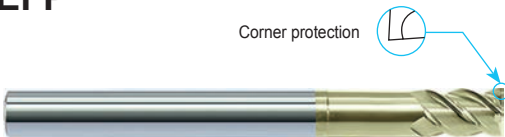


High-performance general milling PML series

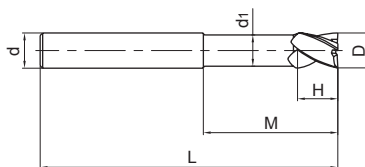
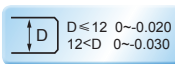
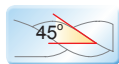
4-flute flattened end mills with straight shank, long neck and short cutting edge



PML-4EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d ₁	L		
PML-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
PML-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
PML-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
PML-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
PML-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
PML-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B486-B487

Non-standard customization

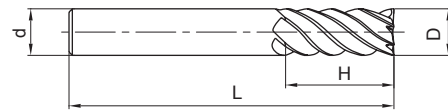
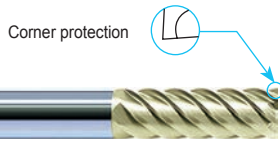
B570-B571

High-performance general milling PML series

6-flute flattened end mills with straight shank



PML-6E



- Perfect rigidity, very suitable for side finish machining.
- High speed, high feed rate machining applicable.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
PML-6E-D6.0	6.0	6	18	60	6	○
PML-6E-D8.0	8.0	8	20	60	6	○
PML-6E-D10.0	10.0	10	30	75	6	○
PML-6E-D12.0	12.0	12	32	75	6	○
PML-6E-D16.0	16.0	16	40	100	6	○
PML-6E-D20.0	20.0	20	45	100	6	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ○Very suitable ○Suitable

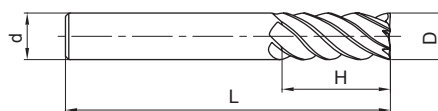
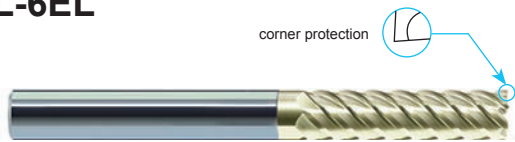
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○			○	○	



6-flute flattened end mills with straight shank and long cutting edge



PML-6EL



● PML-6E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
PML-6EL-D6.0	6.0	6	24	75	6	○
PML-6EL-D8.0	8.0	8	32	75	6	○
PML-6EL-D10.0	10.0	10	40	100	6	○
PML-6EL-D12.0	12.0	12	45	100	6	○
PML-6EL-D16.0	16.0	16	64	150	6	○
PML-6EL-D20.0	20.0	20	75	150	6	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B489

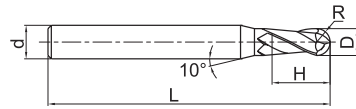
Non-standard customization

B570-B571

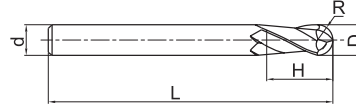
2-flute ball nose end mills with straight shank



PML-2B

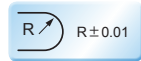
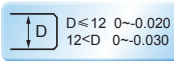
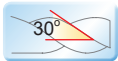


Picture 1



Picture 2

- For profile milling, high speed machining applicable.
- Wide application.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-2B-R0.5S	1.0	0.5	4	2	50	2	Picture 1	●
PML-2B-R0.5	1.0	0.5	6	2	50	2	Picture 1	●
PML-2B-R0.75S	1.5	0.75	4	3	50	2	Picture 1	●
PML-2B-R0.75	1.5	0.75	6	3	50	2	Picture 1	●
PML-2B-R1.0S	2.0	1.0	4	4	50	2	Picture 1	●
PML-2B-R1.0	2.0	1.0	6	4	50	2	Picture 1	●
PML-2B-R1.25S	2.5	1.25	4	5	50	2	Picture 1	●
PML-2B-R1.25	2.5	1.25	6	5	50	2	Picture 1	●
PML-2B-R1.5S	3.0	1.5	4	6	50	2	Picture 1	●
PML-2B-R1.5	3.0	1.5	6	6	50	2	Picture 1	●
PML-2B-R1.75	3.5	1.75	6	8	50	2	Picture 1	●
PML-2B-R2.0S	4.0	2.0	4	8	50	2	Picture 2	●
PML-2B-R2.0	4.0	2.0	6	8	50	2	Picture 1	●
PML-2B-R2.5	5.0	2.5	6	10	50	2	Picture 1	●
PML-2B-R2.75	5.5	2.75	6	12	50	2	Picture 1	●
PML-2B-R3.0	6.0	3.0	6	12	50	2	Picture 2	●
PML-2B-R3.5	7.0	3.5	8	14	60	2	Picture 1	●
PML-2B-R4.0	8.0	4.0	8	16	60	2	Picture 2	●
PML-2B-R4.5	9.0	4.5	10	18	75	2	Picture 1	●
PML-2B-R5.0	10.0	5.0	10	20	75	2	Picture 2	●
PML-2B-R6.0	12.0	6.0	12	24	75	2	Picture 2	●
PML-2B-R7.0	14.0	7.0	14	28	75	2	Picture 2	●
PML-2B-R8.0	16.0	8.0	16	32	100	2	Picture 2	●
PML-2B-R10.0	20.0	10.0	20	40	100	2	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

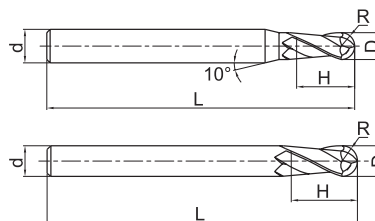
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



2-flute ball nose end mills with straight shank



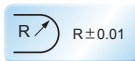
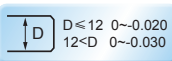
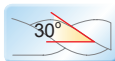
PML-2BL



Picture 1

Picture 2

● PML-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-2BL-R1.0	2.0	1.0	6	4	75	2	Picture 1	○
PML-2BL-R1.25	2.5	1.25	6	5	75	2	Picture 1	○
PML-2BL-R1.5	3.0	1.5	6	6	75	2	Picture 1	○
PML-2BL-R1.75	3.5	1.75	6	8	75	2	Picture 1	○
PML-2BL-R2.0	4.0	2.0	6	8	75	2	Picture 1	○
PML-2BL-R2.5	5.0	2.5	6	10	75	2	Picture 1	○
PML-2BL-R2.75	5.5	2.75	6	12	75	2	Picture 1	○
PML-2BL-R3.0	6.0	3.0	6	12	75	2	Picture 2	○
PML-2BL-R3.5	7.0	3.5	8	14	75	2	Picture 1	○
PML-2BL-R4.0	8.0	4.0	8	16	100	2	Picture 2	○
PML-2BL-R4.5	9.0	4.5	10	18	100	2	Picture 1	○
PML-2BL-R5.0	10.0	5.0	10	20	100	2	Picture 2	○
PML-2BL-R6.0	12.0	6.0	12	24	100	2	Picture 2	○
PML-2BL-R7.0	14.0	7.0	14	28	100	2	Picture 2	○
PML-2BL-R8.0	16.0	8.0	16	32	150	2	Picture 2	○
PML-2BL-R10.0	20.0	10.0	20	40	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B490-B491

Non-standard customization

B570-B571

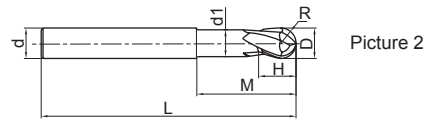
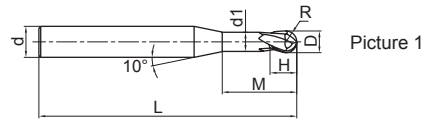
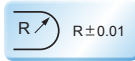
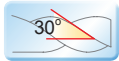
2-flute ball nose end mills with straight shank, long neck and short cutting edge



PML-2BFP



High-rigidity short cutting edge, suitable for heavy cutting.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	H	d ₁	M	d	L			
PML-2BFP-R0.5	1.0	0.5	1.0	0.95	2.5	6	75	2	Picture 1	○
PML-2BFP-R0.75	1.5	0.75	1.5	1.45	3.0	6	75	2	Picture 1	○
PML-2BFP-R1.0	2.0	1.0	2.0	1.95	4.0	6	75	2	Picture 1	○
PML-2BFP-R1.5	3.0	1.5	3.0	2.85	6.0	6	75	2	Picture 1	○
PML-2BFP-R2.0	4.0	2.0	4.0	3.85	8.0	6	75	2	Picture 1	○
PML-2BFP-R2.5	5.0	2.5	5.0	4.85	10.0	6	75	2	Picture 1	○
PML-2BFP-R3.0	6.0	3.0	6.0	5.8	12.0	6	75	2	Picture 2	○
PML-2BFP-R4.0	8.0	4.0	8.0	7.8	16.0	8	100	2	Picture 2	○
PML-2BFP-R5.0	10.0	5.0	10.0	9.6	20.0	10	100	2	Picture 2	○
PML-2BFP-R6.0	12.0	6.0	12.0	11.5	24.0	12	100	2	Picture 2	○
PML-2BFP-R8.0	16.0	8.0	16.0	15.5	32.0	16	150	2	Picture 2	○
PML-2BFP-R10.0	20.0	10.0	20.0	19.5	40.0	20	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	



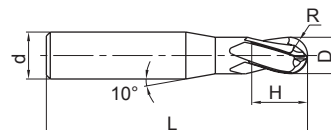
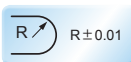
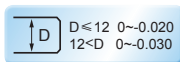
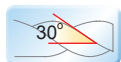
4-flute ball nose end mills with straight shank



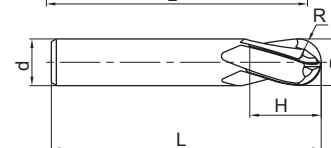
PML-4B



● 4-flute ball nose end mill can operate with higher feed speed and machining efficiency, extending too life in machining high-hardness workpiece



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-4B-R1.5	3.0	1.5	6	6	50	4	Picture 1	○
PML-4B-R2.0	4.0	2.0	6	8	50	4	Picture 1	○
PML-4B-R2.5	5.0	2.5	6	10	50	4	Picture 1	○
PML-4B-R3.0	6.0	3.0	6	12	50	4	Picture 2	○
PML-4B-R4.0	8.0	4.0	8	16	60	4	Picture 2	○
PML-4B-R5.0	10.0	5.0	10	20	75	4	Picture 2	○
PML-4B-R6.0	12.0	6.0	12	24	75	4	Picture 2	○
PML-4B-R7.0	14.0	7.0	14	28	75	4	Picture 2	○
PML-4B-R8.0	16.0	8.0	16	32	100	4	Picture 2	○
PML-4B-R9.0	18.0	9.0	18	36	100	4	Picture 2	○
PML-4B-R10.0	20.0	10.0	20	40	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PML series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B492

Non-standard customization

B570-B571

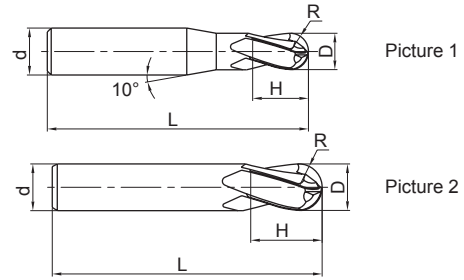
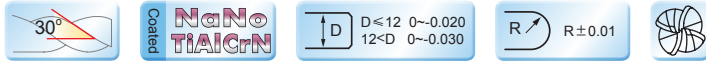
4-flute ball nose end mills with straight and long shank



PML-4BL



● PML-4B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
PML-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
PML-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
PML-4BL-R3.0	6.0	3.0	6	12	75	4	Picture 2	○
PML-4BL-R4.0	8.0	4.0	8	16	100	4	Picture 2	○
PML-4BL-R5.0	10.0	5.0	10	20	100	4	Picture 2	○
PML-4BL-R6.0	12.0	6.0	12	24	100	4	Picture 2	○
PML-4BL-R7.0	14.0	7.0	14	28	100	4	Picture 2	○
PML-4BL-R8.0	16.0	8.0	16	32	150	4	Picture 2	○
PML-4BL-R9.0	18.0	9.0	18	36	150	4	Picture 2	○
PML-4BL-R10.0	20.0	10.0	20	40	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	





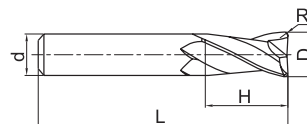
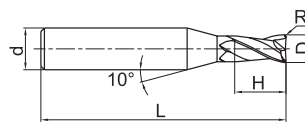
MILLING Solid Carbide End Mills

High-performance general milling PML series

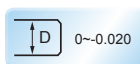
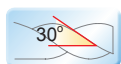
2-flute R end mills with straight shank



PML-2R



- Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-2R-D1.0R0.2	1.0	0.2	4	3	50	2	Picture 1	○
PML-2R-D1.5R0.2	1.5	0.2	4	4	50	2	Picture 1	○
PML-2R-D2.0R0.2	2.0	0.2	4	6	50	2	Picture 1	○
PML-2R-D2.0R0.5	2.0	0.5	4	6	50	2	Picture 1	○
PML-2R-D2.5R0.2	2.5	0.2	4	8	50	2	Picture 1	○
PML-2R-D2.5R0.5	2.5	0.5	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.2	3.0	0.2	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.3	3.0	0.3	4	8	50	2	Picture 1	○
PML-2R-D3.0R0.5	3.0	0.5	4	8	50	2	Picture 1	○
PML-2R-D4.0R0.2	4.0	0.2	4	11	50	2	Picture 2	○
PML-2R-D4.0R0.3	4.0	0.3	4	11	50	2	Picture 2	○
PML-2R-D4.0R0.5	4.0	0.5	4	11	50	2	Picture 2	○
PML-2R-D4.0R1.0	4.0	1.0	4	11	50	2	Picture 2	○
PML-2R-D5.0R0.3	5.0	0.3	6	13	50	2	Picture 1	○
PML-2R-D5.0R0.5	5.0	0.5	6	13	50	2	Picture 1	○
PML-2R-D5.0R1.0	5.0	1.0	6	13	50	2	Picture 1	○
PML-2R-D6.0R0.3	6.0	0.3	6	16	50	2	Picture 2	○
PML-2R-D6.0R0.5	6.0	0.5	6	16	50	2	Picture 2	○
PML-2R-D6.0R1.0	6.0	1.0	6	16	50	2	Picture 2	○
PML-2R-D8.0R0.3	8.0	0.3	8	20	60	2	Picture 2	○
PML-2R-D8.0R0.5	8.0	0.5	8	20	60	2	Picture 2	○
PML-2R-D8.0R1.0	8.0	1.0	8	20	60	2	Picture 2	○
PML-2R-D10.0R0.5	10.0	0.5	10	25	75	2	Picture 2	○
PML-2R-D10.0R1.0	10.0	1.0	10	25	75	2	Picture 2	○
PML-2R-D10.0R1.5	10.0	1.5	10	25	75	2	Picture 2	○
PML-2R-D10.0R2.0	10.0	2.0	10	25	75	2	Picture 2	○
PML-2R-D12.0R0.5	12.0	0.5	12	30	75	2	Picture 2	○
PML-2R-D12.0R1.0	12.0	1.0	12	30	75	2	Picture 2	○
PML-2R-D12.0R1.5	12.0	1.5	12	30	75	2	Picture 2	○
PML-2R-D12.0R2.0	12.0	2.0	12	30	75	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B496

Non-standard customization

B570-B571

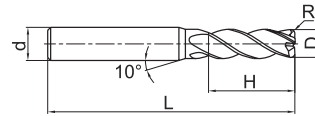
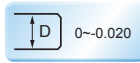
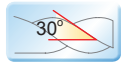
4-flute R end mills with straight shank



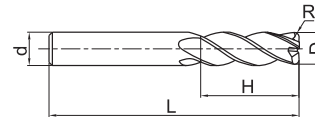
PML-4R



- Wide applications, applicable for several machining styles.



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
PML-4R-D4.0R0.3	4.0	0.3	6	10	50	4	Picture 1	●
PML-4R-D4.0R0.5	4.0	0.5	6	10	50	4	Picture 1	●
PML-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
PML-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
PML-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●
PML-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
PML-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
PML-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
PML-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
PML-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
PML-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
PML-4R-D10.0R3.0	10.0	3.0	10	25	75	4	Picture 2	●
PML-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
PML-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
PML-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●
PML-4R-D12.0R3.0	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	



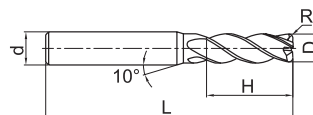
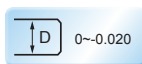
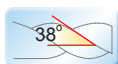
4-flute R end mills with straight shank



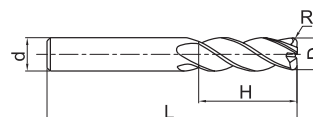
PML-4R-H



● Wide applications, applicable for several machining styles.



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PML-4R-D3.0R0.2-H	3.0	0.2	6	8	50	4	Picture 1	●
PML-4R-D4.0R0.3-H	4.0	0.3	6	10	50	4	Picture 1	●
PML-4R-D4.0R0.5-H	4.0	0.5	6	10	50	4	Picture 1	●
PML-4R-D5.0R0.5-H	5.0	0.5	6	13	50	4	Picture 1	●
PML-4R-D5.0R1.0-H	5.0	1.0	6	13	50	4	Picture 1	●
PML-4R-D6.0R0.5-H	6.0	0.5	6	16	50	4	Picture 2	●
PML-4R-D6.0R1.0-H	6.0	1.0	6	16	50	4	Picture 2	●
PML-4R-D8.0R0.5-H	8.0	0.5	8	20	60	4	Picture 2	●
PML-4R-D8.0R1.0-H	8.0	1.0	8	20	60	4	Picture 2	●
PML-4R-D10R0.5-H	10.0	0.5	10	25	75	4	Picture 2	●
PML-4R-D10R1.0-H	10.0	1.0	10	25	75	4	Picture 2	●
PML-4R-D10R2.0-H	10.0	2.0	10	25	75	4	Picture 2	●
PML-4R-D10R3.0-H	10.0	3.0	10	25	75	4	Picture 2	●
PML-4R-D12R0.5-H	12.0	0.5	12	30	75	4	Picture 2	●
PML-4R-D12R1.0-H	12.0	1.0	12	30	75	4	Picture 2	●
PML-4R-D12R2.0-H	12.0	2.0	12	30	75	4	Picture 2	●
PML-4R-D12R3.0-H	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable
milling tools

Solid carbide
end mills

PML series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

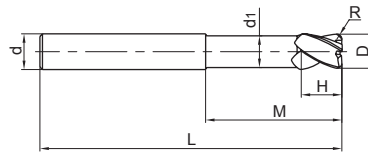
Non-standard customization

B570-B571

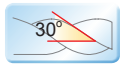
4-flute R end mills with straight shank, long neck and short cutting edge



PML-4RFP



● Long shank and short cutting edge designed for deep cavity milling.



Type	Basic dimension(mm)							Number of teeth Z	Stock
	D	R	d	d ₁	H	M	L		
PML-4RFP-D6.0R0.5	6.0	0.5	6	5.8	6	18	75	4	○
PML-4RFP-D6.0R1.0	6.0	1.0	6	5.8	6	18	75	4	○
PML-4RFP-D8.0R0.5	8.0	0.5	8	7.8	8	24	100	4	○
PML-4RFP-D8.0R1.0	8.0	1.0	8	7.8	8	24	100	4	○
PML-4RFP-D10.0R0.5	10.0	0.5	10	9.6	10	30	100	4	○
PML-4RFP-D10.0R1.0	10.0	1.0	10	9.6	10	30	100	4	○
PML-4RFP-D10.0R2.0	10.0	2.0	10	9.6	10	30	100	4	○
PML-4RFP-D12.0R0.5	12.0	0.5	12	11.5	12	36	100	4	○
PML-4RFP-D12.0R1.0	12.0	1.0	12	11.5	12	36	100	4	○
PML-4RFP-D12.0R2.0	12.0	2.0	12	11.5	12	36	100	4	○
PML-4RFP-D16.0R1.0	16.0	1.0	16	15.5	16	40	150	4	○
PML-4RFP-D16.0R2.0	16.0	2.0	16	15.5	16	40	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PML series

Applicable workpiece material table ● Very suitable ○ Suitable

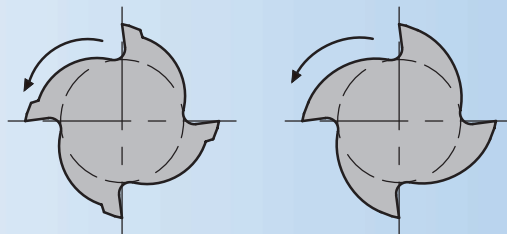
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



High performance universal machining

PM series

- Optimized geometry, improves chip removal and chip forming with reduced cutting force.



a) PM chipbreaker

b) Conventional chipbreaker



- Higher feed rates and improved metal removal rate for efficient machining, due to high stability of cutting edge and rigid tool structure.

Tool diameter: $\varnothing 6.0\text{mm}$

Tool type: a) PM-4E-D6.0

b) Tool from overseas manufacturer

Mmachine tool: Mikron UCP1000

Workpiece material: NAK80(40HRC)

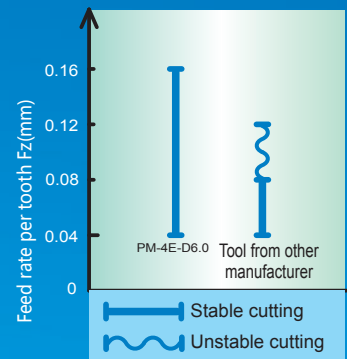
Cooling system: air blow

Machining operation: side milling (down milling)

Cutting parameters: $V_c=100\text{m/min}$,

$a_p=9\text{mm}$, $a_e=0.6\text{mm}$,

$F_z=0.04\text{mm}\sim 0.16\text{mm}$

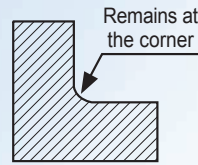


- With excellent wear resistance and toughness, high wear resistance and breakage resistance is achieved even during high performance milling.

The characteristic of corner protection end mill:

It's suitable for bad cutting condition or hardness material machining.

- It's not easy to break with high cutting edge strength.
- The sharpness of the corner is reduced, and there are residues in it.

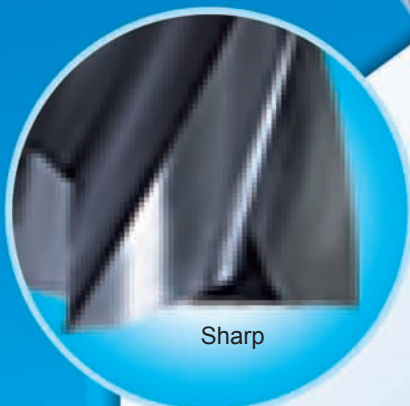


Corner protection

Updated flattened end mills

End mills series of sharp and corner protection type

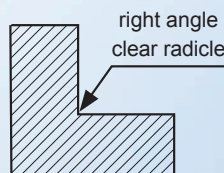
Sharp



The characteristic of sharp end mill:

True 90 degree angle is obtained without material left in the corner.

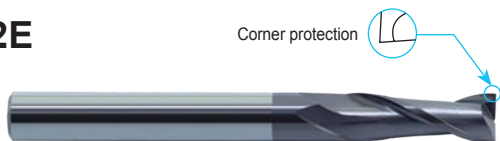
The corner part is sharp; it is applicable in finishing or soft material machining. Especially, it is usually used in machining of non-ferrous material such as Al.



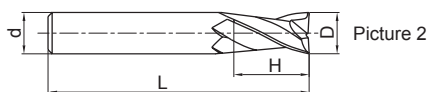
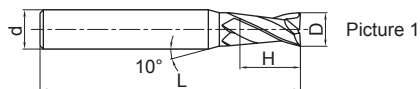
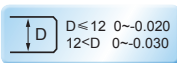
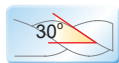
2-flute flattened end mills with straight shank



PM-2E



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-2E-D1.0F	1.0	3	3	50	2	Picture 1	○
PM-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
PM-2E-D1.0	1.0	6	3	50	2	Picture 1	●
PM-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
PM-2E-D1.5	1.5	6	4	50	2	Picture 1	●
PM-2E-D2.0F	2.0	3	6	50	2	Picture 1	○
PM-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
PM-2E-D2.0	2.0	6	6	50	2	Picture 1	●
PM-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
PM-2E-D2.5	2.5	6	8	50	2	Picture 1	●
PM-2E-D3.0F	3.0	3	8	50	2	Picture 2	○
PM-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
PM-2E-D3.0	3.0	6	8	50	2	Picture 1	●
PM-2E-D3.5S	3.5	4	10	50	2	Picture 1	○
PM-2E-D3.5	3.5	6	10	50	2	Picture 1	●
PM-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
PM-2E-D4.0	4.0	6	11	50	2	Picture 1	●
PM-2E-D4.5	4.5	6	11	50	2	Picture 1	●
PM-2E-D5.0	5.0	6	13	50	2	Picture 1	●
PM-2E-D5.5	5.5	6	16	50	2	Picture 1	●
PM-2E-D6.0	6.0	6	16	50	2	Picture 2	●
PM-2E-D7.0	7.0	8	20	60	2	Picture 1	●
PM-2E-D8.0	8.0	8	20	60	2	Picture 2	●
PM-2E-D9.0	9.0	10	22	75	2	Picture 1	●
PM-2E-D10.0	10.0	10	25	75	2	Picture 2	●
PM-2E-D11.0	11.0	12	26	75	2	Picture 1	●
PM-2E-D12.0	12.0	12	30	75	2	Picture 2	●
PM-2E-D14.0	14.0	14	32	75	2	Picture 2	●
PM-2E-D16.0	16.0	16	45	100	2	Picture 2	●
PM-2E-D18.0	18.0	18	45	100	2	Picture 2	●
PM-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

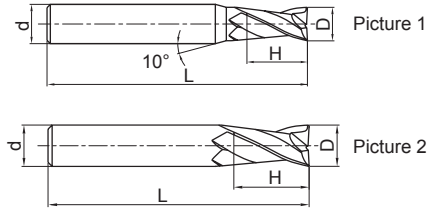
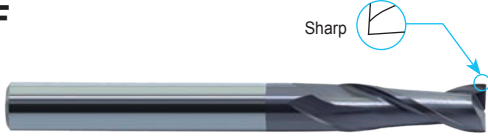
Non-standard customization

B570-B571

2-flute flattened end mills with straight shank



PM-2F



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-2F-D1.0S	1.0	4	3	50	2	Picture 1	○
PM-2F-D1.0	1.0	6	3	50	2	Picture 1	○
PM-2F-D1.5S	1.5	4	4	50	2	Picture 1	○
PM-2F-D1.5	1.5	6	4	50	2	Picture 1	○
PM-2F-D2.0S	2.0	4	6	50	2	Picture 1	○
PM-2F-D2.0	2.0	6	6	50	2	Picture 1	○
PM-2F-D2.5S	2.5	4	8	50	2	Picture 1	○
PM-2F-D2.5	2.5	6	8	50	2	Picture 1	○
PM-2F-D3.0S	3.0	4	8	50	2	Picture 1	○
PM-2F-D3.0	3.0	6	8	50	2	Picture 1	○
PM-2F-D3.5	3.5	6	10	50	2	Picture 1	○
PM-2F-D4.0S	4.0	4	11	50	2	Picture 2	○
PM-2F-D4.0	4.0	6	11	50	2	Picture 1	○
PM-2F-D4.5	4.5	6	11	50	2	Picture 1	○
PM-2F-D5.0	5.0	6	13	50	2	Picture 1	○
PM-2F-D5.5	5.5	6	16	50	2	Picture 1	○
PM-2F-D6.0	6.0	6	16	50	2	Picture 2	○
PM-2F-D7.0	7.0	8	20	60	2	Picture 1	○
PM-2F-D8.0	8.0	8	20	60	2	Picture 2	○
PM-2F-D9.0	9.0	10	22	75	2	Picture 1	○
PM-2F-D10.0	10.0	10	25	75	2	Picture 2	○
PM-2F-D11.0	11.0	12	26	75	2	Picture 1	○
PM-2F-D12.0	12.0	12	30	75	2	Picture 2	○
PM-2F-D14.0	14.0	14	32	75	2	Picture 2	○
PM-2F-D16.0	16.0	16	45	100	2	Picture 2	○
PM-2F-D18.0	18.0	18	45	100	2	Picture 2	○
PM-2F-D20.0	20.0	20	45	100	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	

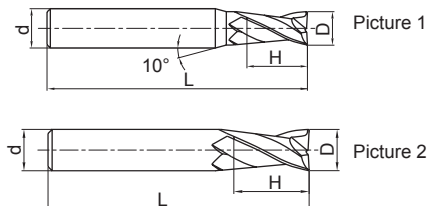
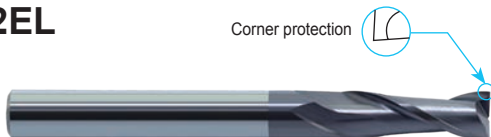
Code key **B258** Graphics category and identification **B259** Cutting parameters **B476** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
PM series

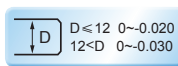
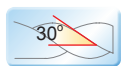
2-flute flattened end mills with straight shank and long cutting edge



PM-2EL



● PM-2E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-2EL-D3.0	3.0	6	12	75	2	Picture 1	○
PM-2EL-D4.0	4.0	6	15	75	2	Picture 1	○
PM-2EL-D5.0	5.0	6	20	75	2	Picture 1	○
PM-2EL-D6.0	6.0	6	20	75	2	Picture 2	○
PM-2EL-D8.0	8.0	8	25	100	2	Picture 2	○
PM-2EL-D10.0	10.0	10	30	100	2	Picture 2	○
PM-2EL-D12.0	12.0	12	35	100	2	Picture 2	○
PM-2EL-D14.0	14.0	14	40	100	2	Picture 2	○
PM-2EL-D16.0	16.0	16	50	150	2	Picture 2	○
PM-2EL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

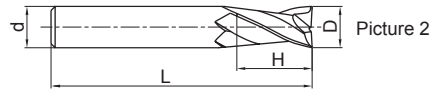
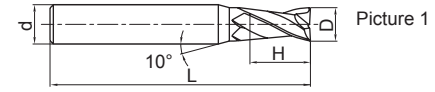
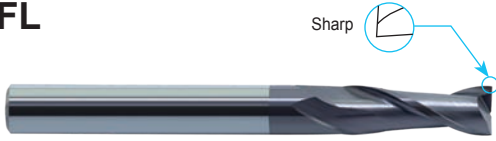
Non-standard customization

B570-B571

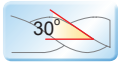
2-flute flattened end mills with straight shank and long cutting edge



PM-2FL



● PM-2F series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-2FL-D3.0	3.0	6	12	75	2	Picture 1	○
PM-2FL-D4.0	4.0	6	15	75	2	Picture 1	○
PM-2FL-D5.0	5.0	6	20	75	2	Picture 1	○
PM-2FL-D6.0	6.0	6	20	75	2	Picture 2	○
PM-2FL-D8.0	8.0	8	25	100	2	Picture 2	○
PM-2FL-D10.0	10.0	10	30	100	2	Picture 2	○
PM-2FL-D12.0	12.0	12	35	100	2	Picture 2	○
PM-2FL-D14.0	14.0	14	40	100	2	Picture 2	○
PM-2FL-D16.0	16.0	16	50	150	2	Picture 2	○
PM-2FL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○ Very suitable ○ Suitable

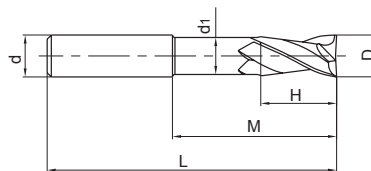
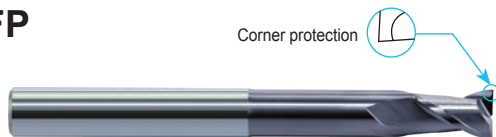
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



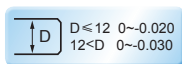
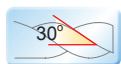
2-flute flattened end mills with straight shank, long neck and short cutting edge



PM-2EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d ₁	L		
PM-2EFP-D6.0	6.0	6	9	30	5.8	75	2	○
PM-2EFP-D8.0	8.0	8	12	40	7.8	100	2	○
PM-2EFP-D10.0	10.0	10	15	50	9.6	100	2	○
PM-2EFP-D12.0	12.0	12	18	50	11.5	100	2	○
PM-2EFP-D16.0	16.0	16	24	50	15.5	150	2	○
PM-2EFP-D20.0	20.0	20	30	60	19.5	150	2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B477

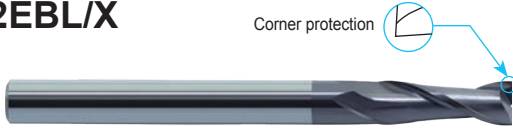
Non-standard customization

B570-B571

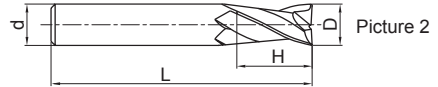
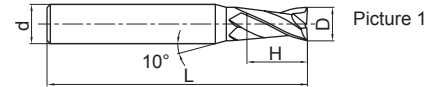
2-flute flattened endmills with long shank



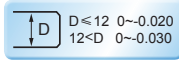
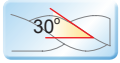
PM-2EBL/X



Corner protection



● PM-2E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-2EBL-D3.0S	3.0	4	8	75	2	Picture 1	○
PM-2EBL-D3.0	3.0	6	8	75	2	Picture 1	○
PM-2EBL-D4.0S	4.0	4	11	75	2	Picture 2	○
PM-2EBL-D4.0	4.0	6	11	75	2	Picture 1	○
PM-2EBL-D6.0	6.0	6	16	75	2	Picture 2	○
PM-2EBX-D6.0	6.0	6	16	100	2	Picture 2	○
PM-2EBL-D8.0	8.0	8	20	75	2	Picture 2	○
PM-2EBX-D8.0	8.0	8	20	100	2	Picture 2	○
PM-2EBL-D10.0	10.0	10	25	100	2	Picture 2	○
PM-2EBX-D10.0	10.0	10	25	150	2	Picture 2	○
PM-2EBL-D12.0	12.0	12	30	100	2	Picture 2	○
PM-2EBX-D12.0	12.0	12	30	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

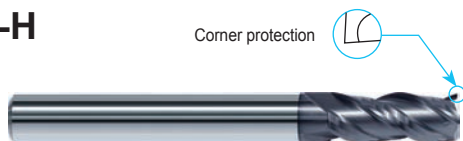
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



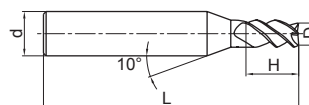
3-flute flattened end mills with straight shank



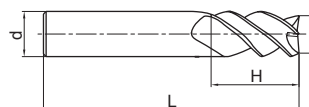
PM-3E-H



Corner protection

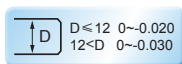
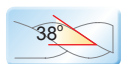


Picture 1



Picture 2

- Especially suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-3E-D3.0F-H	3.0	3	8	5	3	Picture 2	○
PM-3E-D3.0S-H	3.0	4	8	50	3	Picture 1	○
PM-3E-D3.0-H	3.0	6	8	50	3	Picture 1	○
PM-3E-D3.5-H	3.5	6	10	50	3	Picture 1	○
PM-3E-D4.0S-H	4.0	4	11	50	3	Picture 2	○
PM-3E-D4.0-H	4.0	6	11	50	3	Picture 1	○
PM-3E-D4.5-H	4.5	6	11	50	3	Picture 1	○
PM-3E-D5.0-H	5.0	6	13	50	3	Picture 1	○
PM-3E-D5.5-H	5.5	6	16	50	3	Picture 1	○
PM-3E-D6.0-H	6.0	6	16	50	3	Picture 2	○
PM-3E-D7.0-H	7.0	8	20	60	3	Picture 1	○
PM-3E-D8.0-H	8.0	8	20	60	3	Picture 2	○
PM-3E-D9.0-H	9.0	10	22	75	3	Picture 1	○
PM-3E-D10.0-H	10.0	10	25	75	3	Picture 2	○
PM-3E-D11.0-H	11.0	12	26	75	3	Picture 1	○
PM-3E-D12.0-H	12.0	12	30	75	3	Picture 2	○
PM-3E-D14.0-H	14.0	14	32	75	3	Picture 2	○
PM-3E-D16.0-H	16.0	16	45	100	3	Picture 2	○
PM-3E-D18.0-H	18.0	18	45	100	3	Picture 2	○
PM-3E-D20.0-H	20.0	20	45	100	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B478

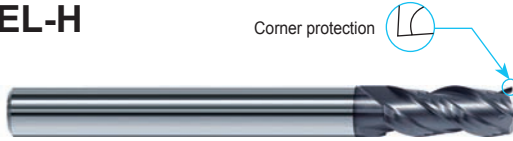
Non-standard customization

B570-B571

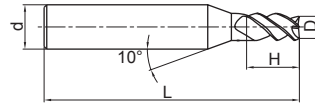
3-flute flattened end mills with straight shank and long cutting edge



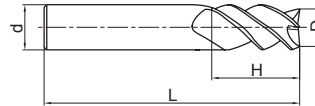
PM-3EL-H



Corner protection

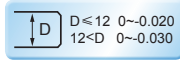
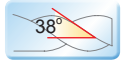


Picture 1



Picture 2

● PM-3E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-3EL-D3.0-H	3.0	6	12	75	3	Picture 1	○
PM-3EL-D4.0-H	4.0	6	15	75	3	Picture 1	○
PM-3EL-D5.0-H	5.0	6	20	75	3	Picture 1	○
PM-3EL-D6.0-H	6.0	6	20	75	3	Picture 2	○
PM-3EL-D8.0-H	8.0	8	25	100	3	Picture 2	○
PM-3EL-D10.0-H	10.0	10	30	100	3	Picture 2	○
PM-3EL-D12.0-H	12.0	12	35	100	3	Picture 2	○
PM-3EL-D14.0-H	14.0	14	40	100	3	Picture 2	○
PM-3EL-D16.0-H	16.0	16	50	150	3	Picture 2	○
PM-3EL-D20.0-H	20.0	20	55	150	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○ Very suitable ○ Suitable

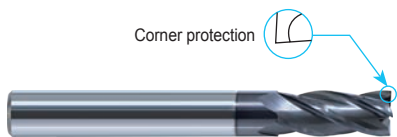
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



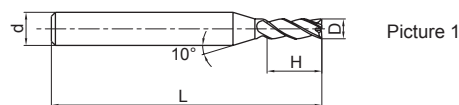
4-flute flattened end mills with straight shank



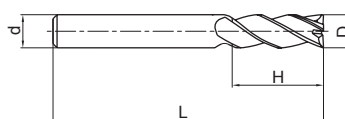
PM-4E-G



Corner protection

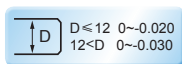
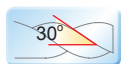


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4E-D1.0F-G	1.0	3	3	50	4	Picture 1	○
PM-4E-D1.0S-G	1.0	4	3	50	4	Picture 1	●
PM-4E-D1.0-G	1.0	6	3	50	4	Picture 1	●
PM-4E-D1.5F-G	1.5	3	4	50	4	Picture 1	○
PM-4E-D1.5S-G	1.5	4	4	50	4	Picture 1	●
PM-4E-D1.5-G	1.5	6	4	50	4	Picture 1	●
PM-4E-D2.0F-G	2.0	3	6	50	4	Picture 1	○
PM-4E-D2.0S-G	2.0	4	6	50	4	Picture 1	●
PM-4E-D2.0-G	2.0	6	6	50	4	Picture 1	●
PM-4E-D2.5F-G	2.5	3	8	50	4	Picture 1	○
PM-4E-D2.5S-G	2.5	4	8	50	4	Picture 1	●
PM-4E-D2.5-G	2.5	6	8	50	4	Picture 1	●
PM-4E-D3.0F-G	3.0	3	8	50	4	Picture 2	○
PM-4E-D3.0S-G	3.0	4	8	50	4	Picture 1	●
PM-4E-D3.0-G	3.0	6	8	50	4	Picture 1	●
PM-4E-D3.5S-G	3.5	4	10	50	4	Picture 1	○
PM-4E-D3.5-G	3.5	6	10	50	4	Picture 1	●
PM-4E-D4.0S-G	4.0	4	11	50	4	Picture 2	●
PM-4E-D4.0-G	4.0	6	11	50	4	Picture 1	●
PM-4E-D4.5-G	4.5	6	11	50	4	Picture 1	●
PM-4E-D5.0-G	5.0	6	13	50	4	Picture 1	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

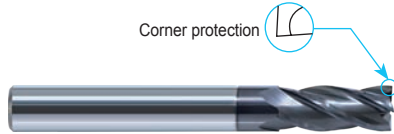
Non-standard customization

B570-B571

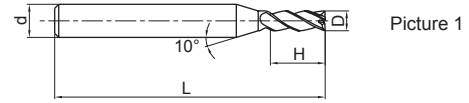
4-flute flattened end mills with straight shank



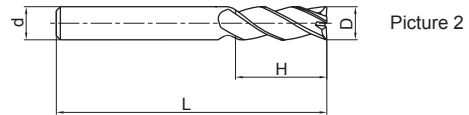
PM-4E-G



Corner protection

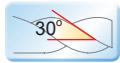


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4E-D5.5-G	5.5	6	16	50	4	Picture 1	●
PM-4E-D6.0-G	6.0	6	16	50	4	Picture 2	●
PM-4E-D7.0-G	7.0	8	20	60	4	Picture 1	●
PM-4E-D8.0-G	8.0	8	20	60	4	Picture 2	●
PM-4E-D9.0-G	9.0	10	22	75	4	Picture 1	●
PM-4E-D10.0-G	10.0	10	25	75	4	Picture 2	●
PM-4E-D10.0-G	10.0	10	25	75	4	Picture 2	●
PM-4E-D11.0-G	11.0	12	26	75	4	Picture 1	●
PM-4E-D12.0-G	12.0	12	30	75	4	Picture 2	●
PM-4E-D14.0-G	14.0	14	32	75	4	Picture 2	●
PM-4E-D16.0-G	16.0	16	45	100	4	Picture 2	●
PM-4E-D18.0-G	18.0	18	45	100	4	Picture 2	●
PM-4E-D20.0-G	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

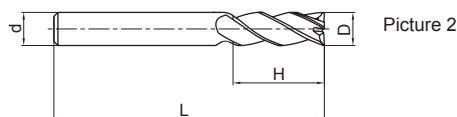
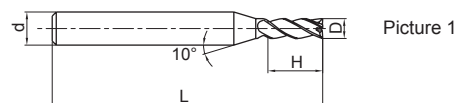
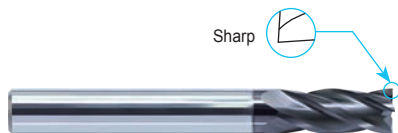
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



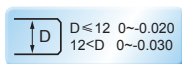
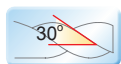
4-flute flattened end mills with straight shank



PM-4F-G



- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4F-D1.0S-G	1.0	4	3	50	4	Picture 1	○
PM-4F-D1.0-G	1.0	6	3	50	4	Picture 1	○
PM-4F-D1.5S-G	1.5	4	4	50	4	Picture 1	○
PM-4F-D1.5-G	1.5	6	4	50	4	Picture 1	○
PM-4F-D2.0S-G	2.0	4	6	50	4	Picture 1	○
PM-4F-D2.0-G	2.0	6	6	50	4	Picture 1	○
PM-4F-D2.5S-G	2.5	4	8	50	4	Picture 1	○
PM-4F-D2.5-G	2.5	6	8	50	4	Picture 1	○
PM-4F-D3.0S-G	3.0	4	8	50	4	Picture 1	○
PM-4F-D3.0-G	3.0	6	8	50	4	Picture 1	○
PM-4F-D3.5-G	3.5	6	10	50	4	Picture 1	○
PM-4F-D4.0S-G	4.0	4	11	50	4	Picture 2	○
PM-4F-D4.0-G	4.0	6	11	50	4	Picture 1	○
PM-4F-D4.5-G	4.5	6	11	50	4	Picture 1	○
PM-4F-D5.0-G	5.0	6	13	50	4	Picture 1	○
PM-4F-D5.5-G	5.5	6	16	50	4	Picture 1	○
PM-4F-D6.0-G	6.0	6	16	50	4	Picture 2	○
PM-4F-D7.0-G	7.0	8	20	60	4	Picture 1	○
PM-4F-D8.0-G	8.0	8	20	60	4	Picture 2	○
PM-4F-D9.0-G	9.0	10	22	75	4	Picture 1	○
PM-4F-D10.0-G	10.0	10	25	75	4	Picture 2	○
PM-4F-D11.0-G	11.0	12	26	75	4	Picture 1	○
PM-4F-D12.0-G	12.0	12	30	75	4	Picture 2	○
PM-4F-D14.0-G	14.0	14	32	75	4	Picture 2	○
PM-4F-D16.0-G	16.0	16	45	100	4	Picture 2	○
PM-4F-D18.0-G	18.0	18	45	100	4	Picture 2	○
PM-4F-D20.0-G	20.0	20	45	100	4	Picture 2	○

Applicable workpiece material table

● Stock available ○ Make-to-order

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

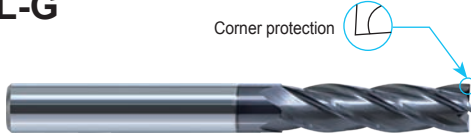
Non-standard customization

B570-B571

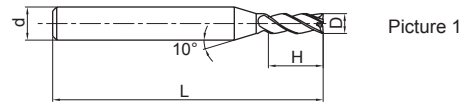
4-flute flattened end mills with straight shank and long cutting edge



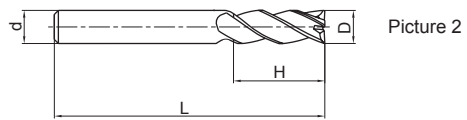
PM-4EL-G



Corner protection

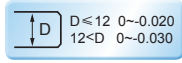
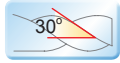


Picture 1



Picture 2

● PM-4E-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PM-4EL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PM-4EL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PM-4EL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PM-4EL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PM-4EL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PM-4EL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PM-4EL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PM-4EL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PM-4EL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

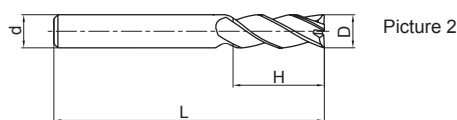
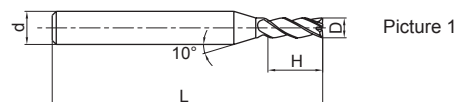
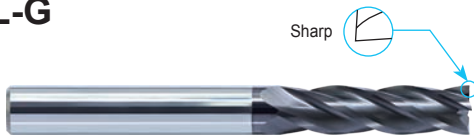
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



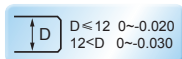
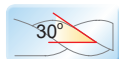
4-flute flattened end mills with straight shank and long cutting edge



PM-4FL-G



● PM-4F-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4FL-D3.0-G	3.0	6	12	75	4	Picture 1	○
PM-4FL-D4.0-G	4.0	6	15	75	4	Picture 1	○
PM-4FL-D5.0-G	5.0	6	20	75	4	Picture 1	○
PM-4FL-D6.0-G	6.0	6	20	75	4	Picture 2	○
PM-4FL-D8.0-G	8.0	8	25	100	4	Picture 2	○
PM-4FL-D10.0-G	10.0	10	30	100	4	Picture 2	○
PM-4FL-D12.0-G	12.0	12	35	100	4	Picture 2	○
PM-4FL-D14.0-G	14.0	14	40	100	4	Picture 2	○
PM-4FL-D16.0-G	16.0	16	50	150	4	Picture 2	○
PM-4FL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

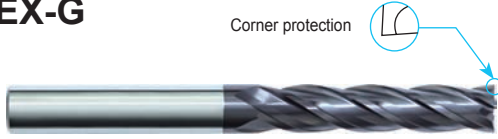
Non-standard customization

B570-B571

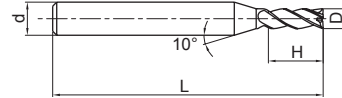
4-flute flattened end mills with straight shank and extra long cutting edge



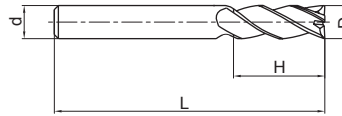
PM-4EX-G



Corner protection

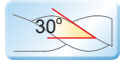


Picture 1



Picture 2

- Extra long cutting edge, for deep side wall machining.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	○
PM-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	○
PM-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	○
PM-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	○
PM-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	○
PM-4EX-D10.0-G	10.0	10	50	110	4	Picture 2	○
PM-4EX-D12.0-G	12.0	12	50	110	4	Picture 2	○
PM-4EX-D16.0-G	16.0	16	70	150	4	Picture 2	○
PM-4EX-D20.0-G	20.0	20	75	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



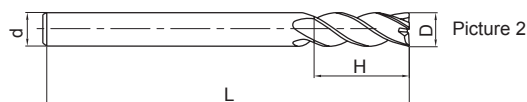
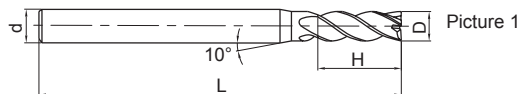
4-flute flattened endmills with long shank



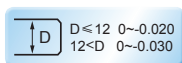
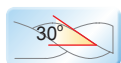
PM-4EBL/X-G



Corner protection



● PM-4E-G series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EBL-D3.0S-G	3.0	4	8	75	4	Picture 1	○
PM-4EBL-D3.0-G	3.0	6	8	75	4	Picture 1	○
PM-4EBL-D4.0S-G	4.0	4	11	75	4	Picture 2	○
PM-4EBL-D4.0-G	4.0	6	11	75	4	Picture 1	○
PM-4EBL-D6.0-G	6.0	6	16	75	4	Picture 2	○
PM-4EBX-D6.0-G	6.0	6	16	100	4	Picture 2	○
PM-4EBL-D8.0-G	8.0	8	20	75	4	Picture 2	○
PM-4EBX-D8.0-G	8.0	8	20	100	4	Picture 2	○
PM-4EBL-D10.0-G	10.0	10	25	100	4	Picture 2	○
PM-4EBX-D10.0-G	10.0	10	25	150	4	Picture 2	○
PM-4EBL-D12.0-G	12.0	12	30	100	4	Picture 2	○
PM-4EBX-D12.0-G	12.0	12	30	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

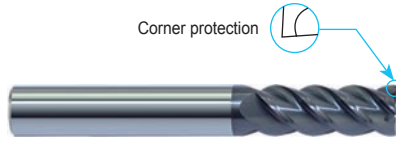
Non-standard customization

B570-B571

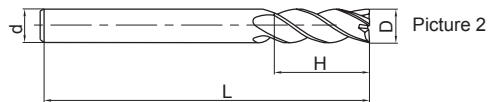
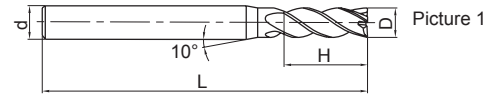
4-flute flattened end mills with straight shank



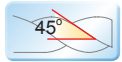
PM-4E



Corner protection



- Very suitable for side milling and shallow slot machining.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4E-D1.0F	1.0	3	3	50	4	Picture 1	○
PM-4E-D1.0S	1.0	4	3	50	4	Picture 1	○
PM-4E-D1.0	1.0	6	3	50	4	Picture 1	○
PM-4E-D1.5F	1.5	3	4	50	4	Picture 1	○
PM-4E-D1.5S	1.5	4	4	50	4	Picture 1	○
PM-4E-D1.5	1.5	6	4	50	4	Picture 1	○
PM-4E-D2.0F	2.0	3	6	50	4	Picture 1	○
PM-4E-D2.0S	2.0	4	6	50	4	Picture 1	○
PM-4E-D2.0	2.0	6	6	50	4	Picture 1	○
PM-4E-D2.5F	2.5	3	8	50	4	Picture 1	○
PM-4E-D2.5S	2.5	4	8	50	4	Picture 1	○
PM-4E-D2.5	2.5	6	8	50	4	Picture 1	○
PM-4E-D3.0F	3.0	3	8	50	4	Picture 2	○
PM-4E-D3.0S	3.0	4	8	50	4	Picture 1	○
PM-4E-D3.0	3.0	6	8	50	4	Picture 1	○
PM-4E-D3.5S	3.5	4	10	50	4	Picture 1	○
PM-4E-D4.0S	4.0	4	11	50	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

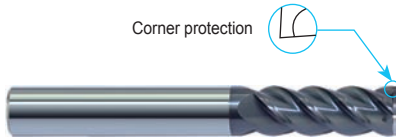
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



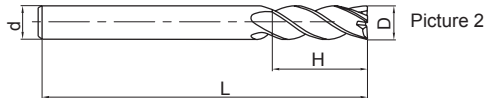
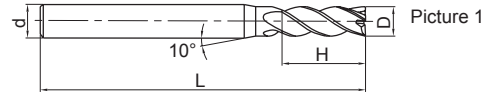
4-flute flattened end mills with straight shank



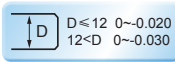
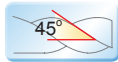
PM-4E



Corner protection



- Very suitable for side milling and shallow slot machining.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4E-D3.5	3.5	6	10	50	4	Picture 1	○
PM-4E-D4.0	4.0	6	11	50	4	Picture 1	○
PM-4E-D4.5	4.5	6	11	50	4	Picture 1	○
PM-4E-D5.0	5.0	6	13	50	4	Picture 1	○
PM-4E-D5.5	5.5	6	16	50	4	Picture 1	○
PM-4E-D6.0	6.0	6	16	50	4	Picture 2	○
PM-4E-D7.0	7.0	8	20	60	4	Picture 1	○
PM-4E-D8.0	8.0	8	20	60	4	Picture 2	○
PM-4E-D9.0	9.0	10	22	75	4	Picture 1	○
PM-4E-D10.0	10.0	10	25	75	4	Picture 2	○
PM-4E-D11.0	11.0	12	26	75	4	Picture 1	○
PM-4E-D12.0	12.0	12	30	75	4	Picture 2	○
PM-4E-D14.0	14.0	14	32	75	4	Picture 2	○
PM-4E-D16.0	16.0	16	45	100	4	Picture 2	○
PM-4E-D18.0	18.0	18	45	100	4	Picture 2	○
PM-4E-D20.0	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○				○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B484-B485

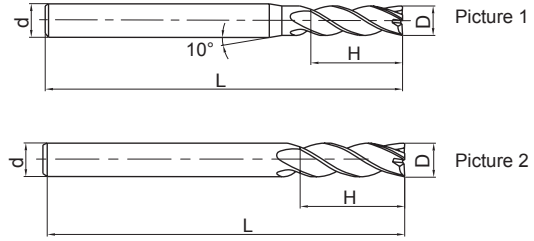
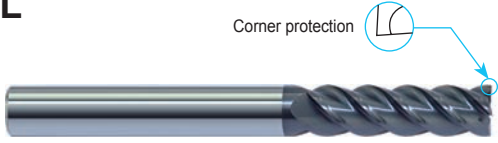
Non-standard customization

B570-B571

4-flute flattened end mills with straight shank and long cutting edge



PM-4EL



PM-4E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EL-D3.0	3.0	6	12	75	4	Picture 1	○
PM-4EL-D4.0	4.0	6	15	75	4	Picture 1	○
PM-4EL-D5.0	5.0	6	20	75	4	Picture 1	○
PM-4EL-D6.0	6.0	6	20	75	4	Picture 2	○
PM-4EL-D8.0	8.0	8	25	100	4	Picture 2	○
PM-4EL-D10.0	10.0	10	30	100	4	Picture 2	○
PM-4EL-D12.0	12.0	12	35	100	4	Picture 2	○
PM-4EL-D14.0	14.0	14	40	100	4	Picture 2	○
PM-4EL-D16.0	16.0	16	50	150	4	Picture 2	○
PM-4EL-D20.0	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



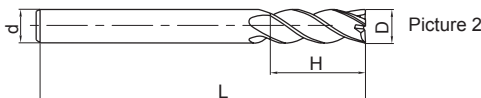
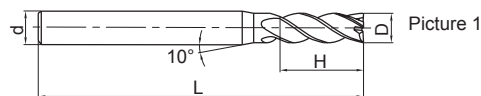
4-flute flattened end mills with straight shank



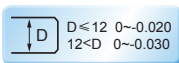
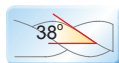
PM-4E-H



Corner protection



- Most suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4E-D3.0S-H	3.0	4	8	50	4	Picture 1	○
PM-4E-D3.0-H	3.0	6	8	50	4	Picture 1	○
PM-4E-D3.5-H	3.5	6	10	50	4	Picture 1	○
PM-4E-D4.0S-H	4.0	4	11	50	4	Picture 2	○
PM-4E-D4.0-H	4.0	6	11	50	4	Picture 1	○
PM-4E-D4.5-H	4.5	6	11	50	4	Picture 1	○
PM-4E-D5.0-H	5.0	6	13	50	4	Picture 1	○
PM-4E-D5.5-H	5.5	6	16	50	4	Picture 1	○
PM-4E-D6.0-H	6.0	6	16	50	4	Picture 2	○
PM-4E-D7.0-H	7.0	8	20	60	4	Picture 1	○
PM-4E-D8.0-H	8.0	8	20	60	4	Picture 2	○
PM-4E-D9.0-H	9.0	10	22	75	4	Picture 1	○
PM-4E-D10.0-H	10.0	10	25	75	4	Picture 2	○
PM-4E-D11.0-H	11.0	12	26	75	4	Picture 1	○
PM-4E-D12.0-H	12.0	12	30	75	4	Picture 2	○
PM-4E-D14.0-H	14.0	14	32	75	4	Picture 2	○
PM-4E-D16.0-H	16.0	16	45	100	4	Picture 2	○
PM-4E-D18.0-H	18.0	18	45	100	4	Picture 2	○
PM-4E-D20.0-H	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

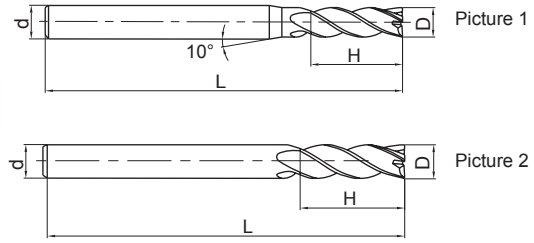
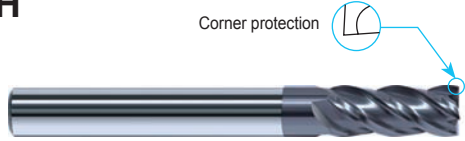
Non-standard customization

B570-B571

4-flute flattened end mills with straight shank and long cutting edge



PM-4EL-H



● PM-4E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EL-D3.0-H	3.0	6	12	75	4	Picture 1	○
PM-4EL-D4.0-H	4.0	6	15	75	4	Picture 1	○
PM-4EL-D5.0-H	5.0	6	20	75	4	Picture 1	○
PM-4EL-D6.0-H	6.0	6	20	75	4	Picture 2	○
PM-4EL-D8.0-H	8.0	8	25	100	4	Picture 2	○
PM-4EL-D10.0-H	10.0	10	30	100	4	Picture 2	○
PM-4EL-D12.0-H	12.0	12	35	100	4	Picture 2	○
PM-4EL-D14.0-H	14.0	14	40	100	4	Picture 2	○
PM-4EL-D16.0-H	16.0	16	50	150	4	Picture 2	○
PM-4EL-D20.0-H	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

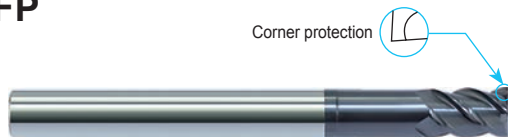


High-performance general milling PM series

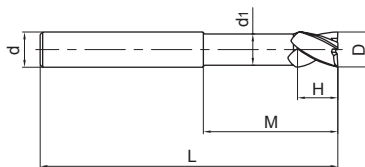
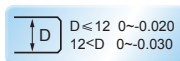
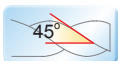
4-flute flattened end mills with straight shank, long neck and short cutting edge



PM-4EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d ₁	L		
PM-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
PM-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
PM-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
PM-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
PM-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
PM-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B486-B487

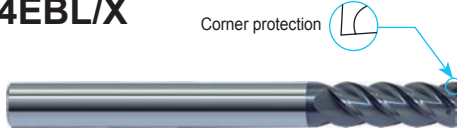
Non-standard customization

B570-B571

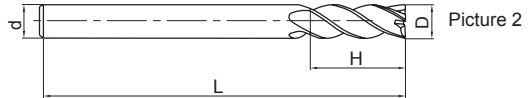
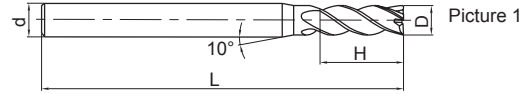
4-flute flattened endmills with long shank



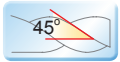
PM-4EBL/X



Corner protection



● PM-4E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
PM-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
PM-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
PM-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
PM-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
PM-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
PM-4EBX-D6.0	6.0	6	16	100	4	Picture 2	○
PM-4EBL-D8.0	8.0	8	20	75	4	Picture 2	○
PM-4EBX-D8.0	8.0	8	20	100	4	Picture 2	○
PM-4EBL-D10.0	10.0	10	25	100	4	Picture 2	○
PM-4EBX-D10.0	10.0	10	25	150	4	Picture 2	○
PM-4EBL-D12.0	12.0	12	30	100	4	Picture 2	○
PM-4EBX-D12.0	12.0	12	30	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○ Very suitable ○ Suitable

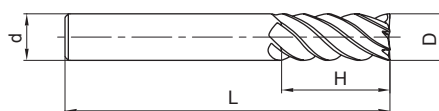
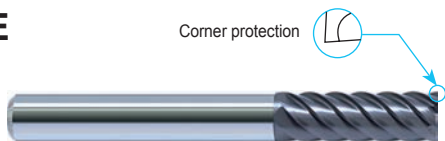
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



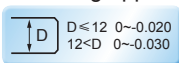
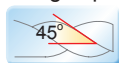
6-flute flattened end mills with straight shank



PM-6E



- Perfect rigidity, very suitable for side finish machining.
- High speed, high feed rate machining applicable.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
PM-6E-D6.0	6.0	6	18	60	6	○
PM-6E-D8.0	8.0	8	20	60	6	○
PM-6E-D10.0	10.0	10	30	75	6	○
PM-6E-D12.0	12.0	12	32	75	6	○
PM-6E-D16.0	16.0	16	40	100	6	○
PM-6E-D20.0	20.0	20	45	100	6	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B488

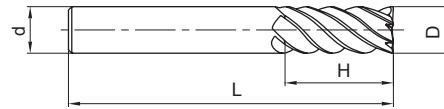
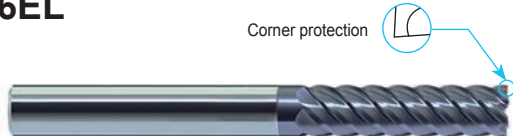
Non-standard customization

B570-B571

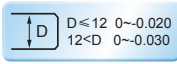
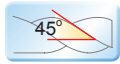
6-flute flattened end mills with straight shank and long cutting edge



PM-6EL



● PM-6E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
PM-6EL-D6.0	6.0	6	24	75	6	○
PM-6EL-D8.0	8.0	8	32	75	6	○
PM-6EL-D10.0	10.0	10	40	100	6	○
PM-6EL-D12.0	12.0	12	45	100	6	○
PM-6EL-D16.0	16.0	16	64	150	6	○
PM-6EL-D20.0	20.0	20	75	150	6	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

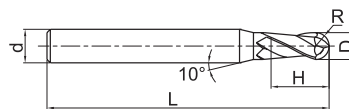
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○



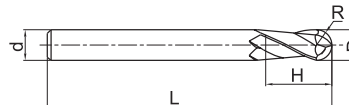
2-flute ball nose end mills with straight shank



PM-2B

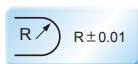
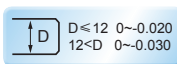
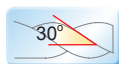


Picture 1



Picture 2

- For profile milling, high speed machining applicable.
- Wide application.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-2B-R0.5S	1.0	0.5	4	2	50	2	Picture 1	●
PM-2B-R0.5	1.0	0.5	6	2	50	2	Picture 1	●
PM-2B-R0.75S	1.5	0.75	4	3	50	2	Picture 1	●
PM-2B-R0.75	1.5	0.75	6	3	50	2	Picture 1	●
PM-2B-R1.0F	2.0	1.0	3	4	50	2	Picture 1	●
PM-2B-R1.0S	2.0	1.0	4	4	50	2	Picture 1	●
PM-2B-R1.0	2.0	1.0	6	4	50	2	Picture 1	●
PM-2B-R1.25F	2.5	1.25	3	5	50	2	Picture 1	○
PM-2B-R1.25S	2.5	1.25	4	5	50	2	Picture 1	●
PM-2B-R1.25	2.5	1.25	6	5	50	2	Picture 1	●
PM-2B-R1.5F	3.0	1.5	3	6	50	2	Picture 2	○
PM-2B-R1.5S	3.0	1.5	4	6	50	2	Picture 1	●
PM-2B-R1.5	3.0	1.5	6	6	50	2	Picture 1	●
PM-2B-R1.75S	3.5	1.75	4	8	50	2	Picture 1	○
PM-2B-R1.75	3.5	1.75	6	8	50	2	Picture 1	●
PM-2B-R2.0S	4.0	2.0	4	8	50	2	Picture 2	●
PM-2B-R2.0	4.0	2.0	6	8	50	2	Picture 1	●
PM-2B-R2.5	5.0	2.5	6	10	50	2	Picture 1	●
PM-2B-R2.75	5.5	2.75	6	12	50	2	Picture 1	●
PM-2B-R3.0	6.0	3.0	6	12	50	2	Picture 2	●
PM-2B-R3.5	7.0	3.5	8	14	60	2	Picture 1	●
PM-2B-R4.0	8.0	4.0	8	16	60	2	Picture 2	●
PM-2B-R4.5	9.0	4.5	10	18	75	2	Picture 1	●
PM-2B-R5.0	10.0	5.0	10	20	75	2	Picture 2	●
PM-2B-R6.0	12.0	6.0	12	24	75	2	Picture 2	●
PM-2B-R7.0	14.0	7.0	14	28	75	2	Picture 2	●
PM-2B-R8.0	16.0	8.0	16	32	100	2	Picture 2	●
PM-2B-R10.0	20.0	10.0	20	40	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B490-B491

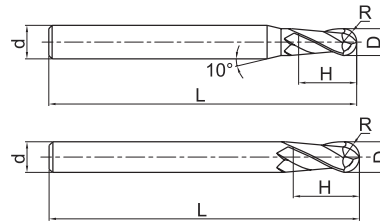
Non-standard customization

B570-B571

2-flute ball nose end mills with long shank



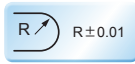
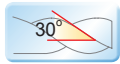
PM-2BL/M/X



Picture 1

Picture 2

● PM-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-2BL-R1.0S	2.0	1.0	4	4	75	2	Picture 1	○
PM-2BL-R1.0	2.0	1.0	6	4	75	2	Picture 1	○
PM-2BL-R1.25S	2.5	1.25	4	5	75	2	Picture 1	○
PM-2BL-R1.25	2.5	1.25	6	5	75	2	Picture 1	○
PM-2BL-R1.5S	3.0	1.5	4	6	75	2	Picture 1	○
PM-2BL-R1.5	3.0	1.5	6	6	75	2	Picture 1	○
PM-2BL-R1.75S	3.5	1.75	4	8	75	2	Picture 1	○
PM-2BL-R1.75	3.5	1.75	6	8	75	2	Picture 1	○
PM-2BL-R2.0S	4.0	2.0	4	8	75	2	Picture 2	○
PM-2BL-R2.0	4.0	2.0	6	8	75	2	Picture 1	○
PM-2BL-R2.5	5.0	2.5	6	10	75	2	Picture 1	○
PM-2BL-R2.75	5.5	2.75	6	12	75	2	Picture 1	○
PM-2BL-R3.0	6.0	3.0	6	12	75	2	Picture 2	○
PM-2BX-R3.0	6.0	3.0	6	12	100	2	Picture 2	○
PM-2BL-R3.5	7.0	3.5	8	14	75	2	Picture 1	○
PM-2BM-R4.0	8.0	4.0	8	16	75	2	Picture 2	○
PM-2BL-R4.0	8.0	4.0	8	16	100	2	Picture 2	○
PM-2BL-R4.5	9.0	4.5	10	18	100	2	Picture 1	○
PM-2BL-R5.0	10.0	5.0	10	20	100	2	Picture 2	○
PM-2BX-R5.0	10.0	5.0	10	20	150	2	Picture 2	○
PM-2BL-R6.0	12.0	6.0	12	24	100	2	Picture 2	○
PM-2BX-R6.0	12.0	6.0	12	24	150	2	Picture 2	○
PM-2BL-R7.0	14.0	7.0	14	28	100	2	Picture 2	○
PM-2BL-R8.0	16.0	8.0	16	32	150	2	Picture 2	○
PM-2BL-R10.0	20.0	10.0	20	40	150	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



Indexable milling tools
Solid carbide end mills
PM series

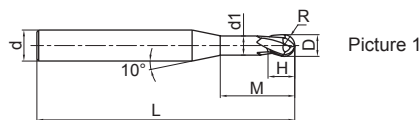
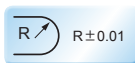
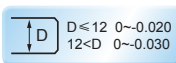
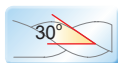
2-flute ball nose end mills with straight shank, long neck and short cutting edge



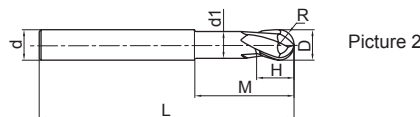
PM-2BFP



- High-rigidity short cutting edge, suitable for heavy cutting.



Picture 1



Picture 2

Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	H	d ₁	M	d	L			
PM-2BFP-R0.5	1.0	0.5	1.0	0.95	2.5	6	75	2	Picture 1	○
PM-2BFP-R0.75	1.5	0.75	1.5	1.45	3.0	6	75	2	Picture 1	○
PM-2BFP-R1.0	2.0	1.0	2.0	1.95	4.0	6	75	2	Picture 1	○
PM-2BFP-R1.5	3.0	1.5	3.0	2.85	6.0	6	75	2	Picture 1	○
PM-2BFP-R2.0	4.0	2.0	4.0	3.85	8.0	6	75	2	Picture 1	○
PM-2BFP-R2.5	5.0	2.5	5.0	4.85	10.0	6	75	2	Picture 1	○
PM-2BFP-R3.0	6.0	3.0	6.0	5.8	12.0	6	75	2	Picture 2	○
PM-2BFP-R4.0	8.0	4.0	8.0	7.8	16.0	8	100	2	Picture 2	○
PM-2BFP-R5.0	10.0	5.0	10.0	9.6	20.0	10	100	2	Picture 2	○
PM-2BFP-R6.0	12.0	6.0	12.0	11.5	24.0	12	100	2	Picture 2	○
PM-2BFP-R8.0	16.0	8.0	16.0	15.5	32.0	16	150	2	Picture 2	○
PM-2BFP-R10.0	20.0	10.0	20.0	19.5	40.0	20	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B490-B491

Non-standard customization

B570-B571

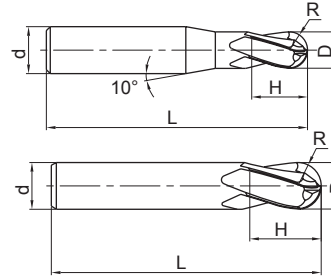
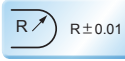
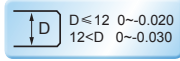
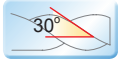
4-flute ball nose end mills with straight shank



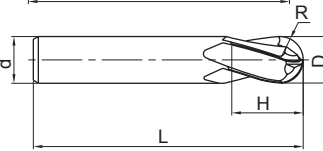
PM-4B



4-flute ball nose end mill can operate with higher feed speed and machining efficiency, extending tool life in machining high-hardness workpiece.



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4B-R1.5	3.0	1.5	6	6	50	4	Picture 1	○
PM-4B-R2.0	4.0	2.0	6	8	50	4	Picture 1	○
PM-4B-R2.5	5.0	2.5	6	10	50	4	Picture 1	○
PM-4B-R3.0	6.0	3.0	6	12	50	4	Picture 2	○
PM-4B-R4.0	8.0	4.0	8	16	60	4	Picture 2	○
PM-4B-R5.0	10.0	5.0	10	20	75	4	Picture 2	○
PM-4B-R6.0	12.0	6.0	12	24	75	4	Picture 2	○
PM-4B-R7.0	14.0	7.0	14	28	75	4	Picture 2	○
PM-4B-R8.0	16.0	8.0	16	32	100	4	Picture 2	○
PM-4B-R9.0	18.0	9.0	18	36	100	4	Picture 2	○
PM-4B-R10.0	20.0	10.0	20	40	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key **B258** Graphics category and identification **B259** Cutting parameters **B492** Non-standard customization **B570-B571**

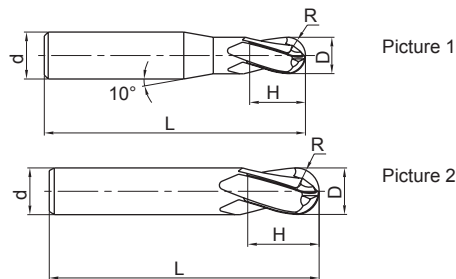
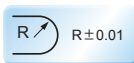
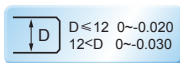
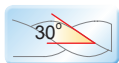
4-flute ball nose end mills wit long shank



PM-4BL/M/X



● PM-4B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4BL-R1.5S	3.0	1.5	4	6	75	4	Picture 1	○
PM-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
PM-4BL-R2.0S	4.0	2.0	4	8	75	4	Picture 2	○
PM-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
PM-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
PM-4BL-R3.0	6.0	3.0	6	12	75	4	Picture 2	○
PM-4BX-R3.0	6.0	3.0	6	12	100	4	Picture 2	○
PM-4BM-R4.0	8.0	4.0	8	16	75	4	Picture 2	○
PM-4BL-R4.0	8.0	4.0	8	16	100	4	Picture 2	○
PM-4BL-R5.0	10.0	5.0	10	20	100	4	Picture 2	○
PM-4BX-R5.0	10.0	5.0	10	20	150	4	Picture 2	○
PM-4BL-R6.0	12.0	6.0	12	24	100	4	Picture 2	○
PM-4BX-R6.0	12.0	6.0	12	24	150	4	Picture 2	○
PM-4BL-R7.0	14.0	7.0	14	28	100	4	Picture 2	○
PM-4BL-R8.0	16.0	8.0	16	32	150	4	Picture 2	○
PM-4BL-R9.0	18.0	9.0	18	36	150	4	Picture 2	○
PM-4BL-R10.0	20.0	10.0	20	40	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B492

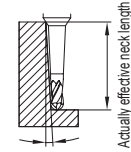
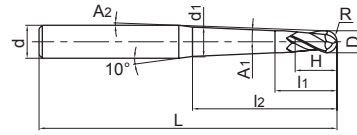
Non-standard customization

B570-B571

2-flute ball nose end mills with taper neck

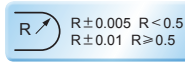
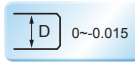
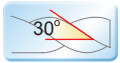


PM-2BC



Degree of workpiece declining

● High-rigidity taper neck structure.



Type	Basic dimension(mm)										Number of teeth Z	Degree of workpiece declining corresponding actually effective neck length				Stock	
	D	R	A1	H	l2	l1	A2	d1	L	d		0.5°	1°	2°	3°		
	PM-2BC05-R0.25-M03	0.5	0.25	0.5°	0.5	3	1.5	7.8°	0.49	50		4	2	3.3	3.5		3.9
PM-2BC05-R0.25-M05	5					6.8°		0.53	2		5.3		5.6	6.2	7.1	○	
PM-2BC10-R0.25-M03	1.0°			3		7.8°		0.52	2		-		3.4	3.8	4.3	○	
PM-2BC10-R0.25-M05				5		6.9°		0.59	2		-		5.4	6.0	6.8	○	
PM-2BC15-R0.25-M03	1.5°			3		7.9°		0.54	2		-		-	3.7	4.1	○	
PM-2BC15-R0.25-M05				5		7.0°		0.65	2		-		-	5.8	6.6	○	
PM-2BC05-R0.30-M05	0.6	0.30	0.5°	0.6	5	1.6	6.8°	0.62	50	4	2	5.3	5.6	6.2	7.1	○	
PM-2BC05-R0.30-M08					8		5.7°	0.68			2	8.3	8.7	9.8	11.1	○	
PM-2BC10-R0.30-M05			1.0°		5		6.8°	0.68			2	-	5.4	6.0	6.8	○	
PM-2BC10-R0.30-M08					8		5.8°	0.79			2	-	8.4	9.4	10.7	○	
PM-2BC10-R0.30-M10			1.5°		10		5.2°	0.86			2	-	10.4	11.6	13.2	○	
PM-2BC10-R0.30-M12					12		4.8°	0.93			2	-	12.4	13.9	15.8	○	
PM-2BC15-R0.30-M05	1.5°	5	6.9°	0.74	2	-	-	5.8	6.6	○							
PM-2BC15-R0.30-M08		8	5.9°	0.90	2	-	-	9.0	10.2	○							
PM-2BC05-R0.40-M08	0.8	0.40	0.5°	0.8	8	1.8	5.5°	0.87	50	4	2	8.3	8.7	9.8	11.1	○	
PM-2BC05-R0.40-M12					12		4.5°	0.94			60	2	12.3	13.0	14.5	16.5	○
PM-2BC10-R0.40-M08			1.0°		8		5.6°	0.98			50	2	-	8.4	9.4	10.7	○
PM-2BC10-R0.40-M12					12		4.6°	1.12			60	2	-	12.4	13.9	15.8	○
PM-2BC15-R0.40-M08			1.5°		8		5.8°	1.09			50	2	-	-	9.0	10.2	○
PM-2BC15-R0.40-M12					12		4.8°	1.30			60	2	-	-	13.2	15.0	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

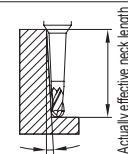
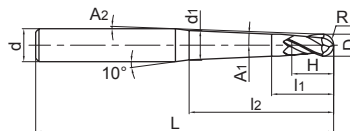
B570-B571



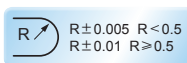
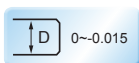
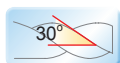
Deep ball nose slot

2-flute ball nose end mills with taper neck

PM-2BC



● High-rigidity taper neck structure.



Type	Basic dimension(mm)										Number of teeth Z	Degree of workpiece declining corresponding actually effective neck length				Stock
	D	R	A ₁	H	l ₂	l ₁	A ₂	d ₁	L	d		0.5°	1°	2°	3°	
PM-2BC05-R0.50-M10	1.0	0.50	0.5°	1.0	10	2.5	6.1°	1.08	60	6	2	10.4	10.9	12.2	13.9	○
PM-2BC05-R0.50-M15					15		5.1°	1.16	60		2	15.4	16.2	18.2	20.7	○
PM-2BC05-R0.50-M20					20		4.4°	1.25	70		2	20.4	21.5	24.1	27.4	○
PM-2BC05-R0.50-M25					25		3.8°	1.34	70		2	25.4	26.8	30.0	34.2	○
PM-2BC05-R0.50-M30					30		3.4°	1.42	70		2	30.4	32.0	35.9	41.0	○
PM-2BC10-R0.50-M10					10		6.2°	1.21	60		2	-	10.5	11.8	13.4	○
PM-2BC10-R0.50-M15			15		5.2°		1.38	60	2		-	15.5	17.4	19.8	○	
PM-2BC10-R0.50-M20			20		4.5°		1.56	70	2		-	20.5	23.0	26.2	○	
PM-2BC10-R0.50-M25			25		3.9°		1.73	70	2		-	25.5	28.6	32.6	○	
PM-2BC10-R0.50-M30			30		3.5°		1.91	70	2		-	30.5	34.2	39.0	○	
PM-2BC10-R0.50-M35			35		3.2°		2.08	80	2		-	35.5	39.8	45.4	○	
PM-2BC15-R0.50-M10			10		6.3°		1.34	60	2		-	-	11.3	12.8	○	
PM-2BC15-R0.50-M15			15		5.3°		1.60	60	2		-	-	16.6	18.9	○	
PM-2BC15-R0.50-M20			20		4.6°		1.86	70	2		-	-	21.9	24.9	○	
PM-2BC20-R0.50-M15			15		5.4°		1.82	60	2		-	-	15.8	18.0	○	
PM-2BC20-R0.50-M20			20		4.7°		2.17	70	2		-	-	20.8	23.7	○	
PM-2BC30-R0.50-M20			20		5.0°		2.78	70	2		-	-	-	21.2	○	
PM-2BC50-R0.50-M20			20		5.7°		4.01	70	2		-	-	-	-	○	
PM-2BC05-R0.60-M12	1.2	0.60	1.0°	1.2	12	2.7	5.6°	1.31	60	6	2	12.4	13.1	14.6	16.6	○
PM-2BC05-R0.60-M24					24		3.8°	1.52	70		2	24.4	25.7	28.8	32.8	○
PM-2BC10-R0.60-M12					12		5.7°	1.47	60		2	-	12.5	14.0	15.9	○
PM-2BC10-R0.60-M24					24		3.9°	1.89	70		2	-	24.5	27.5	31.3	○
PM-2BC15-R0.60-M12					12		5.8°	1.63	60		2	-	-	13.4	15.2	○
PM-2BC15-R0.60-M24					24		4.1°	2.26	70		2	-	-	26.2	29.8	○

● Stock available ○ Make-to-order

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

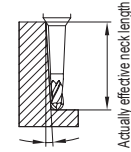
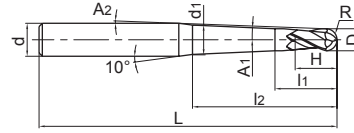
B570-B571

2-flute ball nose end mills with taper neck

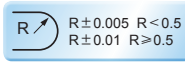
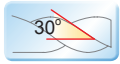


Deep ball nose slot

PM-2BC



• High-rigidity taper neck structure.



Type	Basic dimension(mm)										Number of teeth Z	Degree of workpiece declining corresponding actually effective neck length				Stock
	D	R	A1	H	l2	l1	A2	d1	L	d		0.5°	1°	2°	3°	
PM-2BC05-R0.75-M10	1.5	0.75	0.5°	1.5	10	3	5.9°	1.57	60	6	2	10.4	10.9	12.2	13.8	○
PM-2BC05-R0.75-M15					15		4.9°	1.65	60		2	15.4	16.2	18.1	20.6	○
PM-2BC05-R0.75-M30					30		3.2°	1.92	70		2	30.4	32.0	35.9	40.9	○
PM-2BC10-R0.75-M10					10		6.0°	1.69	60		2	-	10.5	11.8	13.3	○
PM-2BC10-R0.75-M15			15	5.0°	1.86	60	2	-	15.5	17.4	19.7	○				
PM-2BC10-R0.75-M20			20	4.2°	2.04	70	2	-	20.5	23.0	26.1	○				
PM-2BC10-R0.75-M30			30	3.3°	2.39	70	2	-	30.5	34.2	39.0	○				
PM-2BC15-R0.75-M10			10	6.1°	1.81	60	6	2	-	-	11.3	12.8	○			
PM-2BC15-R0.75-M15			15	5.1°	2.07	60	2	-	-	16.6	18.9	○				
PM-2BC15-R0.75-M30			30	3.4°	2.86	70	2	-	-	32.5	37.0	○				
PM-2BC05-R1.0-M20	2.0	1.0	0.5°	2.0	20	4	3.9°	2.18	60	6	2	20.7	21.7	24.3	27.6	○
PM-2BC05-R1.0-M30					30		2.9°	2.36	70		2	30.7	32.3	36.2	non-interference	○
PM-2BC05-R1.0-M40					40		2.4°	2.53	80		2	40.7	42.8	48.0	non-interference	○
PM-2BC10-R1.0-M20					20		4.0°	2.46	60		2	-	20.8	23.3	26.4	○
PM-2BC10-R1.0-M25			25	3.4°	2.64	60	2	-	25.8	28.9	32.9	○				
PM-2BC10-R1.0-M30			30	3.0°	2.81	70	2	-	30.8	34.5	39.3	○				
PM-2BC10-R1.0-M35			35	2.7°	2.99	80	2	-	35.8	40.1	non-interference	○				
PM-2BC10-R1.0-M40			40	2.5°	3.16	80	2	-	40.8	45.8	non-interference	○				
PM-2BC10-R1.0-M50			50	2.1°	3.51	90	2	-	50.8	57.0	non-interference	○				
PM-2BC15-R1.0-M20			20	4.1°	2.74	60	2	-	-	22.3	25.3	○				
PM-2BC15-R1.0-M30	30	3.1°	3.27	70	2	-	-	32.9	37.4	○						
PM-2BC15-R1.0-M40	40	2.6°	3.79	80	2	-	-	43.5	non-interference	○						
PM-2BC20-R1.0-M30	30	3.3°	3.72	70	6	2	-	-	31.3	35.5	○					
PM-2BC20-R1.0-M40	40	2.7°	4.42	80	2	-	-	41.3	non-interference	○						
PM-2BC30-R1.0-M30	30	3.5°	4.63	70	2	-	-	-	31.8	○						
PM-2BC30-R1.0-M40	40	2.9°	5.68	80	2	-	-	-	non-interference	○						

Applicable workpiece material table ○ Very suitable ○ Suitable

● Stock available ○ Make-to-order

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

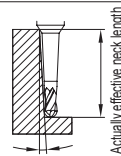
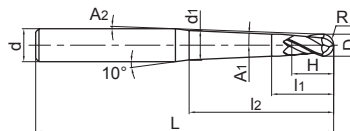
B570-B571



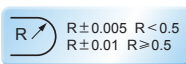
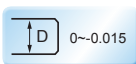
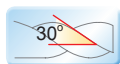
Deep ball nose slot

2-flute ball nose end mills with taper neck

PM-2BC



● High-rigidity taper neck structure.



Type	Basic dimension(mm)										Number of teeth Z	Degree of workpiece declining corresponding actually effective neck length				Stock
	D	R	A1	H	l2	l1	A2	d1	L	d		0.5°	1°	2°	3°	
PM-2BC05-R1.5-M30	3.0	1.5	0.5°	3	30	6	2.4°	3.32	70	6	2	30.7	32.3	36.2	Non-interference	○
PM-2BC05-R1.5-M40					40		1.9°	3.50	80		2	40.7	42.9	Non-interference	○	
PM-2BC05-R1.5-M50					50		1.6°	3.67	90		2	50.7	53.4	Non-interference	○	
PM-2BC10-R1.5-M30			1.0°		30		2.5°	3.74	70		2	-	31.0	34.7	Non-interference	○
PM-2BC10-R1.5-M40					40		2.0°	4.09	80		2	-	41.0	45.9	Non-interference	○
PM-2BC10-R1.5-M50					50		1.7°	4.44	90		2	-	51.0	Non-interference	○	
PM-2BC15-R1.5-M30			1.5°		30		2.6°	4.16	70		2	-	-	33.1	Non-interference	○
PM-2BC15-R1.5-M40					40		2.1°	4.69	80		2	-	-	43.8	Non-interference	○
PM-2BC15-R1.5-M50					50		1.7°	5.21	90		2	-	-	Non-interference	○	
PM-2BC05-R2.0-M60			4.0		2.0		0.5°	4	60		7	1.0°	4.83	110	6	2
PM-2BC10-R2.0-M60	1.0°	5.76		110		2	-		61.1	Non-interference		○				

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

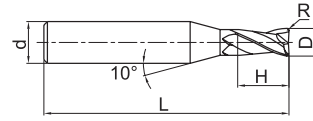
Non-standard customization

B570-B571

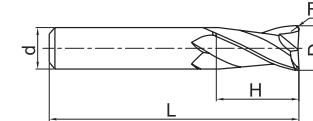
2-flute R end mills with straight shank



PM-2R

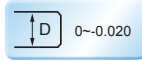
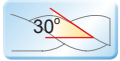


Picture 1



Picture 2

- Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-2R-D1.0R0.2	1.0	0.2	4	3	50	2	Picture 1	○
PM-2R-D1.5R0.2	1.5	0.2	4	4	50	2	Picture 1	○
PM-2R-D2.0R0.2	2.0	0.2	4	6	50	2	Picture 1	○
PM-2R-D2.0R0.5	2.0	0.5	4	6	50	2	Picture 1	○
PM-2R-D2.5R0.2	2.5	0.2	4	8	50	2	Picture 1	○
PM-2R-D2.5R0.5	2.5	0.5	4	8	50	2	Picture 1	○
PM-2R-D3.0R0.2	3.0	0.2	4	8	50	2	Picture 1	○
PM-2R-D3.0R0.3	3.0	0.3	4	8	50	2	Picture 1	○
PM-2R-D3.0R0.5	3.0	0.5	4	8	50	2	Picture 1	○
PM-2R-D4.0R0.2	4.0	0.2	4	11	50	2	Picture 2	○
PM-2R-D4.0R0.3	4.0	0.3	4	11	50	2	Picture 2	○
PM-2R-D4.0R0.5	4.0	0.5	4	11	50	2	Picture 2	○
PM-2R-D4.0R1.0	4.0	1.0	4	11	50	2	Picture 2	○
PM-2R-D5.0R0.2	5.0	0.2	6	13	50	2	Picture 1	○
PM-2R-D5.0R0.3	5.0	0.3	6	13	50	2	Picture 1	○
PM-2R-D5.0R0.5	5.0	0.5	6	13	50	2	Picture 1	○
PM-2R-D5.0R1.0	5.0	1.0	6	13	50	2	Picture 1	○
PM-2R-D6.0R0.2	6.0	0.2	6	16	50	2	Picture 2	○
PM-2R-D6.0R0.3	6.0	0.3	6	16	50	2	Picture 2	○
PM-2R-D6.0R0.5	6.0	0.5	6	16	50	2	Picture 2	○
PM-2R-D6.0R1.0	6.0	1.0	6	16	50	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○			○	○	



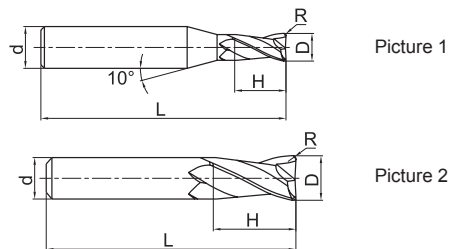
2-flute R end mills with straight shank



PM-2R



- Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-2R-D8.0R0.3	8.0	0.3	8	20	60	2	Picture 2	○
PM-2R-D8.0R0.5	8.0	0.5	8	20	60	2	Picture 2	○
PM-2R-D8.0R1.0	8.0	1.0	8	20	60	2	Picture 2	○
PM-2R-D10.0R0.3	10.0	0.3	10	25	75	2	Picture 2	○
PM-2R-D10.0R0.5	10.0	0.5	10	25	75	2	Picture 2	○
PM-2R-D10.0R1.0	10.0	1.0	10	25	75	2	Picture 2	○
PM-2R-D10.0R1.5	10.0	1.5	10	25	75	2	Picture 2	○
PM-2R-D10.0R2.0	10.0	2.0	10	25	75	2	Picture 2	○
PM-2R-D12.0R0.3	12.0	0.3	12	30	75	2	Picture 2	○
PM-2R-D12.0R0.5	12.0	0.5	12	30	75	2	Picture 2	○
PM-2R-D12.0R1.0	12.0	1.0	12	30	75	2	Picture 2	○
PM-2R-D12.0R1.5	12.0	1.5	12	30	75	2	Picture 2	○
PM-2R-D12.0R2.0	12.0	2.0	12	30	75	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key B258

Graphics category and identification B259

Cutting parameters B496

Non-standard customization B570-B571

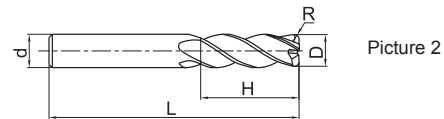
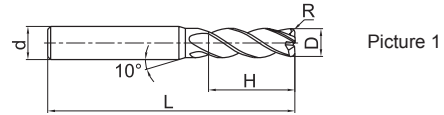
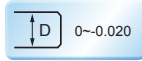
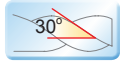
4-flute R end mills with straight shank



PM-4R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4R-D1.0R0.2S	1.0	0.2	4	3	50	4	Picture 1	○
PM-4R-D1.5R0.2S	1.5	0.2	4	4	50	4	Picture 1	○
PM-4R-D2.0R0.2S	2.0	0.2	4	6	50	4	Picture 1	○
PM-4R-D2.0R0.2	2.0	0.2	6	6	50	4	Picture 1	○
PM-4R-D2.0R0.5S	2.0	0.5	4	6	50	4	Picture 1	○
PM-4R-D2.0R0.5	2.0	0.5	6	6	50	4	Picture 1	○
PM-4R-D2.5R0.2S	2.5	0.2	4	8	50	4	Picture 1	○
PM-4R-D2.5R0.2	2.5	0.2	6	8	50	4	Picture 1	○
PM-4R-D2.5R0.5S	2.5	0.5	4	8	50	4	Picture 1	○
PM-4R-D2.5R0.5	2.5	0.5	6	8	50	4	Picture 1	○
PM-4R-D3.0R0.2S	3.0	0.2	4	8	50	4	Picture 1	○
PM-4R-D3.0R0.2	3.0	0.2	6	8	50	4	Picture 1	●
PM-4R-D3.0R0.5S	3.0	0.5	4	8	50	4	Picture 1	○
PM-4R-D3.0R0.5	3.0	0.5	6	8	50	4	Picture 1	○
PM-4R-D4.0R0.2S	4.0	0.2	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.2	4.0	0.2	6	10	50	4	Picture 1	○
PM-4R-D4.0R0.3S	4.0	0.3	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.3	4.0	0.3	6	10	50	4	Picture 1	●
PM-4R-D4.0R0.5S	4.0	0.5	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.5	4.0	0.5	6	10	50	4	Picture 1	●
PM-4R-D5.0R0.2	5.0	0.2	6	13	50	4	Picture 1	●
PM-4R-D5.0R0.3	5.0	0.3	6	13	50	4	Picture 1	●
PM-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
PM-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
PM-4R-D6.0R0.2	6.0	0.2	6	16	50	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key **B258** Graphics category and identification **B259** Cutting parameters **B497** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
PM series

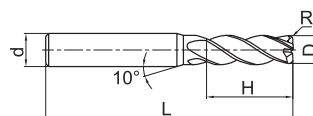
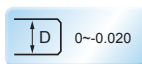
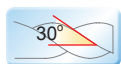
4-flute R end mills with straight shank



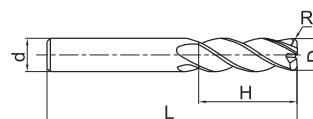
PM-4R



● Wide applications, applicable for several machining styles.



Picture 1



Picture 2

Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4R-D6.0R0.3	6.0	0.3	6	16	50	4	Picture 2	●
PM-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●
PM-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
PM-4R-D8.0R0.2	8.0	0.2	8	20	60	4	Picture 2	●
PM-4R-D8.0R0.3	8.0	0.3	8	20	60	4	Picture 2	●
PM-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
PM-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
PM-4R-D10.0R0.2	10.0	0.2	10	25	75	4	Picture 2	●
PM-4R-D10.0R0.3	10.0	0.3	10	25	75	4	Picture 2	●
PM-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
PM-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
PM-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
PM-4R-D10.0R3.0	10.0	3.0	10	25	75	4	Picture 2	●
PM-4R-D12.0R0.2	12.0	0.2	12	30	75	4	Picture 2	●
PM-4R-D12.0R0.3	12.0	0.3	12	30	75	4	Picture 2	●
PM-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
PM-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
PM-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●
PM-4R-D12.0R3.0	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○		○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

Non-standard customization

B570-B571

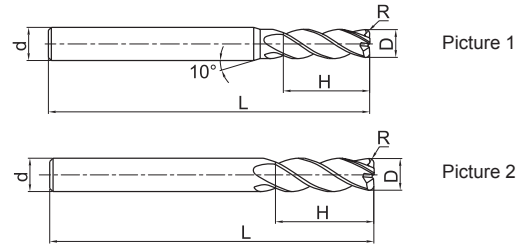
4-flute R end mills with long shank



PM-4RBL/M/X



● PM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4RBL-D4.0R0.2S	4.0	0.2	4	10	75	4	Picture 2	●
PM-4RBL-D4.0R0.2	4.0	0.2	6	10	75	4	Picture 1	●
PM-4RBL-D4.0R0.5S	4.0	0.5	4	10	75	4	Picture 2	●
PM-4RBL-D4.0R0.5	4.0	0.5	6	10	75	4	Picture 1	●
PM-4RBL-D6.0R0.2	6.0	0.2	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R0.2	6.0	0.2	6	16	100	4	Picture 2	●
PM-4RBL-D6.0R0.5	6.0	0.5	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R0.5	6.0	0.5	6	16	100	4	Picture 2	●
PM-4RBL-D6.0R1.0	6.0	1.0	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	●
PM-4RBM-D8.0R0.2	8.0	0.2	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R0.2	8.0	0.2	8	20	100	4	Picture 2	●
PM-4RBM-D8.0R0.5	8.0	0.5	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R0.5	8.0	0.5	8	20	100	4	Picture 2	●
PM-4RBM-D8.0R1.0	8.0	1.0	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R1.0	8.0	1.0	8	20	100	4	Picture 2	●
PM-4RBL-D10.0R0.2	10.0	0.2	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R0.2	10.0	0.2	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R0.5	10.0	0.5	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R0.5	10.0	0.5	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R1.0	10.0	1.0	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R1.0	10.0	1.0	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R2.0	10.0	2.0	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R2.0	10.0	2.0	10	25	150	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key **B258** Graphics category and identification **B259** Cutting parameters **B497** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
PM series

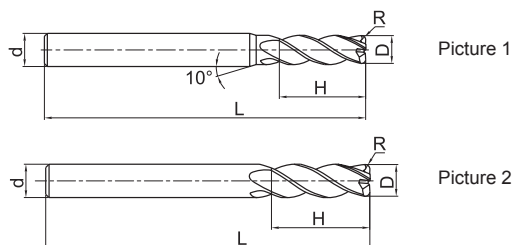
4-flute R end mills with long shank



PM-4RBL/M/X



● PM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4RBL-D12.0R0.2	12.0	0.2	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R0.2	12.0	0.2	12	30	150	4	Picture 2	●
PM-4RBL-D12.0R0.5	12.0	0.5	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R0.5	12.0	0.5	12	30	150	4	Picture 2	●
PM-4RBL-D12.0R1.0	12.0	1.0	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R1.0	12.0	1.0	12	30	150	4	Picture 2	●
PM-4RBL-D12.0R2.0	12.0	2.0	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R2.0	12.0	2.0	12	30	150	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

Non-standard customization

B570-B571

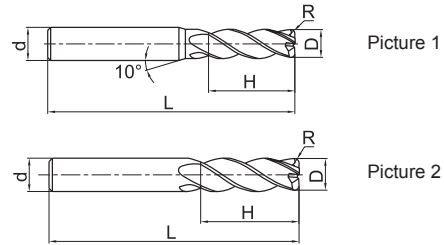
4-flute R end mills with straight shank



PM-4R-H



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4R-D3.0R0.2F-H	3.0	0.2	3	8	50	4	Picture 2	●
PM-4R-D3.0R0.2S-H	3.0	0.2	4	8	50	4	Picture 1	●
PM-4R-D3.0R0.5F-H	3.0	0.5	3	8	50	4	Picture 2	●
PM-4R-D3.0R0.5S-H	3.0	0.5	4	8	50	4	Picture 1	●
PM-4R-D3.5R0.2S-H	3.5	0.2	4	10	50	4	Picture 1	●
PM-4R-D3.5R0.5S-H	3.5	0.5	4	10	50	4	Picture 1	●
PM-4R-D4.0R0.2S-H	4.0	0.2	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.2-H	4.0	0.2	6	10	50	4	Picture 1	●
PM-4R-D4.0R0.3S-H	4.0	0.3	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.3-H	4.0	0.3	6	10	50	4	Picture 1	●
PM-4R-D4.0R0.5S-H	4.0	0.5	4	10	50	4	Picture 2	●
PM-4R-D4.0R0.5-H	4.0	0.5	6	10	50	4	Picture 1	●
PM-4R-D5.0R0.2-H	5.0	0.2	6	13	50	4	Picture 1	●
PM-4R-D5.0R0.3-H	5.0	0.3	6	13	50	4	Picture 1	●
PM-4R-D5.0R0.5-H	5.0	0.5	6	13	50	4	Picture 1	●
PM-4R-D5.0R1.0-H	5.0	1.0	6	13	50	4	Picture 1	●
PM-4R-D6.0R0.2-H	6.0	0.2	6	16	50	4	Picture 2	●
PM-4R-D6.0R0.3-H	6.0	0.3	6	16	50	4	Picture 2	●
PM-4R-D6.0R0.5-H	6.0	0.5	6	16	50	4	Picture 2	●
PM-4R-D6.0R1.0-H	6.0	1.0	6	16	50	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

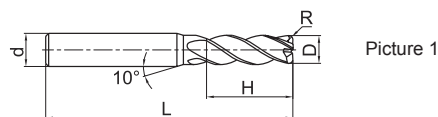
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



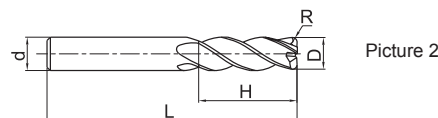
4-flute R end mills with straight shank



PM-4R-H



Picture 1



Picture 2

● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4R-D8.0R0.3-H	8.0	0.3	8	20	60	4	Picture 2	●
PM-4R-D8.0R0.5-H	8.0	0.5	8	20	60	4	Picture 2	●
PM-4R-D8.0R1.0-H	8.0	1.0	8	20	60	4	Picture 2	●
PM-4R-D10.0R0.3-H	10.0	0.3	10	25	75	4	Picture 2	●
PM-4R-D10.0R0.5-H	10.0	0.5	10	25	75	4	Picture 2	●
PM-4R-D10.0R1.0-H	10.0	1.0	10	25	75	4	Picture 2	●
PM-4R-D10.0R2.0-H	10.0	2.0	10	25	75	4	Picture 2	●
PM-4R-D10.0R3.0-H	10.0	3.0	10	25	75	4	Picture 2	●
PM-4R-D12.0R0.3-H	12.0	0.3	12	30	75	4	Picture 2	●
PM-4R-D12.0R0.5-H	12.0	0.5	12	30	75	4	Picture 2	●
PM-4R-D12.0R1.0-H	12.0	1.0	12	30	75	4	Picture 2	●
PM-4R-D12.0R2.0-H	12.0	2.0	12	30	75	4	Picture 2	●
PM-4R-D12.0R3.0-H	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

Non-standard customization

B570-B571

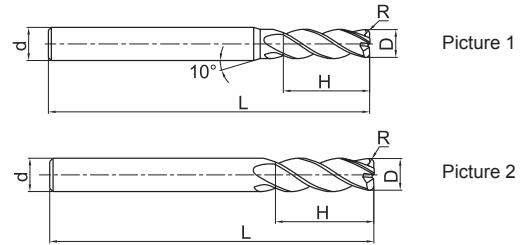
4-flute R end mills with long shank



PM-4RBL/M/X-H



● PM-4R-H series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
PM-4RBL-D4.0R0.2S-H	4.0	0.2	4	10	75	4	Picture 2	●
PM-4RBL-D4.0R0.2-H	4.0	0.2	6	10	75	4	Picture 1	●
PM-4RBL-D4.0R0.5S-H	4.0	0.5	4	10	75	4	Picture 2	●
PM-4RBL-D4.0R0.5-H	4.0	0.5	6	10	75	4	Picture 1	●
PM-4RBL-D6.0R0.2-H	6.0	0.2	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R0.2-H	6.0	0.2	6	16	100	4	Picture 2	●
PM-4RBL-D6.0R0.5-H	6.0	0.5	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R0.5-H	6.0	0.5	6	16	100	4	Picture 2	●
PM-4RBL-D6.0R1.0-H	6.0	1.0	6	16	75	4	Picture 2	●
PM-4RBX-D6.0R1.0-H	6.0	1.0	6	16	100	4	Picture 2	●
PM-4RBM-D8.0R0.2-H	8.0	0.2	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R0.2-H	8.0	0.2	8	20	100	4	Picture 2	●
PM-4RBM-D8.0R0.5-H	8.0	0.5	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R0.5-H	8.0	0.5	8	20	100	4	Picture 2	●
PM-4RBM-D8.0R1.0-H	8.0	1.0	8	20	75	4	Picture 2	●
PM-4RBL-D8.0R1.0-H	8.0	1.0	8	20	100	4	Picture 2	●
PM-4RBL-D10.0R0.2-H	10.0	0.2	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R0.2-H	10.0	0.2	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R0.5-H	10.0	0.5	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R0.5-H	10.0	0.5	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R1.0-H	10.0	1.0	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R1.0-H	10.0	1.0	10	25	150	4	Picture 2	●
PM-4RBL-D10.0R2.0-H	10.0	2.0	10	25	100	4	Picture 2	●
PM-4RBX-D10.0R2.0-H	10.0	2.0	10	25	150	4	Picture 2	●
PM-4RBL-D12.0R0.5-H	12.0	0.5	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R0.5-H	12.0	0.5	12	30	150	4	Picture 2	●
PM-4RBL-D12.0R1.0-H	12.0	1.0	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R1.0-H	12.0	1.0	12	30	150	4	Picture 2	●
PM-4RBL-D12.0R2.0-H	12.0	2.0	12	30	100	4	Picture 2	●
PM-4RBX-D12.0R2.0-H	12.0	2.0	12	30	150	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

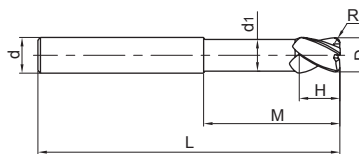


Indexable milling tools
Solid carbide end mills
PM series

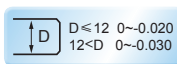
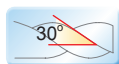
4-flute R end mills with straight shank, long neck and short cutting edge



PM-4RFP



● Long shank and short cutting edge designed for deep cavity milling.



Type	Basic dimension(mm)							Number of teeth Z	Stock
	D	R	d	d ₁	H	M	L		
PM-4RFP-D6.0R0.2	6.0	0.2	6	5.8	6	18	75	4	○
PM-4RFP-D6.0R0.5	6.0	0.5	6	5.8	6	18	75	4	○
PM-4RFP-D6.0R1.0	6.0	1.0	6	5.8	6	18	75	4	○
PM-4RFP-D8.0R0.2	8.0	0.2	8	7.8	8	24	100	4	○
PM-4RFP-D8.0R0.5	8.0	0.5	8	7.8	8	24	100	4	○
PM-4RFP-D8.0R1.0	8.0	1.0	8	7.8	8	24	100	4	○
PM-4RFP-D10.0R0.2	10.0	0.2	10	9.6	10	30	100	4	○
PM-4RFP-D10.0R0.5	10.0	0.5	10	9.6	10	30	100	4	○
PM-4RFP-D10.0R1.0	10.0	1.0	10	9.6	10	30	100	4	○
PM-4RFP-D10.0R2.0	10.0	2.0	10	9.6	10	30	100	4	○
PM-4RFP-D12.0R0.2	12.0	0.2	12	11.5	12	36	100	4	○
PM-4RFP-D12.0R0.5	12.0	0.5	12	11.5	12	36	100	4	○
PM-4RFP-D12.0R1.0	12.0	1.0	12	11.5	12	36	100	4	○
PM-4RFP-D12.0R2.0	12.0	2.0	12	11.5	12	36	100	4	○
PM-4RFP-D16.0R0.2	16.0	0.2	16	15.5	16	40	150	4	○
PM-4RFP-D16.0R1.0	16.0	1.0	16	15.5	16	40	150	4	○
PM-4RFP-D16.0R2.0	16.0	2.0	16	15.5	16	40	150	4	○

● Stock available ○ Make-to-order

Indexable
milling tools

Solid carbide
end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

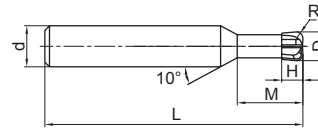
Non-standard customization

B570-B571

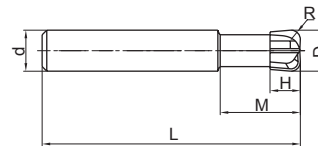
4-flute end mills with high feed rate



PM-4H

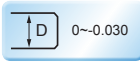


Picture 1



Picture 2

● High-rigidity short cutting edge, suitable for machining with high feed rate.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	d	d ₁	H	M	L			
PM-4H-D3.0R0.8	3.0	0.8	6	2.7	1.2	8.0	50	4	Picture 1	○
PM-4H-D4.0R1.0	4.0	1.0	6	3.6	1.6	10.0	50	4	Picture 1	○
PM-4H-D5.0R1.2	5.0	1.2	6	4.5	2.0	12.5	50	4	Picture 1	○
PM-4H-D6.0R1.0	6.0	1.0	6	5.4	2.5	12.0	50	4	Picture 2	○
PM-4H-D6.0R1.5	6.0	1.5	6	5.4	2.5	12.0	50	4	Picture 2	○
PM-4H-D8.0R1.0	8.0	1.0	8	7.0	3.5	16.0	60	4	Picture 2	○
PM-4H-D8.0R2.0	8.0	2.0	8	7.0	3.5	16.0	60	4	Picture 2	○
PM-4H-D10.0R1.0	10.0	1.0	10	9.0	4.0	20.0	75	4	Picture 2	○
PM-4H-D10.0R2.0	10.0	2.0	10	9.0	4.0	20.0	75	4	Picture 2	○
PM-4H-D12.0R2.0	12.0	2.0	12	11.0	5.0	24.0	75	4	Picture 2	○
PM-4H-D12.0R3.0	12.0	3.0	12	11.0	5.0	24.0	75	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



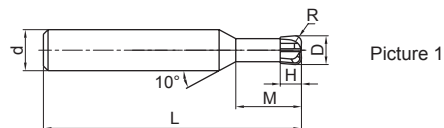
4-flute end mills with high feed rate



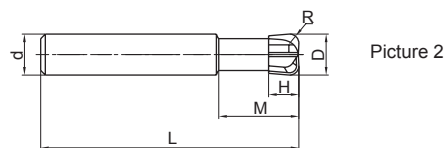
PM-4HL



● PM-4H series with long shank.



Picture 1



Picture 2

Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	d	d ₁	H	M	L			
PM-4HL-D4.0R1.0	4.0	1.0	6	3.6	1.6	10.0	75	4	Picture 1	○
PM-4HL-D5.0R1.2	5.0	1.2	6	4.5	2.0	12.5	75	4	Picture 1	○
PM-4HL-D6.0R1.0	6.0	1.0	6	5.4	2.5	12.0	75	4	Picture 2	○
PM-4HL-D6.0R1.5	6.0	1.5	6	5.4	2.5	12.0	75	4	Picture 2	○
PM-4HL-D8.0R1.0	8.0	1.0	8	7.0	3.5	16.0	100	4	Picture 2	○
PM-4HL-D8.0R2.0	8.0	2.0	8	7.0	3.5	16.0	100	4	Picture 2	○
PM-4HL-D10.0R1.0	10.0	1.0	10	9.0	4.0	20.0	100	4	Picture 2	○
PM-4HL-D10.0R2.0	10.0	2.0	10	9.0	4.0	20.0	100	4	Picture 2	○
PM-4HL-D12.0R2.0	12.0	2.0	12	11.0	5.0	24.0	100	4	Picture 2	○
PM-4HL-D12.0R3.0	12.0	3.0	12	11.0	5.0	24.0	100	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

➤ Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○		○	○			○	○

Code key

B258

Graphics category and identification

B259

Cutting parameters

B498-B499

Non-standard customization

B570-B571

GM

series general end mills

Wide application

High efficiency machining can be achieved ranging from common steel to pre-hardened steel machining.

Optimized structure

Appropriate combination of sharp cutting edge and tool strength makes cutting easier and faster, extending tool life.

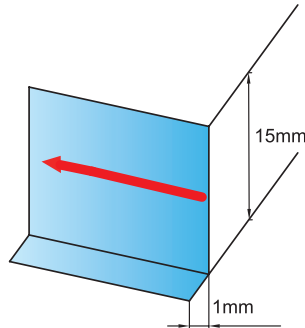
Versatile product series

Suitable for rough machining with high metal removal rate to finish machining with high surface quality.

Complete diameter range

Minimum diameter of 0.3mm for machining of the smallest parts.

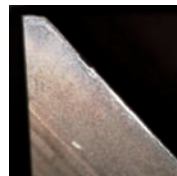
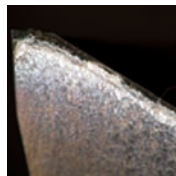
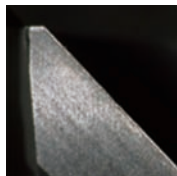
Tool type: GM-4E-D10.0
 Dimensions: Ø10.0mm
 Workpiece material: NAK80(40HRC)
 Rotating speed: 3200r/min (100m/min)
 Feed rate: 640mm/min(0.2mm/r)
 Axial cutting depth: $a_p=15\text{mm}$
 Radial cutting depth: $a_e=1.0\text{mm}$
 Cutting style: side milling (down milling)
 Cooling system: air blow
 Machine tool: MIKRON UCP 1000



Cutting edge abrasion and workpiece surface quality

End mill	GM-4E-D10.0	Similar product of company A	Similar product of company B
Cutting length	60m	20m	60m

Cutting edge abrasion



Workpiece surface quality

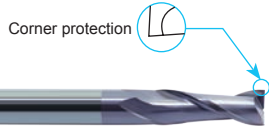


Excellent performance, super cost-effective!

The series are further completed specification, which better meet various machining needs.

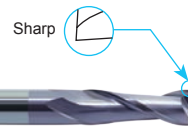
Flattened end mills series with sharp corner or corner protection

GM-2E(Corner protection)



GM-□E

GM-2F(Sharp)



GM-□F

4-flute unequal helical angle flattened end mills (30° or 45° helical angle end mills for various work conditions and machined materials)



GM-4E-G



GM-4E

Super short flutes and long neck series (provide various kinds neck length end mills for cavity, straight slot etc. work conditions)



GM-□EFP



GM-2BFP

Super long flutes series (Only one step for high side wall machining, without cutting steps mark)



GM-2EX



GM-4EX-G

3-flute flattened end mills (3-flute flattened end mills with excellent vibration resistance, which are available to realize slotting, side milling etc. various machining processing.)



GM-3E



GM-3EL

Long shank series (suitable for deep cavity machining)



GM-2EBL/X

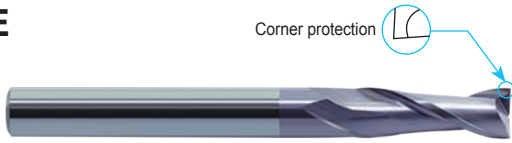


GM-4EBL/X

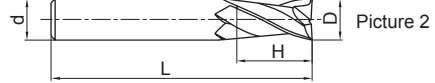
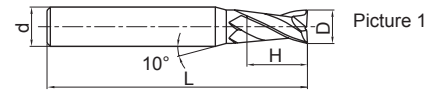
2-flute flattened end mills with straight shank



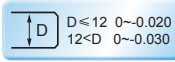
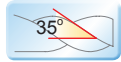
GM-2E



Corner protection



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2E-D1.0F	1.0	3	3	50	2	Picture 1	○
GM-2E-D1.0S	1.0	4	3	50	2	Picture 1	●
GM-2E-D1.0	1.0	6	3	50	2	Picture 1	●
GM-2E-D1.5F	1.5	3	4	50	2	Picture 1	○
GM-2E-D1.5S	1.5	4	4	50	2	Picture 1	●
GM-2E-D1.5	1.5	6	4	50	2	Picture 1	●
GM-2E-D2.0F	2.0	3	6	50	2	Picture 1	○
GM-2E-D2.0S	2.0	4	6	50	2	Picture 1	●
GM-2E-D2.0	2.0	6	6	50	2	Picture 1	●
GM-2E-D2.5S	2.5	4	8	50	2	Picture 1	●
GM-2E-D2.5	2.5	6	8	50	2	Picture 1	●
GM-2E-D3.0F	3.0	3	8	50	2	Picture 2	○
GM-2E-D3.0S	3.0	4	8	50	2	Picture 1	●
GM-2E-D3.0	3.0	6	8	50	2	Picture 1	●
GM-2E-D3.5S	3.5	4	10	50	2	Picture 1	○
GM-2E-D3.5	3.5	6	10	50	2	Picture 1	●
GM-2E-D4.0S	4.0	4	11	50	2	Picture 2	●
GM-2E-D4.0	4.0	6	11	50	2	Picture 1	●
GM-2E-D4.5	4.5	6	11	50	2	Picture 1	●
GM-2E-D5.0	5.0	6	13	50	2	Picture 1	●
GM-2E-D5.5	5.5	6	16	50	2	Picture 1	●
GM-2E-D6.0	6.0	6	16	50	2	Picture 2	●
GM-2E-D7.0	7.0	8	20	60	2	Picture 1	●
GM-2E-D8.0	8.0	8	20	60	2	Picture 2	●
GM-2E-D9.0	9.0	10	22	75	2	Picture 1	●
GM-2E-D10.0	10.0	10	25	75	2	Picture 2	●
GM-2E-D11.0	11.0	12	26	75	2	Picture 1	●
GM-2E-D12.0	12.0	12	30	75	2	Picture 2	●
GM-2E-D14.0	14.0	14	32	75	2	Picture 2	●
GM-2E-D16.0	16.0	16	45	100	2	Picture 2	●
GM-2E-D18.0	18.0	18	45	100	2	Picture 2	●
GM-2E-D20.0	20.0	20	45	100	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○					



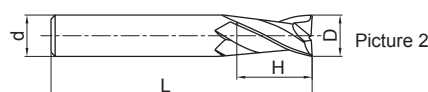
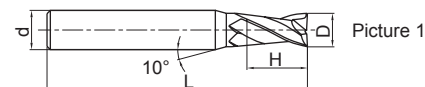
Indexable milling tools
Solid carbide end mills
GM series

GM series for general machining

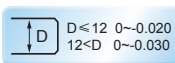
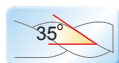
2-flute flattened end mills with straight shank



GM-2F



- Slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2F-D1.0S	1.0	4	3	50	2	Picture 1	○
GM-2F-D1.0	1.0	6	3	50	2	Picture 1	○
GM-2F-D1.5S	1.5	4	4	50	2	Picture 1	○
GM-2F-D1.5	1.5	6	4	50	2	Picture 1	○
GM-2F-D2.0S	2.0	4	6	50	2	Picture 1	○
GM-2F-D2.0	2.0	6	6	50	2	Picture 1	○
GM-2F-D2.5S	2.5	4	8	50	2	Picture 1	○
GM-2F-D2.5	2.5	6	8	50	2	Picture 1	○
GM-2F-D3.0S	3.0	4	8	50	2	Picture 1	○
GM-2F-D3.0	3.0	6	8	50	2	Picture 1	○
GM-2F-D3.5	3.5	6	10	50	2	Picture 1	○
GM-2F-D4.0S	4.0	4	11	50	2	Picture 2	○
GM-2F-D4.0	4.0	6	11	50	2	Picture 1	○
GM-2F-D4.5	4.5	6	11	50	2	Picture 1	○
GM-2F-D5.0	5.0	6	13	50	2	Picture 1	○
GM-2F-D5.5	5.5	6	16	50	2	Picture 1	○
GM-2F-D6.0	6.0	6	16	50	2	Picture 2	○
GM-2F-D7.0	7.0	8	20	60	2	Picture 1	○
GM-2F-D8.0	8.0	8	20	60	2	Picture 2	○
GM-2F-D9.0	9.0	10	22	75	2	Picture 1	○
GM-2F-D10.0	10.0	10	25	75	2	Picture 2	○
GM-2F-D11.0	11.0	12	26	75	2	Picture 1	○
GM-2F-D12.0	12.0	12	30	75	2	Picture 2	○
GM-2F-D14.0	14.0	14	32	75	2	Picture 2	○
GM-2F-D16.0	16.0	16	45	100	2	Picture 2	○
GM-2F-D18.0	18.0	18	45	100	2	Picture 2	○
GM-2F-D20.0	20.0	20	45	100	2	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key

B258

Graphics category and identification

B259

Cutting parameters

B501

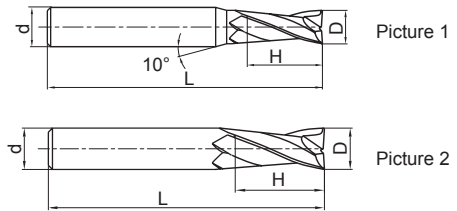
Non-standard customization

B570-B571

2-flute flattened end mills with straight shank and long cutting edge



GM-2EL



● GM-2E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2EL-D3.0	3.0	6	12	75	2	Picture 1	●
GM-2EL-D4.0	4.0	6	15	75	2	Picture 1	●
GM-2EL-D5.0	5.0	6	20	75	2	Picture 1	●
GM-2EL-D6.0	6.0	6	20	75	2	Picture 2	●
GM-2EL-D8.0	8.0	8	25	100	2	Picture 2	●
GM-2EL-D10.0	10.0	10	30	100	2	Picture 2	●
GM-2EL-D12.0	12.0	12	35	100	2	Picture 2	●
GM-2EL-D14.0	14.0	14	40	100	2	Picture 2	●
GM-2EL-D16.0	16.0	16	50	150	2	Picture 2	●
GM-2EL-D20.0	20.0	20	55	150	2	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

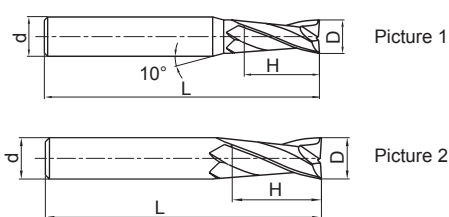
Code key **B258** Graphics category and identification **B259** Cutting parameters **B500** Non-standard customization **B570-B571**

GM series for general machining

2-flute flattened end mills with straight shank and long cutting edge



GM-2FL



● GM-2F series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2FL-D3.0	3.0	6	12	75	2	Picture 1	○
GM-2FL-D4.0	4.0	6	15	75	2	Picture 1	○
GM-2FL-D5.0	5.0	6	20	75	2	Picture 1	○
GM-2FL-D6.0	6.0	6	20	75	2	Picture 2	○
GM-2FL-D8.0	8.0	8	25	100	2	Picture 2	○
GM-2FL-D10.0	10.0	10	30	100	2	Picture 2	○
GM-2FL-D12.0	12.0	12	35	100	2	Picture 2	○
GM-2FL-D14.0	14.0	14	40	100	2	Picture 2	○
GM-2FL-D16.0	16.0	16	50	150	2	Picture 2	○
GM-2FL-D20.0	20.0	20	55	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○ Very suitable ○ Suitable

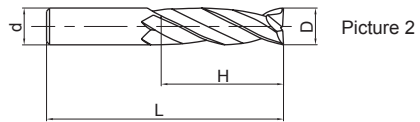
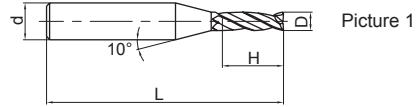
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key **B258** Graphics category and identification **B259** Cutting parameters **B501** Non-standard customization **B570-B571**

2-flute flattened end mills with straight shank and extra long cutting edge



GM-2EX



● Extra long cutting edge, for deep side wall machining.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2EX-D3.0	3.0	6	20	75	2	Picture 1	○
GM-2EX-D4.0	4.0	6	25	75	2	Picture 1	○
GM-2EX-D5.0	5.0	6	30	75	2	Picture 1	○
GM-2EX-D6.0	6.0	6	30	75	2	Picture 2	○
GM-2EX-D8.0	8.0	8	40	100	2	Picture 2	○
GM-2EX-D10.0	10.0	10	50	110	2	Picture 2	○
GM-2EX-D12.0	12.0	12	50	110	2	Picture 2	○
GM-2EX-D16.0	16.0	16	70	150	2	Picture 2	○
GM-2EX-D20.0	20.0	20	75	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

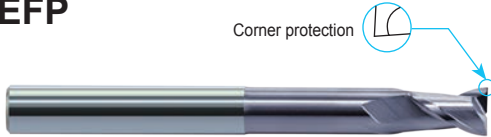


GM series for general machining

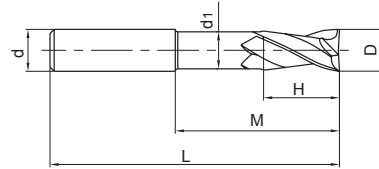
2-flute flattened end mills with straight shank, long neck and short cutting edge



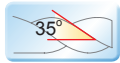
GM-2EFP



Corner protection



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d ₁	L		
GM-2EFP-D6.0	6.0	6	9	30	5.8	75	2	○
GM-2EFP-D8.0	8.0	8	12	40	7.8	100	2	○
GM-2EFP-D10.0	10.0	10	15	50	9.6	100	2	○
GM-2EFP-D12.0	12.0	12	18	50	11.5	100	2	○
GM-2EFP-D16.0	16.0	16	24	50	15.5	150	2	○
GM-2EFP-D20.0	20.0	20	30	60	19.5	150	2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B503

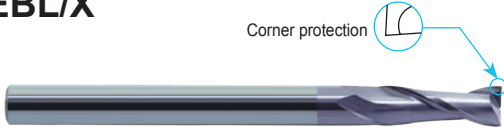
Non-standard customization

B570-B571

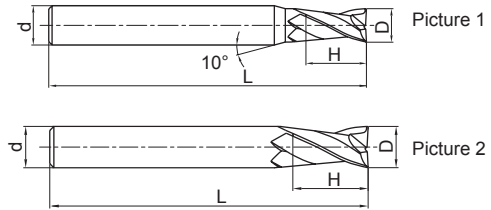
2-flute flattened end mills with long shank



GM-2EBL/X



Corner protection



● GM-2E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-2EBL-D3.0S	3.0	4	8	75	2	Picture 1	○
GM-2EBL-D3.0	3.0	6	8	75	2	Picture 1	○
GM-2EBL-D4.0S	4.0	4	11	75	2	Picture 2	○
GM-2EBL-D4.0	4.0	6	11	75	2	Picture 1	○
GM-2EBL-D6.0	6.0	6	16	75	2	Picture 2	○
GM-2EBX-D6.0	6.0	6	16	100	2	Picture 2	○
GM-2EBL-D8.0	8.0	8	20	75	2	Picture 2	○
GM-2EBX-D8.0	8.0	8	20	100	2	Picture 2	○
GM-2EBL-D10.0	10.0	10	25	100	2	Picture 2	○
GM-2EBX-D10.0	10.0	10	25	150	2	Picture 2	○
GM-2EBL-D12.0	12.0	12	30	100	2	Picture 2	○
GM-2EBX-D12.0	12.0	12	30	150	2	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○					

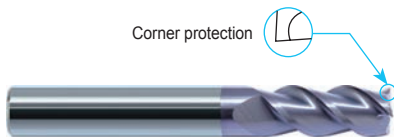


GM series for general machining

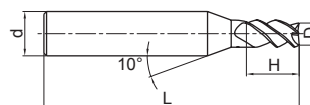
3-flute flattened end mills with straight shank



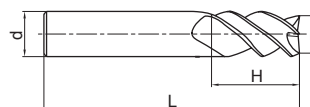
GM-3E



Corner protection

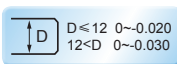
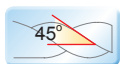


Picture 1



Picture 2

● Excellent vibration resistance, able to achieve various machining operations such as slot milling, side milling, drilling, etc.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-3E-D1.0F	1.0	3	3	50	3	Picture 1	○
GM-3E-D1.0S	1.0	4	3	50	3	Picture 1	○
GM-3E-D1.0	1.0	6	3	50	3	Picture 1	○
GM-3E-D1.5F	1.5	3	4	50	3	Picture 1	○
GM-3E-D1.5S	1.5	4	4	50	3	Picture 1	○
GM-3E-D1.5	1.5	6	4	50	3	Picture 1	○
GM-3E-D2.0F	2.0	3	6	50	3	Picture 1	○
GM-3E-D2.0S	2.0	4	6	50	3	Picture 1	○
GM-3E-D2.0	2.0	6	6	50	3	Picture 1	○
GM-3E-D2.5F	2.5	3	8	50	3	Picture 1	○
GM-3E-D2.5S	2.5	4	8	50	3	Picture 1	○
GM-3E-D2.5	2.5	6	8	50	3	Picture 1	○
GM-3E-D3.0F	3.0	3	8	50	3	Picture 2	○
GM-3E-D3.0S	3.0	4	8	50	3	Picture 1	○
GM-3E-D3.0	3.0	6	8	50	3	Picture 1	○
GM-3E-D3.5S	3.5	4	10	50	3	Picture 1	○
GM-3E-D3.5	3.5	6	10	50	3	Picture 1	○
GM-3E-D4.0S	4.0	4	11	50	3	Picture 2	○
GM-3E-D4.0	4.0	6	11	50	3	Picture 1	○
GM-3E-D4.5	4.5	6	11	50	3	Picture 1	○
GM-3E-D5.0	5.0	6	13	50	3	Picture 1	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B504

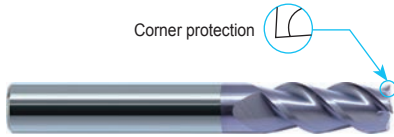
Non-standard customization

B570-B571

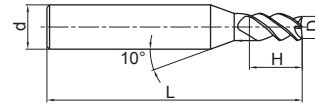
3-flute flattened end mills with straight shank



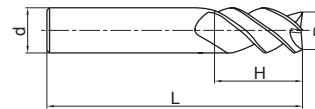
GM-3E



Corner protection

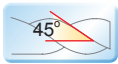


Picture 1



Picture 2

● Excellent vibration resistance, able to achieve various machining operations such as slot milling, side milling, drilling, etc.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-3E-D5.5	5.5	6	16	50	3	Picture 1	○
GM-3E-D6.0	6.0	6	16	50	3	Picture 2	○
GM-3E-D7.0	7.0	8	20	60	3	Picture 1	○
GM-3E-D8.0	8.0	8	20	60	3	Picture 2	○
GM-3E-D9.0	9.0	10	22	75	3	Picture 1	○
GM-3E-D10.0	10.0	10	25	75	3	Picture 2	○
GM-3E-D11.0	11.0	12	26	75	3	Picture 1	○
GM-3E-D12.0	12.0	12	30	75	3	Picture 2	○
GM-3E-D14.0	14.0	14	32	75	3	Picture 2	○
GM-3E-D16.0	16.0	16	45	100	3	Picture 2	○
GM-3E-D18.0	18.0	18	45	100	3	Picture 2	○
GM-3E-D20.0	20.0	20	45	100	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○				

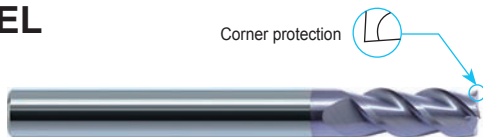


GM series for general machining

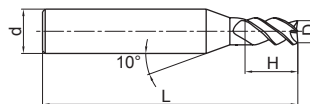
3-flute flattened end mills with straight shank and long cutting edge



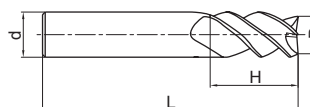
GM-3EL



Corner protection

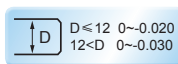
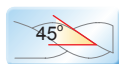


Picture 1



Picture 2

● GM-3E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-3EL-D3.0	3.0	6	12	75	3	Picture 1	○
GM-3EL-D4.0	4.0	6	15	75	3	Picture 1	○
GM-3EL-D5.0	5.0	6	20	75	3	Picture 1	○
GM-3EL-D6.0	6.0	6	20	75	3	Picture 2	○
GM-3EL-D8.0	8.0	8	25	100	3	Picture 2	○
GM-3EL-D10.0	10.0	10	30	100	3	Picture 2	○
GM-3EL-D12.0	12.0	12	35	100	3	Picture 2	○
GM-3EL-D14.0	14.0	14	40	100	3	Picture 2	○
GM-3EL-D16.0	16.0	16	50	150	3	Picture 2	○
GM-3EL-D20.0	20.0	20	55	150	3	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B504

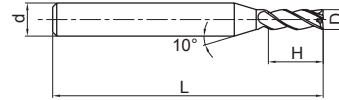
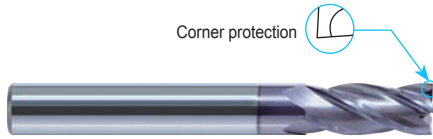
Non-standard customization

B570-B571

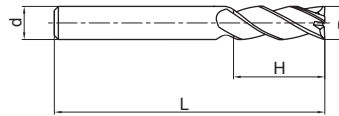
4-flute flattened end mills with straight shank



GM-4E-G

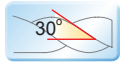


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4E-D1.0F-G	1.0	3	3	50	4	Picture 1	○
GM-4E-D1.0S-G	1.0	4	3	50	4	Picture 1	●
GM-4E-D1.0-G	1.0	6	3	50	4	Picture 1	●
GM-4E-D1.5F-G	1.5	3	4	50	4	Picture 1	○
GM-4E-D1.5S-G	1.5	4	4	50	4	Picture 1	●
GM-4E-D1.5-G	1.5	6	4	50	4	Picture 1	●
GM-4E-D2.0F-G	2.0	3	6	50	4	Picture 1	○
GM-4E-D2.0S-G	2.0	4	6	50	4	Picture 1	●
GM-4E-D2.0-G	2.0	6	6	50	4	Picture 1	●
GM-4E-D2.5F-G	2.5	3	8	50	4	Picture 1	○
GM-4E-D2.5S-G	2.5	4	8	50	4	Picture 1	●
GM-4E-D2.5-G	2.5	6	8	50	4	Picture 1	●
GM-4E-D3.0F-G	3.0	3	8	50	4	Picture 2	○
GM-4E-D3.0S-G	3.0	4	8	50	4	Picture 1	●
GM-4E-D3.0-G	3.0	6	8	50	4	Picture 1	●
GM-4E-D3.5S-G	3.5	4	10	50	4	Picture 1	○
GM-4E-D3.5-G	3.5	6	10	50	4	Picture 1	●
GM-4E-D4.0S-G	4.0	4	11	50	4	Picture 2	●
GM-4E-D4.0-G	4.0	6	11	50	4	Picture 1	●
GM-4E-D4.5-G	4.5	6	11	50	4	Picture 1	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

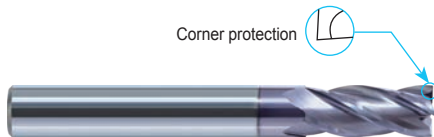
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				



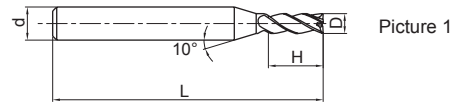
4-flute flattened end mills with straight shank



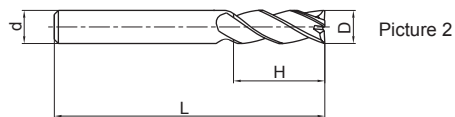
GM-4E-G



Corner protection

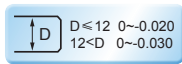
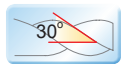


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4E-D5.0-G	5.0	6	13	50	4	Picture 1	●
GM-4E-D5.5-G	5.5	6	16	50	4	Picture 1	●
GM-4E-D6.0-G	6.0	6	16	50	4	Picture 2	●
GM-4E-D7.0-G	7.0	8	20	60	4	Picture 1	●
GM-4E-D8.0-G	8.0	8	20	60	4	Picture 2	●
GM-4E-D9.0-G	9.0	10	22	75	4	Picture 1	●
GM-4E-D10.0-G	10.0	10	25	75	4	Picture 2	●
GM-4E-D11.0-G	11.0	12	26	75	4	Picture 1	●
GM-4E-D12.0-G	12.0	12	30	75	4	Picture 2	●
GM-4E-D14.0-G	14.0	14	32	75	4	Picture 2	●
GM-4E-D16.0-G	16.0	16	45	100	4	Picture 2	●
GM-4E-D18.0-G	18.0	18	45	100	4	Picture 2	●
GM-4E-D20.0-G	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table

● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
●	●	●	○			○	●				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B505

Non-standard customization

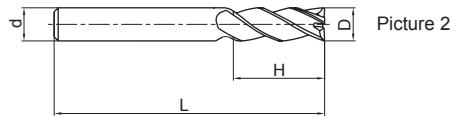
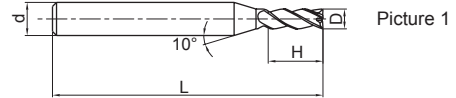
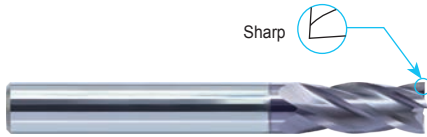
B570-B571

GM series for general machining

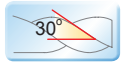
4-flute unequal pitch flattened end mill with straight shank



GM-4F-G



- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4F-D1.0S-G	1.0	4	3	50	4	Picture 1	○
GM-4F-D1.0-G	1.0	6	3	50	4	Picture 1	○
GM-4F-D1.5S-G	1.5	4	4	50	4	Picture 1	○
GM-4F-D1.5-G	1.5	6	4	50	4	Picture 1	○
GM-4F-D2.0S-G	2.0	4	6	50	4	Picture 1	○
GM-4F-D2.0-G	2.0	6	6	50	4	Picture 1	○
GM-4F-D2.5S-G	2.5	4	8	50	4	Picture 1	○
GM-4F-D2.5-G	2.5	6	8	50	4	Picture 1	○
GM-4F-D3.0S-G	3.0	4	8	50	4	Picture 1	○
GM-4F-D3.0-G	3.0	6	8	50	4	Picture 1	○
GM-4F-D3.5-G	3.5	6	10	50	4	Picture 1	○
GM-4F-D4.0S-G	4.0	4	11	50	4	Picture 2	○
GM-4F-D4.0-G	4.0	6	11	50	4	Picture 1	○
GM-4F-D4.5-G	4.5	6	11	50	4	Picture 1	○
GM-4F-D5.0-G	5.0	6	13	50	4	Picture 1	○
GM-4F-D5.5-G	5.5	6	16	50	4	Picture 1	○
GM-4F-D6.0-G	6.0	6	16	50	4	Picture 2	○
GM-4F-D7.0-G	7.0	8	20	60	4	Picture 1	○
GM-4F-D8.0-G	8.0	8	20	60	4	Picture 2	○
GM-4F-D9.0-G	9.0	10	22	75	4	Picture 1	○
GM-4F-D10.0-G	10.0	10	25	75	4	Picture 2	○
GM-4F-D11.0-G	11.0	12	26	75	4	Picture 1	○
GM-4F-D12.0-G	12.0	12	30	75	4	Picture 2	○
GM-4F-D14.0-G	14.0	14	32	75	4	Picture 2	○
GM-4F-D16.0-G	16.0	16	45	100	4	Picture 2	○
GM-4F-D18.0-G	18.0	18	45	100	4	Picture 2	○
GM-4F-D20.0-G	20.0	20	45	100	4	Picture 2	○

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○					

Code key **B258** Graphics category and identification **B259** Cutting parameters **B506** Non-standard customization **B570-B571**

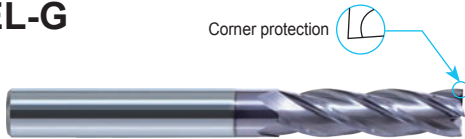
Indexable milling tools
Solid carbide end mills
GM series

GM series for general machining

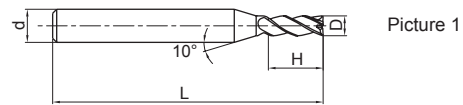
4-flute flattened end mills with straight shank and long cutting edge



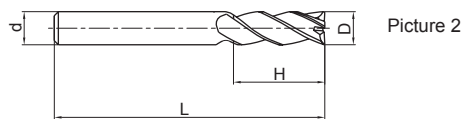
GM-4EL-G



Corner protection

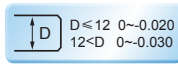
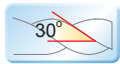


Picture 1



Picture 2

● GM-4E-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4EL-D3.0-G	3.0	6	12	75	4	Picture 1	○
GM-4EL-D4.0-G	4.0	6	15	75	4	Picture 1	○
GM-4EL-D5.0-G	5.0	6	20	75	4	Picture 1	○
GM-4EL-D6.0-G	6.0	6	20	75	4	Picture 2	○
GM-4EL-D8.0-G	8.0	8	25	100	4	Picture 2	○
GM-4EL-D10.0-G	10.0	10	30	100	4	Picture 2	○
GM-4EL-D12.0-G	12.0	12	35	100	4	Picture 2	○
GM-4EL-D14.0-G	14.0	14	40	100	4	Picture 2	○
GM-4EL-D16.0-G	16.0	16	50	150	4	Picture 2	○
GM-4EL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B505

Non-standard customization

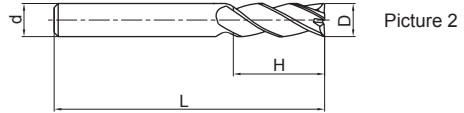
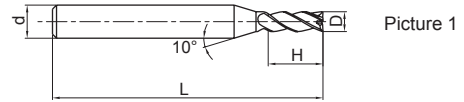
B570-B571

GM series for general machining

4-flute flattened end mills with straight shank and long cutting edge



GM-4FL-G



● GM-4FL-G series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4FL-D3.0-G	3.0	6	12	75	4	Picture 1	○
GM-4FL-D4.0-G	4.0	6	15	75	4	Picture 1	○
GM-4FL-D5.0-G	5.0	6	20	75	4	Picture 1	○
GM-4FL-D6.0-G	6.0	6	20	75	4	Picture 2	○
GM-4FL-D8.0-G	8.0	8	25	100	4	Picture 2	○
GM-4FL-D10.0-G	10.0	10	30	100	4	Picture 2	○
GM-4FL-D12.0-G	12.0	12	35	100	4	Picture 2	○
GM-4FL-D14.0-G	14.0	14	40	100	4	Picture 2	○
GM-4FL-D16.0-G	16.0	16	50	150	4	Picture 2	○
GM-4FL-D20.0-G	20.0	20	55	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○ Very suitable ○ Suitable

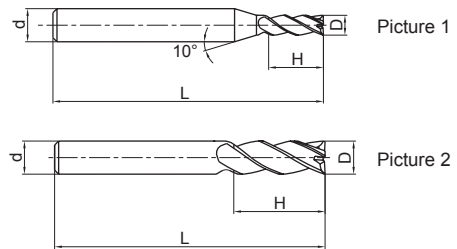
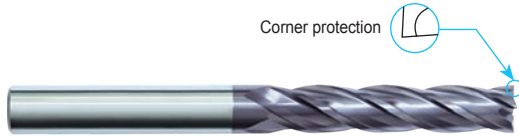
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					



4-flute flattened end mills with straight shank and extra long cutting edge



GM-4EX-G



- Extra long cutting edge, for deep side wall machining.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	○
GM-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	○
GM-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	○
GM-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	○
GM-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	○
GM-4EX-D10.0-G	10.0	10	50	110	4	Picture 2	○
GM-4EX-D12.0-G	12.0	12	50	110	4	Picture 2	○
GM-4EX-D16.0-G	16.0	16	70	150	4	Picture 2	○
GM-4EX-D20.0-G	20.0	20	75	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table

● Very suitable ○ Suitable

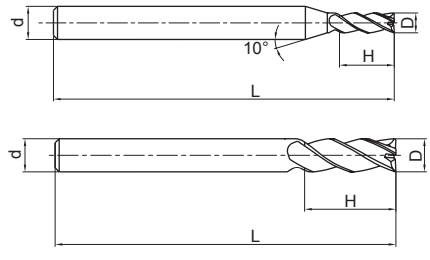
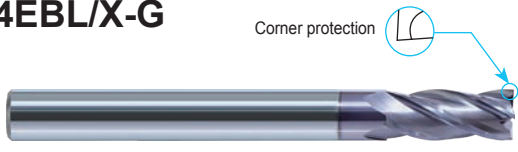
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key [B258](#) Graphics category and identification [B259](#) Cutting parameters [B507](#) Non-standard customization [B570-B571](#)

4-flute flattened end mills with long shank



GM-4EBL/X-G



● GM-4E-G series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4EBL-D3.0S-G	3.0	4	8	75	4	Picture 1	○
GM-4EBL-D3.0-G	3.0	6	8	75	4	Picture 1	○
GM-4EBL-D4.0S-G	4.0	4	11	75	4	Picture 2	○
GM-4EBL-D4.0-G	4.0	6	11	75	4	Picture 1	○
GM-4EBL-D6.0-G	6.0	6	16	75	4	Picture 2	○
GM-4EBX-D6.0-G	6.0	6	16	100	4	Picture 2	○
GM-4EBL-D8.0-G	8.0	8	24	75	4	Picture 2	○
GM-4EBX-D8.0-G	8.0	8	24	100	4	Picture 2	○
GM-4EBL-D10.0-G	10.0	10	30	100	4	Picture 2	○
GM-4EBX-D10.0-G	10.0	10	30	150	4	Picture 2	○
GM-4EBL-D12.0-G	12.0	12	36	100	4	Picture 2	○
GM-4EBX-D12.0-G	12.0	12	36	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ● Very suitable ○ Suitable

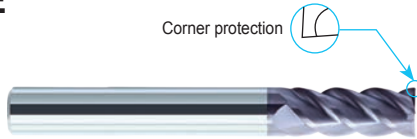
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					



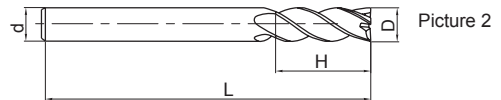
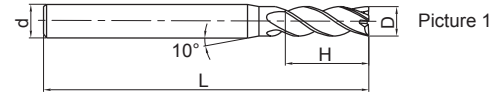
4-flute flattened end mills with straight shank



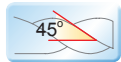
GM-4E



Corner protection



- Very suitable for side milling and shallow slot machining.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4E-D1.0F	1.0	3	3	50	4	Picture 1	○
GM-4E-D1.0S	1.0	4	3	50	4	Picture 1	●
GM-4E-D1.0	1.0	6	3	50	4	Picture 1	●
GM-4E-D1.5F	1.5	3	4	50	4	Picture 1	○
GM-4E-D1.5S	1.5	4	4	50	4	Picture 1	●
GM-4E-D1.5	1.5	6	4	50	4	Picture 1	●
GM-4E-D2.0F	2.0	3	6	50	4	Picture 1	○
GM-4E-D2.0S	2.0	4	6	50	4	Picture 1	●
GM-4E-D2.0	2.0	6	6	50	4	Picture 1	●
GM-4E-D2.5F	2.5	3	8	50	4	Picture 1	○
GM-4E-D2.5S	2.5	4	8	50	4	Picture 1	●
GM-4E-D2.5	2.5	6	8	50	4	Picture 1	●
GM-4E-D3.0F	3.0	3	8	50	4	Picture 2	○
GM-4E-D3.0S	3.0	4	8	50	4	Picture 1	●
GM-4E-D3.0	3.0	6	8	50	4	Picture 1	●
GM-4E-D3.5S	3.5	4	10	50	4	Picture 1	○
GM-4E-D3.5	3.5	6	10	50	4	Picture 1	●
GM-4E-D4.0S	4.0	4	11	50	4	Picture 2	●
GM-4E-D4.0	4.0	6	11	50	4	Picture 1	●
GM-4E-D4.5	4.5	6	11	50	4	Picture 1	●
GM-4E-D5.0	5.0	6	13	50	4	Picture 1	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B508

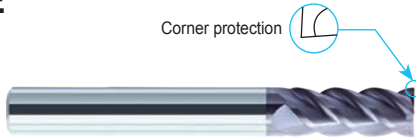
Non-standard customization

B570-B571

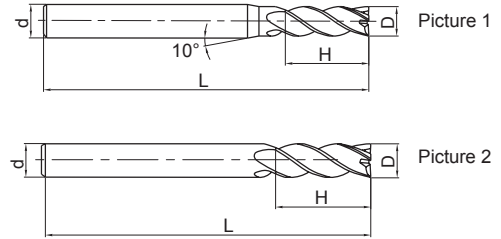
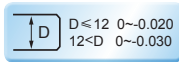
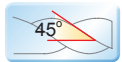
4-flute flattened end mills with straight shank



GM-4E



- Very suitable for side milling and shallow slot machining.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4E-D5.5	5.5	6	16	50	4	Picture 1	●
GM-4E-D6.0	6.0	6	16	50	4	Picture 2	●
GM-4E-D7.0	7.0	8	20	60	4	Picture 1	●
GM-4E-D8.0	8.0	8	20	60	4	Picture 2	●
GM-4E-D9.0	9.0	10	22	75	4	Picture 1	●
GM-4E-D10.0	10.0	10	25	75	4	Picture 2	●
GM-4E-D11.0	11.0	12	26	75	4	Picture 1	●
GM-4E-D12.0	12.0	12	30	75	4	Picture 2	●
GM-4E-D14.0	14.0	14	32	75	4	Picture 2	●
GM-4E-D16.0	16.0	16	45	100	4	Picture 2	●
GM-4E-D18.0	18.0	18	45	100	4	Picture 2	●
GM-4E-D20.0	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

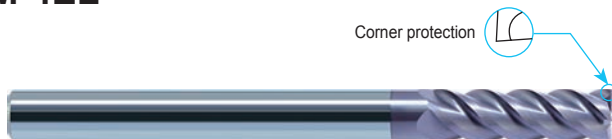


GM series for general machining

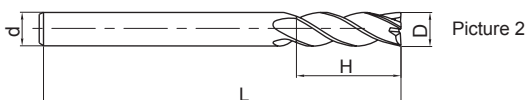
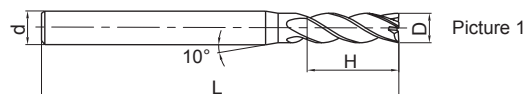
4-flute flattened end mills with straight shank and long cutting edge



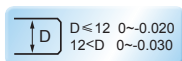
GM-4EL



Corner protection



● GM-4E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4EL-D3.0	3.0	6	12	75	4	Picture 1	●
GM-4EL-D4.0	4.0	6	15	75	4	Picture 1	●
GM-4EL-D5.0	5.0	6	20	75	4	Picture 1	●
GM-4EL-D6.0	6.0	6	20	75	4	Picture 2	●
GM-4EL-D8.0	8.0	8	25	100	4	Picture 2	●
GM-4EL-D10.0	10.0	10	30	100	4	Picture 2	●
GM-4EL-D12.0	12.0	12	35	100	4	Picture 2	●
GM-4EL-D14.0	14.0	14	40	100	4	Picture 2	●
GM-4EL-D16.0	16.0	16	50	150	4	Picture 2	●
GM-4EL-D20.0	20.0	20	55	150	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B508

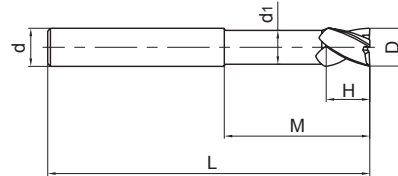
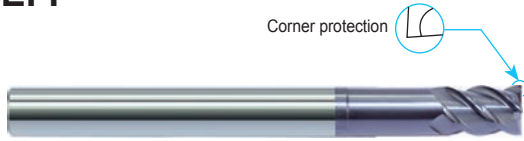
Non-standard customization

B570-B571

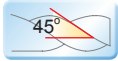
4-flute flattened end mills with straight shank, long neck and short cutting edge



GM-4EFP



● High-rigidity short cutting edge, suitable for heavy cutting and also deep cavity milling.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d1	L		
GM-4EFP-D6.0	6.0	6	9	30	5.8	75	4	○
GM-4EFP-D8.0	8.0	8	12	40	7.8	100	4	○
GM-4EFP-D10.0	10.0	10	15	50	9.6	100	4	○
GM-4EFP-D12.0	12.0	12	18	50	11.5	100	4	○
GM-4EFP-D16.0	16.0	16	24	50	15.5	150	4	○
GM-4EFP-D20.0	20.0	20	30	60	19.5	150	4	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

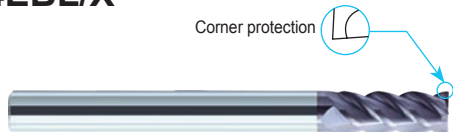


GM series for general machining

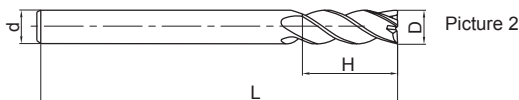
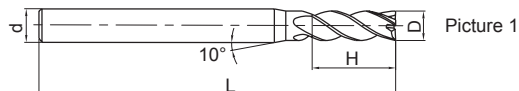
4-flute flattened end mills with long shank



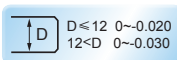
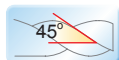
GM-4EBL/X



Corner protection



● GM-4E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
GM-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
GM-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
GM-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
GM-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
GM-4EBX-D6.0	6.0	6	16	100	4	Picture 2	○
GM-4EBL-D8.0	8.0	8	24	75	4	Picture 2	○
GM-4EBX-D8.0	8.0	8	24	100	4	Picture 2	○
GM-4EBL-D10.0	10.0	10	30	100	4	Picture 2	○
GM-4EBX-D10.0	10.0	10	30	150	4	Picture 2	○
GM-4EBL-D12.0	12.0	12	36	100	4	Picture 2	○
GM-4EBX-D12.0	12.0	12	36	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B508

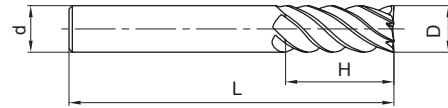
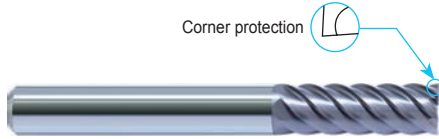
Non-standard customization

B570-B571

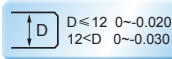
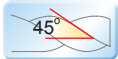
6-flute flattened end mills with straight shank



GM-6E



- Perfect rigidity, very suitable for side finish machining.
- High speed, high feed rate machining applicable.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
GM-6E-D6.0	6.0	6	18	60	6	●
GM-6E-D8.0	8.0	8	20	60	6	●
GM-6E-D10.0	10.0	10	30	75	6	●
GM-6E-D12.0	12.0	12	32	75	6	●
GM-6E-D16.0	16.0	16	40	100	6	●
GM-6E-D20.0	20.0	20	45	100	6	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material ○ Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

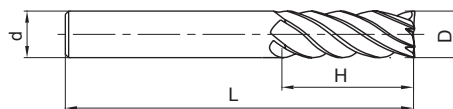
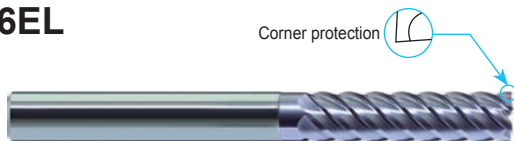


GM series for general machining

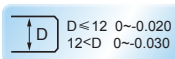
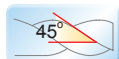
6-flute flattened end mills with straight shank and long cutting edge



GM-6EL



● GM-6E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
GM-6EL-D6.0	6.0	6	24	75	6	●
GM-6EL-D8.0	8.0	8	32	75	6	●
GM-6EL-D10.0	10.0	10	40	100	6	●
GM-6EL-D12.0	12.0	12	45	100	6	●
GM-6EL-D16.0	16.0	16	64	150	6	●
GM-6EL-D20.0	20.0	20	75	150	6	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B511

Non-standard customization

B570-B571

2-flute flattened end mills with straight shank, long neck and short cutting edge

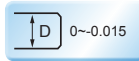
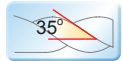
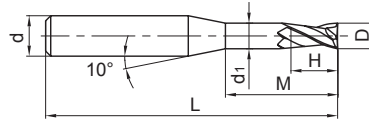


Deep flattened slot

GM-2EP



● Suitable for narrow slot milling or milling of fine parts that could generate interference.



Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d ₁	L		
GM-2EP-D0.3-M02	0.3	4	0.4	2	0.25	50	2	●
GM-2EP-D0.3-M04	0.3	4	0.4	4	0.25	50	2	●
GM-2EP-D0.4-M02	0.4	4	0.6	2	0.35	50	2	●
GM-2EP-D0.4-M04	0.4	4	0.6	4	0.35	50	2	●
GM-2EP-D0.5-M04	0.5	4	0.7	4	0.45	50	2	●
GM-2EP-D0.5-M06	0.5	4	0.7	6	0.45	50	2	●
GM-2EP-D0.5-M08	0.5	4	0.7	8	0.45	50	2	●
GM-2EP-D0.6-M04	0.6	4	0.9	4	0.55	50	2	●
GM-2EP-D0.6-M06	0.6	4	0.9	6	0.55	50	2	●
GM-2EP-D0.7-M04	0.7	4	1.0	4	0.65	50	2	●
GM-2EP-D0.7-M06	0.7	4	1.0	6	0.65	50	2	●
GM-2EP-D0.7-M08	0.7	4	1.0	8	0.65	50	2	●
GM-2EP-D0.8-M04	0.8	4	1.2	4	0.75	50	2	●
GM-2EP-D0.8-M06	0.8	4	1.2	6	0.75	50	2	●
GM-2EP-D0.8-M08	0.8	4	1.2	8	0.75	50	2	●
GM-2EP-D0.8-M10	0.8	4	1.2	10	0.75	50	2	●
GM-2EP-D1.0-M04	1.0	4	1.5	4	0.95	50	2	●
GM-2EP-D1.0-M06	1.0	4	1.5	6	0.95	50	2	●
GM-2EP-D1.0-M08	1.0	4	1.5	8	0.95	50	2	●
GM-2EP-D1.0-M10	1.0	4	1.5	10	0.95	50	2	●
GM-2EP-D1.0-M12	1.0	4	1.5	12	0.95	50	2	●
GM-2EP-D1.0-M14	1.0	4	1.5	14	0.95	50	2	●
GM-2EP-D1.2-M06	1.2	4	1.8	6	1.15	50	2	●
GM-2EP-D1.2-M08	1.2	4	1.8	8	1.15	50	2	●
GM-2EP-D1.2-M10	1.2	4	1.8	10	1.15	50	2	●
GM-2EP-D1.2-M12	1.2	4	1.8	12	1.15	50	2	●
GM-2EP-D1.5-M06	1.5	4	2.3	6	1.45	50	2	●
GM-2EP-D1.5-M08	1.5	4	2.3	8	1.45	50	2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key

B258

Graphics category and identification B259

Cutting parameters B512-B513

Non-standard customization B570-B571

Indexable milling tools
Solid carbide end mills
GM series

2-flute flattened end mills with straight shank, long neck and short cutting edge

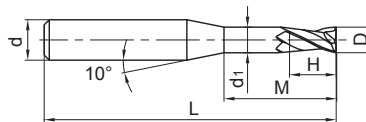
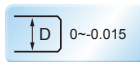
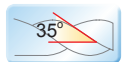


Deep flattened slot

GM-2EP



● Suitable for narrow slot milling or milling of fine parts that could generate interference.



Indexable milling tools
Solid carbide end mills
GM series

Type	Basic dimension(mm)						Number of teeth Z	Stock
	D	d	H	M	d1	L		
GM-2EP-D1.5-M10	1.5	4	2.3	10	1.45	50	2	●
GM-2EP-D1.5-M12	1.5	4	2.3	12	1.45	50	2	●
GM-2EP-D1.5-M14	1.5	4	2.3	14	1.45	50	2	●
GM-2EP-D2.0-M06	2.0	4	3.0	6	1.95	50	2	●
GM-2EP-D2.0-M08	2.0	4	3.0	8	1.95	50	2	●
GM-2EP-D2.0-M10	2.0	4	3.0	10	1.95	50	2	●
GM-2EP-D2.0-M12	2.0	4	3.0	12	1.95	50	2	●
GM-2EP-D2.0-M14	2.0	4	3.0	14	1.95	50	2	●
GM-2EP-D2.0-M16	2.0	4	3.0	16	1.95	50	2	●
GM-2EP-D2.5-M08	2.5	4	3.7	8	2.4	50	2	●
GM-2EP-D2.5-M10	2.5	4	3.7	10	2.4	50	2	●
GM-2EP-D2.5-M12	2.5	4	3.7	12	2.4	50	2	●
GM-2EP-D2.5-M14	2.5	4	3.7	14	2.4	50	2	●
GM-2EP-D2.5-M16	2.5	4	3.7	16	2.4	60	2	●
GM-2EP-D2.5-M18	2.5	4	3.7	18	2.4	60	2	●
GM-2EP-D2.5-M20	2.5	4	3.7	20	2.4	60	2	●
GM-2EP-D3.0-M06	3.0	6	4.5	6	2.85	50	2	●
GM-2EP-D3.0-M08	3.0	6	4.5	8	2.85	50	2	●
GM-2EP-D3.0-M10	3.0	6	4.5	10	2.85	50	2	●
GM-2EP-D3.0-M12	3.0	6	4.5	12	2.85	50	2	●
GM-2EP-D3.0-M14	3.0	6	4.5	14	2.85	60	2	●
GM-2EP-D3.0-M16	3.0	6	4.5	16	2.85	60	2	●
GM-2EP-D3.0-M18	3.0	6	4.5	18	2.85	60	2	●
GM-2EP-D3.0-M20	3.0	6	4.5	20	2.85	60	2	●
GM-2EP-D4.0-M12	4.0	6	6.0	12	3.85	50	2	●
GM-2EP-D4.0-M16	4.0	6	6.0	16	3.85	60	2	●
GM-2EP-D4.0-M20	4.0	6	6.0	20	3.85	60	2	●
GM-2EP-D4.0-M25	4.0	6	6.0	25	3.85	60	2	●
GM-2EP-D5.0-M16	5.0	6	7.5	16	4.85	60	2	●
GM-2EP-D5.0-M25	5.0	6	7.5	25	4.85	70	2	●

➤ Applicable workpiece material table ● Very suitable ○ Suitable ● Stock available ○ Make-to-order

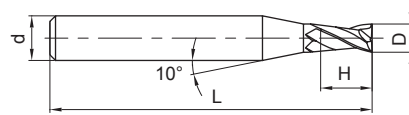
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key **B258** Graphics category and identification **B259** Cutting parameters **B512-B513** Non-standard customization **B570-B571**

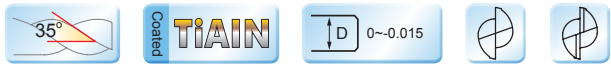
2-flute flattened end mills with straight shank and tiny diameter



GM-2ES



Tiny diameter end mills can fully display high speed and high precision performances of machining center, often used for machining of precision components such as electronic part etc.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	D	d	H	L		
GM-2ES-D0.3	0.3	4	0.6	50	2	●
GM-2ES-D0.4	0.4	4	0.8	50	2	●
GM-2ES-D0.5	0.5	4	1.0	50	2	●
GM-2ES-D0.6	0.6	4	1.2	50	2	●
GM-2ES-D0.7	0.7	4	1.4	50	2	●
GM-2ES-D0.8	0.8	4	1.6	50	2	●
GM-2ES-D0.9	0.9	4	1.8	50	2	●
GM-2ES-D1.0	1.0	4	2.0	50	2	●
GM-2ES-D1.1	1.1	4	2.0	50	2	●
GM-2ES-D1.2	1.2	4	2.5	50	2	●
GM-2ES-D1.3	1.3	4	2.5	50	2	●
GM-2ES-D1.4	1.4	4	3.0	50	2	●
GM-2ES-D1.5	1.5	4	3.0	50	2	●
GM-2ES-D1.6	1.6	4	3.5	50	2	●
GM-2ES-D1.7	1.7	4	3.5	50	2	●
GM-2ES-D1.8	1.8	4	4.0	50	2	●
GM-2ES-D1.9	1.9	4	4.0	50	2	●
GM-2ES-D2.0	2.0	4	4.0	50	2	●
GM-2ES-D2.1	2.1	4	4.0	50	2	●
GM-2ES-D2.2	2.2	4	4.5	50	2	●
GM-2ES-D2.3	2.3	4	4.5	50	2	●
GM-2ES-D2.4	2.4	4	5.0	50	2	●
GM-2ES-D2.5	2.5	4	5.0	50	2	●
GM-2ES-D2.6	2.6	4	5.0	50	2	●
GM-2ES-D2.7	2.7	4	5.5	50	2	●
GM-2ES-D2.8	2.8	4	5.5	50	2	●
GM-2ES-D2.9	2.9	4	6.0	50	2	●
GM-2ES-D3.0	3.0	4	6.0	50	2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key **B258** Graphics category and identification **B259** Cutting parameters **B514** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
GM series

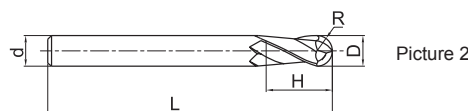
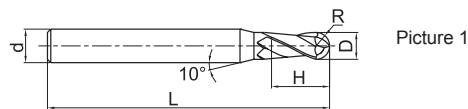
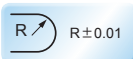
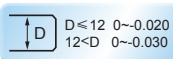
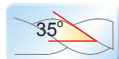
2-flute ball nose end mills with straight shank



GM-2B



- For profile milling, high speed machining applicable.
- Wide application.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-2B-R0.5S	1.0	0.5	4	2	50	2	Picture 1	●
GM-2B-R0.5	1.0	0.5	6	2	50	2	Picture 1	●
GM-2B-R0.75S	1.5	0.75	4	3	50	2	Picture 1	●
GM-2B-R0.75	1.5	0.75	6	3	50	2	Picture 1	●
GM-2B-R1.0F	2.0	1.0	3	4	50	2	Picture 1	●
GM-2B-R1.0S	2.0	1.0	4	4	50	2	Picture 1	●
GM-2B-R1.0	2.0	1.0	6	4	50	2	Picture 1	●
GM-2B-R1.25F	2.5	1.25	3	5	50	2	Picture 1	●
GM-2B-R1.25S	2.5	1.25	4	5	50	2	Picture 1	●
GM-2B-R1.25	2.5	1.25	6	5	50	2	Picture 1	●
GM-2B-R1.5F	3.0	1.5	3	6	50	2	Picture 2	●
GM-2B-R1.5S	3.0	1.5	4	6	50	2	Picture 1	●
GM-2B-R1.5	3.0	1.5	6	6	50	2	Picture 1	●
GM-2B-R1.75S	3.5	1.75	4	8	50	2	Picture 1	●
GM-2B-R1.75	3.5	1.75	6	8	50	2	Picture 1	●
GM-2B-R2.0S	4.0	2.0	4	8	50	2	Picture 2	●
GM-2B-R2.0	4.0	2.0	6	8	50	2	Picture 1	●
GM-2B-R2.5	5.0	2.5	6	10	50	2	Picture 1	●
GM-2B-R2.75	5.5	2.75	6	12	50	2	Picture 1	●
GM-2B-R3.0	6.0	3.0	6	12	50	2	Picture 2	●
GM-2B-R3.5	7.0	3.5	8	14	60	2	Picture 1	●
GM-2B-R4.0	8.0	4.0	8	16	60	2	Picture 2	●
GM-2B-R4.5	9.0	4.5	10	18	75	2	Picture 1	●
GM-2B-R5.0	10.0	5.0	10	20	75	2	Picture 2	●
GM-2B-R6.0	12.0	6.0	12	24	75	2	Picture 2	●
GM-2B-R7.0	14.0	7.0	14	28	75	2	Picture 2	●
GM-2B-R8.0	16.0	8.0	16	32	100	2	Picture 2	●
GM-2B-R10.0	20.0	10.0	20	40	100	2	Picture 2	●

Applicable workpiece material table ● Very suitable ○ Suitable

● Stock available ○ Make-to-order

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B515

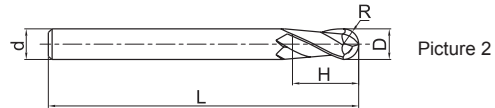
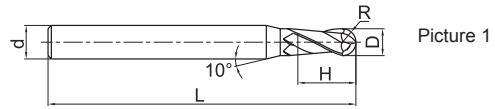
Non-standard customization

B570-B571

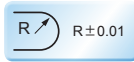
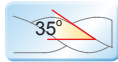
2-flute ball nose end mills with long shank



GM-2BL/M/X



● GM-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-2BL-R1.0S	2.0	1.0	4	4	75	2	Picture 1	●
GM-2BL-R1.0	2.0	1.0	6	4	75	2	Picture 1	●
GM-2BL-R1.25F	2.5	1.25	3	5	50	2	Picture 1	●
GM-2BL-R1.25S	2.5	1.25	4	5	75	2	Picture 1	●
GM-2BL-R1.25	2.5	1.25	6	5	75	2	Picture 1	●
GM-2BL-R1.5F	3.0	1.5	3	6	50	2	Picture 2	●
GM-2BL-R1.5S	3.0	1.5	4	6	75	2	Picture 1	●
GM-2BL-R1.5	3.0	1.5	6	6	75	2	Picture 1	●
GM-2BL-R1.75S	3.5	1.75	4	8	75	2	Picture 1	●
GM-2BL-R1.75	3.5	1.75	6	8	75	2	Picture 1	●
GM-2BL-R2.0S	4.0	2.0	4	8	75	2	Picture 2	●
GM-2BL-R2.0	4.0	2.0	6	8	75	2	Picture 1	●
GM-2BL-R2.5	5.0	2.5	6	10	75	2	Picture 1	●
GM-2BL-R2.75	5.5	2.75	6	12	75	2	Picture 1	●
GM-2BL-R3.0	6.0	3.0	6	12	75	2	Picture 2	●
GM-2BX-R3.0	6.0	3.0	6	12	100	2	Picture 2	●
GM-2BL-R3.5	7.0	3.5	8	14	75	2	Picture 1	●
GM-2BM-R4.0	8.0	4.0	8	16	75	2	Picture 2	●
GM-2BL-R4.0	8.0	4.0	8	16	100	2	Picture 2	●
GM-2BL-R4.5	9.0	4.5	10	18	100	2	Picture 1	●
GM-2BL-R5.0	10.0	5.0	10	20	100	2	Picture 2	●
GM-2BX-R5.0	10.0	5.0	10	20	150	2	Picture 2	●
GM-2BL-R6.0	12.0	6.0	12	24	100	2	Picture 2	●
GM-2BX-R6.0	12.0	6.0	12	24	150	2	Picture 2	●
GM-2BL-R7.0	14.0	7.0	14	28	100	2	Picture 2	●
GM-2BL-R8.0	16.0	8.0	16	32	150	2	Picture 2	●
GM-2BL-R10.0	20.0	10.0	20	40	150	2	Picture 2	●

Applicable workpiece material table ● Very suitable ○ Suitable

● Stock available ○ Make-to-order

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B515

Non-standard customization

B570-B571

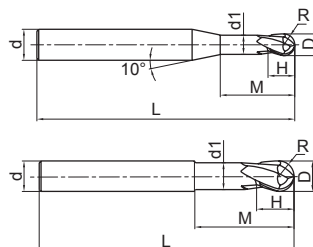
Indexable milling tools
Solid carbide end mills
GM series

GM series for general machining

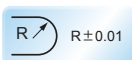
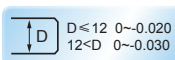
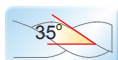
2-flute ballnose end mills with long neck and short cutting edge



GM-2BFP

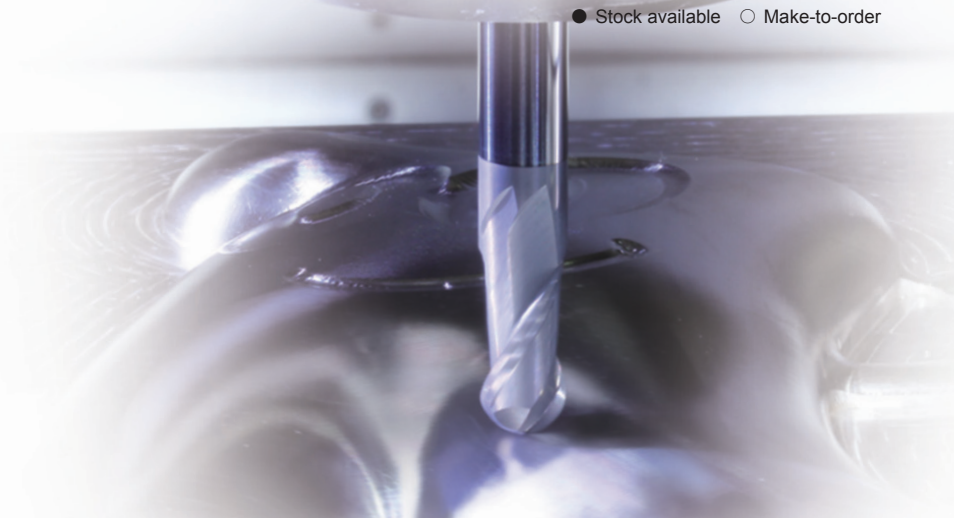


- High rigidity short cutting edge, suitable for heavy cutting.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	D	R	H	d ₁	M	d	L			
GM-2BFP-R0.5	1.0	0.5	1	0.95	2.5	6	75	2	Picture 1	○
GM-2BFP-R0.75	1.5	0.75	1	1.45	3.0	6	75	2	Picture 1	○
GM-2BFP-R1.0	2.0	1.0	2	1.95	4.0	6	75	2	Picture 1	○
GM-2BFP-R1.5	3.0	1.5	3	2.85	6.0	6	75	2	Picture 1	○
GM-2BFP-R2.0	4.0	2.0	4	3.85	8.0	6	75	2	Picture 1	○
GM-2BFP-R2.5	5.0	2.5	5	4.85	10.0	6	75	2	Picture 1	○
GM-2BFP-R3.0	6.0	3.0	6	5.8	12.0	6	75	2	Picture 2	○
GM-2BFP-R4.0	8.0	4.0	8	7.8	16.0	8	100	2	Picture 2	○
GM-2BFP-R5.0	10.0	5.0	10	9.6	20.0	10	100	2	Picture 2	○
GM-2BFP-R6.0	12.0	6.0	12	11.5	24.0	12	100	2	Picture 2	○
GM-2BFP-R8.0	16.0	8.0	16	15.5	32.0	16	150	2	Picture 2	○
GM-2BFP-R10.0	20.0	10.0	20	19.5	40.0	20	150	2	Picture 2	○

● Stock available ○ Make-to-order



Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B515

Non-standard customization

B570-B571

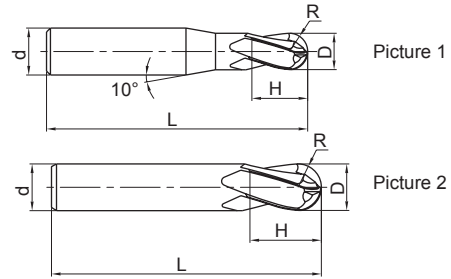
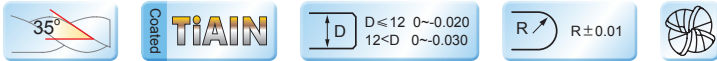
4-flute ball nose end mills with straight shank



GM-4B



4-flute ball nose end mill can operate with higher feed speed and machining efficiency, extending too life in machining high-hardness workpiece.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-4B-R1.5S	3.0	1.5	4	6	50	4	Picture 1	●
GM-4B-R1.5	3.0	1.5	6	6	50	4	Picture 1	●
GM-4B-R2.0S	4.0	2.0	4	8	50	4	Picture 2	●
GM-4B-R2.0	4.0	2.0	6	8	50	4	Picture 1	●
GM-4B-R2.5	5.0	2.5	6	10	50	4	Picture 1	●
GM-4B-R3.0	6.0	3.0	6	12	50	4	Picture 2	●
GM-4B-R4.0	8.0	4.0	8	16	60	4	Picture 2	●
GM-4B-R5.0	10.0	5.0	10	20	75	4	Picture 2	●
GM-4B-R6.0	12.0	6.0	12	24	75	4	Picture 2	●
GM-4B-R7.0	14.0	7.0	14	28	75	4	Picture 2	●
GM-4B-R8.0	16.0	8.0	16	32	100	4	Picture 2	●
GM-4B-R9.0	18.0	9.0	18	36	100	4	Picture 2	●
GM-4B-R10.0	20.0	10.0	20	40	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					



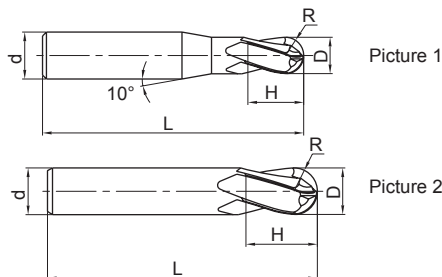
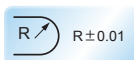
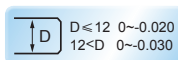
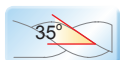
4-flute ball nose end mills with long shank



GM-4BL/M/X



● GM-4B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-4BL-R1.5S	3.0	1.5	4	6	75	4	Picture 1	○
GM-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
GM-4BL-R2.0S	4.0	2.0	4	8	75	4	Picture 2	○
GM-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
GM-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
GM-4BL-R3.0	6.0	3.0	6	12	75	4	Picture 2	○
GM-4BX-R3.0	6.0	3.0	6	12	100	4	Picture 2	○
GM-4BM-R4.0	8.0	4.0	8	16	75	4	Picture 2	○
GM-4BL-R4.0	8.0	4.0	8	16	100	4	Picture 2	○
GM-4BL-R5.0	10.0	5.0	10	20	100	4	Picture 2	○
GM-4BX-R5.0	10.0	5.0	10	20	150	4	Picture 2	○
GM-4BL-R6.0	12.0	6.0	12	24	100	4	Picture 2	○
GM-4BX-R6.0	12.0	6.0	12	24	150	4	Picture 2	○
GM-4BL-R7.0	14.0	7.0	14	28	100	4	Picture 2	○
GM-4BL-R8.0	16.0	8.0	16	32	150	4	Picture 2	○
GM-4BL-R9.0	18.0	9.0	18	36	150	4	Picture 2	○
GM-4BL-R10.0	20.0	10.0	20	40	150	4	Picture 2	○

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
●	●	●	○		○	●					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B516

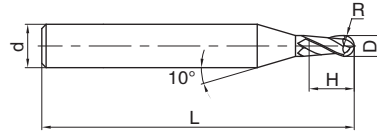
Non-standard customization

B570-B571

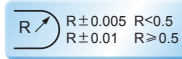
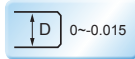
2-flute tiny ball nose end mills with straight shank



GM-2BS



● Tiny diameter end mills can fully display high speed and high precision performances of machining center, often used for machining of precision components such as electronic part etc.



Type	Basic dimension(mm)					Number of teeth Z	Stock
	D	R	d	H	L		
GM-2BS-R0.15	0.30	0.15	4	0.5	50	2	●
GM-2BS-R0.20	0.40	0.20	4	0.6	50	2	●
GM-2BS-R0.25	0.50	0.25	4	0.8	50	2	●
GM-2BS-R0.30	0.60	0.30	4	0.9	50	2	●
GM-2BS-R0.35	0.70	0.35	4	1.0	50	2	●
GM-2BS-R0.40	0.80	0.40	4	1.2	50	2	●
GM-2BS-R0.45	0.90	0.45	4	1.3	50	2	●
GM-2BS-R0.50	1.00	0.50	4	1.5	50	2	●
GM-2BS-R0.60	1.20	0.60	4	1.8	50	2	●
GM-2BS-R0.70	1.40	0.70	4	2.0	50	2	●
GM-2BS-R0.75	1.50	0.75	4	2.3	50	2	●
GM-2BS-R0.80	1.60	0.80	4	2.5	50	2	●
GM-2BS-R0.90	1.80	0.90	4	2.7	50	2	●
GM-2BS-R1.00	2.00	1.00	4	3.0	50	2	●
GM-2BS-R1.25	2.50	1.25	4	3.7	50	2	●
GM-2BS-R1.50	3.00	1.50	4	4.5	50	2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

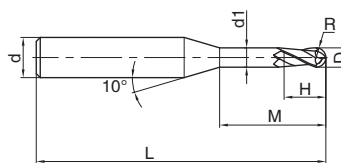


2-flute ball nose end mills with straight shank, long neck and short cutting edge

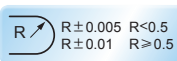
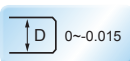
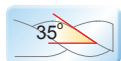


Deep ball nose slot

GM-2BP



● Suitable for machining narrow slot and free-form surface.



Type	Basic dimension(mm)							Number of teeth Z	Stock
	D	R	H	d ₁	M	d	L		
GM-2BP-R0.15-M02	0.3	0.15	0.4	0.25	2	4	50	2	●
GM-2BP-R0.15-M04	0.3	0.15	0.4	0.25	4	4	50	2	●
GM-2BP-R0.2-M02	0.4	0.2	0.6	0.35	2	4	50	2	●
GM-2BP-R0.2-M04	0.4	0.2	0.6	0.35	4	4	50	2	●
GM-2BP-R0.25-M04	0.5	0.25	0.7	0.45	4	4	50	2	●
GM-2BP-R0.25-M06	0.5	0.25	0.7	0.45	6	4	50	2	●
GM-2BP-R0.3-M04	0.6	0.3	0.9	0.55	4	4	50	2	●
GM-2BP-R0.3-M06	0.6	0.3	0.9	0.55	6	4	50	2	●
GM-2BP-R0.3-M08	0.6	0.3	0.9	0.55	8	4	50	2	●
GM-2BP-R0.4-M04	0.8	0.4	1.2	0.75	4	4	50	2	●
GM-2BP-R0.4-M06	0.8	0.4	1.2	0.75	6	4	50	2	●
GM-2BP-R0.4-M08	0.8	0.4	1.2	0.75	8	4	50	2	●
GM-2BP-R0.4-M10	0.8	0.4	1.2	0.75	10	4	50	2	●
GM-2BP-R0.5-M04	1.0	0.5	1.5	0.95	4	4	50	2	●
GM-2BP-R0.5-M06	1.0	0.5	1.5	0.95	6	4	50	2	●
GM-2BP-R0.5-M08	1.0	0.5	1.5	0.95	8	4	50	2	●
GM-2BP-R0.5-M10	1.0	0.5	1.5	0.95	10	4	50	2	●
GM-2BP-R0.5-M12	1.0	0.5	1.5	0.95	12	4	50	2	●
GM-2BP-R0.6-M06	1.2	0.6	1.8	1.15	6	4	50	2	●
GM-2BP-R0.6-M08	1.2	0.6	1.8	1.15	8	4	50	2	●
GM-2BP-R0.6-M12	1.2	0.6	1.8	1.15	12	4	50	2	●
GM-2BP-R0.6-M16	1.2	0.6	1.8	1.15	16	4	50	2	●
GM-2BP-R0.75-M08	1.5	0.75	2.3	1.45	8	4	50	2	●
GM-2BP-R0.75-M12	1.5	0.75	2.3	1.45	12	4	50	2	●
GM-2BP-R0.75-M16	1.5	0.75	2.3	1.45	16	4	50	2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○				

Code key

B258

Graphics category and identification

B259

Cutting parameters

B518-B519

Non-standard customization

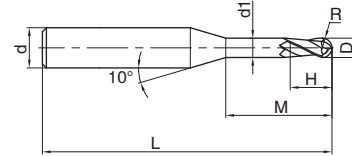
B570-B571

2-flute ball nose end mills with straight shank, long neck and short cutting edge

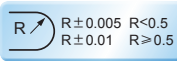
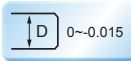
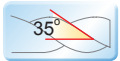


Deep ball nose slot

GM-2BP



● Suitable for machining narrow slot and free-form surface.



Type	Basic dimension(mm)							Number of teeth Z	Stock
	D	R	H	d ₁	M	d	L		
GM-2BP-R1.0-M06	2.0	1.0	3.0	1.95	6	4	50	2	●
GM-2BP-R1.0-M08	2.0	1.0	3.0	1.95	8	4	50	2	●
GM-2BP-R1.0-M10	2.0	1.0	3.0	1.95	10	4	50	2	●
GM-2BP-R1.0-M12	2.0	1.0	3.0	1.95	12	4	50	2	●
GM-2BP-R1.0-M16	2.0	1.0	3.0	1.95	16	4	50	2	●
GM-2BP-R1.0-M20	2.0	1.0	3.0	1.95	20	4	50	2	●
GM-2BP-R1.25-M08	2.5	1.25	3.7	2.4	8	4	50	2	●
GM-2BP-R1.25-M12	2.5	1.25	3.7	2.4	12	4	50	2	●
GM-2BP-R1.25-M16	2.5	1.25	3.7	2.4	16	4	60	2	●
GM-2BP-R1.25-M20	2.5	1.25	3.7	2.4	20	4	60	2	●
GM-2BP-R1.5-M08	3.0	1.5	4.5	2.85	8	6	50	2	●
GM-2BP-R1.5-M10	3.0	1.5	4.5	2.85	10	6	50	2	●
GM-2BP-R1.5-M12	3.0	1.5	4.5	2.85	12	6	50	2	●
GM-2BP-R1.5-M16	3.0	1.5	4.5	2.85	16	6	60	2	●
GM-2BP-R1.5-M20	3.0	1.5	4.5	2.85	20	6	60	2	●
GM-2BP-R2.0-M10	4.0	2.0	6.0	3.85	10	6	60	2	●
GM-2BP-R2.0-M16	4.0	2.0	6.0	3.85	16	6	60	2	●
GM-2BP-R2.0-M20	4.0	2.0	6.0	3.85	20	6	60	2	●
GM-2BP-R2.0-M25	4.0	2.0	6.0	3.85	25	6	60	2	●
GM-2BP-R2.5-M16	5.0	2.5	7.5	4.85	16	6	60	2	●
GM-2BP-R2.5-M25	5.0	2.5	7.5	4.85	25	6	70	2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

➤ Applicable workpiece material table ● Very suitable ○ Suitable

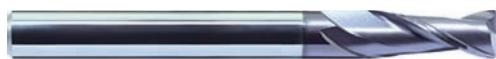
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



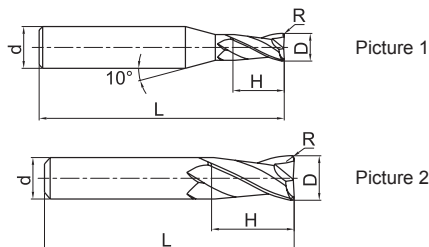
2-flute R end mills with straight shank



GM-2R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-2R-D1.0R0.2	1.0	0.2	4	3	50	2	Picture 1	●
GM-2R-D1.5R0.2	1.5	0.2	4	4	50	2	Picture 1	●
GM-2R-D2.0R0.2	2.0	0.2	4	6	50	2	Picture 1	●
GM-2R-D2.0R0.5	2.0	0.5	4	6	50	2	Picture 1	●
GM-2R-D2.5R0.2	2.5	0.2	4	8	50	2	Picture 1	●
GM-2R-D2.5R0.5	2.5	0.5	4	8	50	2	Picture 1	●
GM-2R-D3.0R0.2	3.0	0.2	4	8	50	2	Picture 1	●
GM-2R-D3.0R0.3	3.0	0.3	4	8	50	2	Picture 1	●
GM-2R-D3.0R0.5	3.0	0.5	4	8	50	2	Picture 1	●
GM-2R-D4.0R0.2	4.0	0.2	4	11	50	2	Picture 2	●
GM-2R-D4.0R0.3	4.0	0.3	4	11	50	2	Picture 2	●
GM-2R-D4.0R0.5	4.0	0.5	4	11	50	2	Picture 2	●
GM-2R-D4.0R1.0	4.0	1.0	4	11	50	2	Picture 2	●
GM-2R-D5.0R0.3	5.0	0.3	6	13	50	2	Picture 1	●
GM-2R-D5.0R0.5	5.0	0.5	6	13	50	2	Picture 1	●
GM-2R-D5.0R1.0	5.0	1.0	6	13	50	2	Picture 1	●
GM-2R-D6.0R0.3	6.0	0.3	6	16	50	2	Picture 2	●
GM-2R-D6.0R0.5	6.0	0.5	6	16	50	2	Picture 2	●
GM-2R-D6.0R1.0	6.0	1.0	6	16	50	2	Picture 2	●
GM-2R-D8.0R0.3	8.0	0.3	8	20	60	2	Picture 2	●
GM-2R-D8.0R0.5	8.0	0.5	8	20	60	2	Picture 2	●
GM-2R-D8.0R1.0	8.0	1.0	8	20	60	2	Picture 2	●
GM-2R-D10.0R0.5	10.0	0.5	10	25	75	2	Picture 2	●
GM-2R-D10.0R1.0	10.0	1.0	10	25	75	2	Picture 2	●
GM-2R-D10.0R1.5	10.0	1.5	10	25	75	2	Picture 2	●
GM-2R-D10.0R2.0	10.0	2.0	10	25	75	2	Picture 2	●
GM-2R-D12.0R0.5	12.0	0.5	12	30	75	2	Picture 2	●
GM-2R-D12.0R1.0	12.0	1.0	12	30	75	2	Picture 2	●
GM-2R-D12.0R1.5	12.0	1.5	12	30	75	2	Picture 2	●
GM-2R-D12.0R2.0	12.0	2.0	12	30	75	2	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B520

Non-standard customization

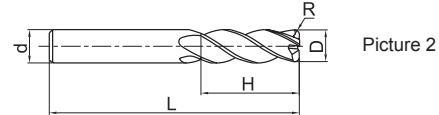
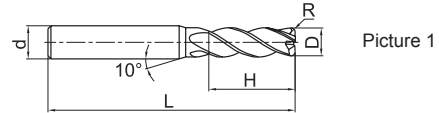
B570-B571

GM series for general machining

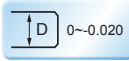
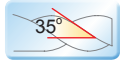
4-flute R end mills with straight shank



GM-4R



Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-4R-D1.0R0.2	1.0	0.2	4	3	50	4	Picture 1	○
GM-4R-D1.5R0.2	1.5	0.2	4	4	50	4	Picture 1	○
GM-4R-D2.0R0.2	2.0	0.2	4	6	50	4	Picture 1	○
GM-4R-D2.0R0.5	2.0	0.5	4	6	50	4	Picture 1	○
GM-4R-D2.5R0.2	2.5	0.2	4	8	50	4	Picture 1	○
GM-4R-D2.5R0.5	2.5	0.5	4	8	50	4	Picture 1	○
GM-4R-D3.0R0.2	3.0	0.2	4	8	50	4	Picture 1	●
GM-4R-D3.0R0.5	3.0	0.5	4	8	50	4	Picture 1	○
GM-4R-D4.0R0.2	4.0	0.2	4	10	50	4	Picture 2	○
GM-4R-D4.0R0.3	4.0	0.3	4	10	50	4	Picture 2	●
GM-4R-D4.0R0.5	4.0	0.5	4	10	50	4	Picture 2	●
GM-4R-D5.0R0.2	5.0	0.2	6	13	50	4	Picture 2	○
GM-4R-D5.0R0.5	5.0	0.5	6	13	50	4	Picture 1	●
GM-4R-D5.0R1.0	5.0	1.0	6	13	50	4	Picture 1	●
GM-4R-D6.0R0.3	6.0	0.3	6	16	50	4	Picture 2	○
GM-4R-D6.0R0.5	6.0	0.5	6	16	50	4	Picture 2	●
GM-4R-D6.0R1.0	6.0	1.0	6	16	50	4	Picture 2	●
GM-4R-D8.0R0.3	8.0	0.3	8	20	60	4	Picture 2	○
GM-4R-D8.0R0.5	8.0	0.5	8	20	60	4	Picture 2	●
GM-4R-D8.0R1.0	8.0	1.0	8	20	60	4	Picture 2	●
GM-4R-D10.0R0.3	10.0	0.3	10	25	75	4	Picture 2	○
GM-4R-D10.0R0.5	10.0	0.5	10	25	75	4	Picture 2	●
GM-4R-D10.0R1.0	10.0	1.0	10	25	75	4	Picture 2	●
GM-4R-D10.0R2.0	10.0	2.0	10	25	75	4	Picture 2	●
GM-4R-D10.0R3.0	10.0	3.0	10	25	75	4	Picture 2	●
GM-4R-D12.0R0.3	12.0	0.3	12	30	75	4	Picture 2	○
GM-4R-D12.0R0.5	12.0	0.5	12	30	75	4	Picture 2	●
GM-4R-D12.0R1.0	12.0	1.0	12	30	75	4	Picture 2	●
GM-4R-D12.0R2.0	12.0	2.0	12	30	75	4	Picture 2	●
GM-4R-D12.0R3.0	12.0	3.0	12	30	75	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	

Code key **B258** Graphics category and identification **B259** Cutting parameters **B521** Non-standard customization **B570-B571**

Indexable milling tools
Solid carbide end mills
GM series

GM series for general machining

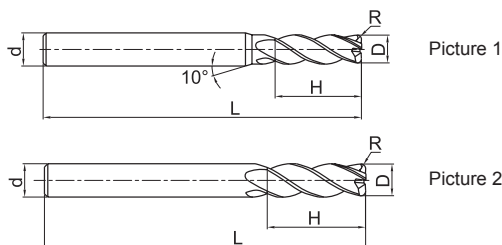
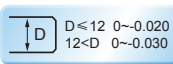
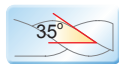
4-flute R end mills with long shank



GM-4RL/M/X



● GM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-4RL-D4.0R0.2S	4.0	0.2	4	10	75	4	Picture 2	●
GM-4RL-D4.0R0.2	4.0	0.2	6	10	75	4	Picture 1	●
GM-4RL-D4.0R0.5S	4.0	0.5	4	10	75	4	Picture 2	●
GM-4RL-D4.0R0.5	4.0	0.5	6	10	75	4	Picture 1	●
GM-4RL-D6.0R0.2	6.0	0.2	6	16	75	4	Picture 2	●
GM-4RX-D6.0R0.2	6.0	0.2	6	16	100	4	Picture 2	●
GM-4RL-D6.0R0.5	6.0	0.5	6	16	75	4	Picture 2	●
GM-4RX-D6.0R0.5	6.0	0.5	6	16	100	4	Picture 2	●
GM-4RL-D6.0R1.0	6.0	1.0	6	16	75	4	Picture 2	●
GM-4RX-D6.0R1.0	6.0	1.0	6	16	100	4	Picture 2	●
GM-4RM-D8.0R0.2	8.0	0.2	8	20	75	4	Picture 2	●
GM-4RL-D8.0R0.2	8.0	0.2	8	20	100	4	Picture 2	●
GM-4RM-D8.0R0.5	8.0	0.5	8	20	75	4	Picture 2	●
GM-4RL-D8.0R0.5	8.0	0.5	8	20	100	4	Picture 2	●
GM-4RM-D8.0R1.0	8.0	1.0	8	20	75	4	Picture 2	●
GM-4RL-D8.0R1.0	8.0	1.0	8	20	100	4	Picture 2	●
GM-4RL-D10.0R0.2	10.0	0.2	10	25	100	4	Picture 2	●
GM-4RX-D10.0R0.2	10.0	0.2	10	25	150	4	Picture 2	●
GM-4RL-D10.0R0.5	10.0	0.5	10	25	100	4	Picture 2	●
GM-4RX-D10.0R0.5	10.0	0.5	10	25	150	4	Picture 2	●
GM-4RL-D10.0R1.0	10.0	1.0	10	25	100	4	Picture 2	●
GM-4RX-D10.0R1.0	10.0	1.0	10	25	150	4	Picture 2	●

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B521

Non-standard customization

B570-B571

GM series for general machining

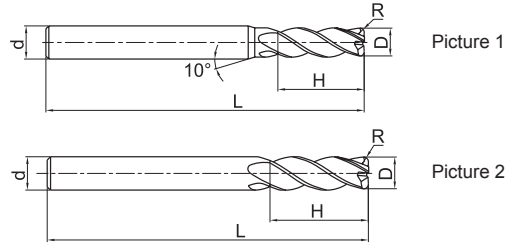
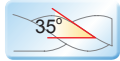
4-flute R end mills with long shank



GM-4RL/M/X



● GM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	D	R	d	H	L			
GM-4RL-D10.0R2.0	10.0	2.0	10	25	100	4	Picture 2	●
GM-4RX-D10.0R2.0	10.0	2.0	10	25	150	4	Picture 2	●
GM-4RL-D12.0R0.2	12.0	0.2	12	30	100	4	Picture 2	●
GM-4RX-D12.0R0.2	12.0	0.2	12	30	150	4	Picture 2	●
GM-4RL-D12.0R0.5	12.0	0.5	12	30	100	4	Picture 2	●
GM-4RX-D12.0R0.5	12.0	0.5	12	30	150	4	Picture 2	●
GM-4RL-D12.0R1.0	12.0	1.0	12	30	100	4	Picture 2	●
GM-4RX-D12.0R1.0	12.0	1.0	12	30	150	4	Picture 2	●
GM-4RL-D12.0R2.0	12.0	2.0	12	30	100	4	Picture 2	●
GM-4RX-D12.0R2.0	12.0	2.0	12	30	150	4	Picture 2	●
GM-4RL-D16.0R1.0	16.0	1.0	16	45	150	4	Picture 2	●
GM-4RL-D16.0R2.0	16.0	2.0	16	45	150	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools
Solid carbide end mills
GM series

Applicable workpiece material table ○Very suitable ○Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel、Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○			○	○				

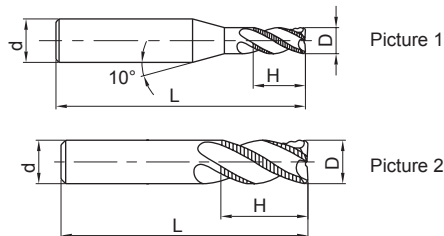
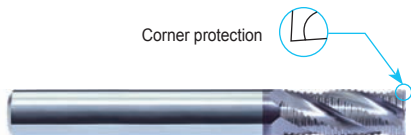


GM series for general machining

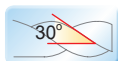
4-flute flattened end mills with straight shank and corrugated edges



GM-4W



● Very suitable for high-efficiency rough machining.



D	D < 6	0 ~ -0.048	6 < D ≤ 10	0 ~ -0.058
D	10 < D ≤ 18	0 ~ -0.07	18 < D	0 ~ -0.084



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	D	d	H	L			
GM-4W-D6.0	6.0	6	16	50	4	Picture 2	●
GM-4W-D7.0	7.0	8	20	60	4	Picture 1	●
GM-4W-D8.0	8.0	8	20	60	4	Picture 2	●
GM-4W-D9.0	9.0	10	22	75	4	Picture 1	●
GM-4W-D10.0	10.0	10	25	75	4	Picture 2	●
GM-4W-D11.0	11.0	12	26	75	4	Picture 1	●
GM-4W-D12.0	12.0	12	30	75	4	Picture 2	●
GM-4W-D16.0	16.0	16	45	100	4	Picture 2	●
GM-4W-D20.0	20.0	20	45	100	4	Picture 2	●

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

GM series

Applicable workpiece material table ● Very suitable ○ Suitable

Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					

Code key

B258

Graphics category and identification

B259

Cutting parameters

B522-B523

Non-standard customization

B570-B571