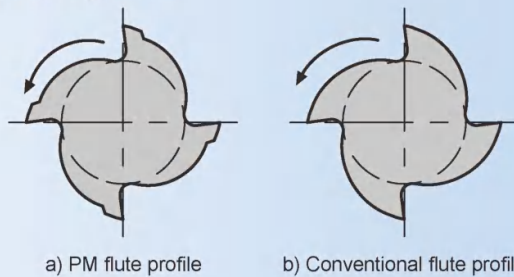


# High performance universal machining

## PM series

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



- 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)

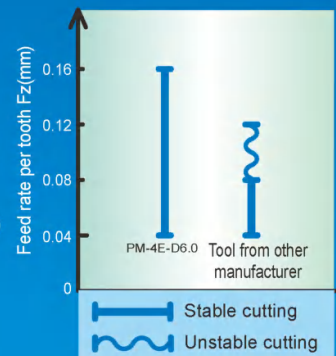
Cooling method: Air cooling

Machining operation: Side milling (down milling)

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

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

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

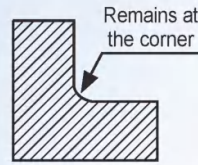


- With excellent wear resistance and toughness, high wear resistance and breakage resistance is achieved even during high performance milling.

The characteristic of corner protection end mills:

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

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

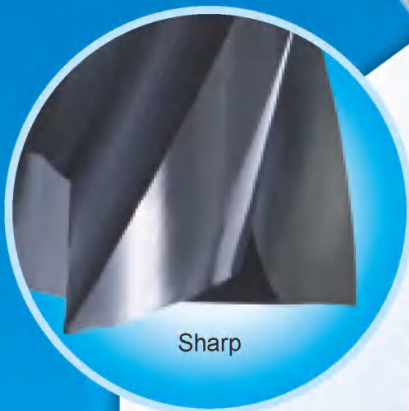


Corner protection

Updated flattened end mills

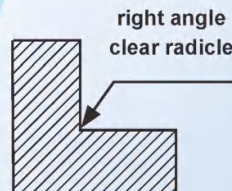
End mills series of sharp and corner protection type

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.



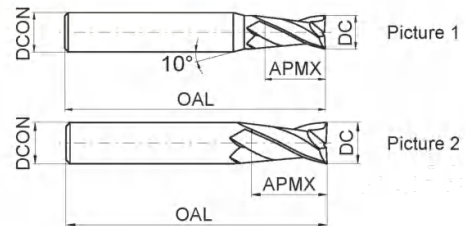
### 2-flute flattened end mills with straight shank



**PM-2E**



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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	●

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 **B294** Graphics category and identification **B295** Cutting parameters **B552** Non-standard customization **B652-B653**



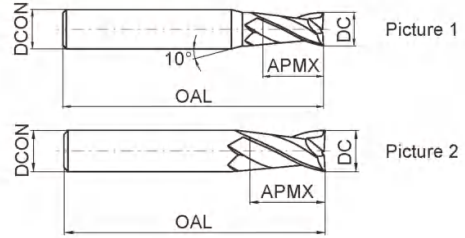
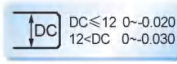
2-flute flattened end mills with straight shank



PM-2F



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	



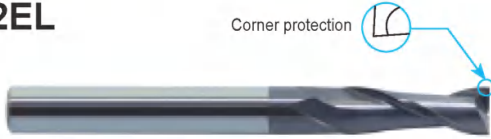
Indexable milling tools  
Solid carbide end mills  
PM series



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

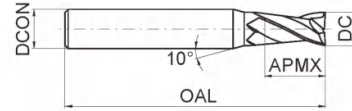
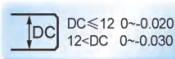
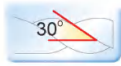


#### PM-2EL

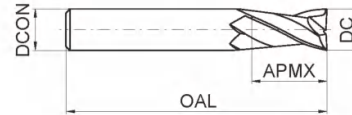


Corner protection

● PM-2E series with long cutting edge.



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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 **B294**

Graphics category and identification **B295**

Cutting parameters **B552**

Non-standard customization **B652-B653**

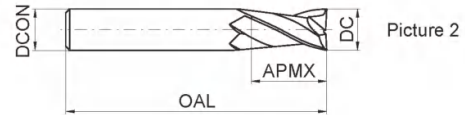
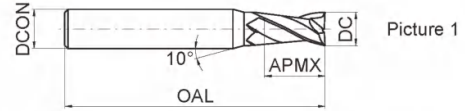
2-flute flattened end mills with straight shank and long cutting edge



PM-2FL



● PM-2F series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	

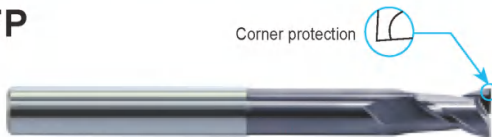




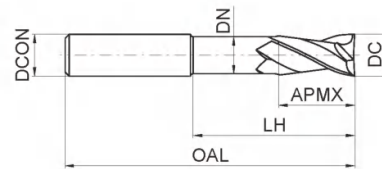
### 2-flute flattened end mills with straight shank, long neck and short cutting edge



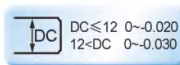
#### PM-2EFP



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
	DC	DCON	APMX	LH	DN	OAL		
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

B294

Graphics category and identification

B295

Cutting parameters

B554

Non-standard customization

B652-B653

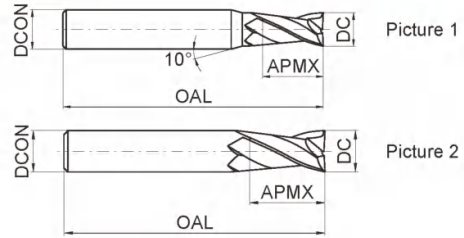
2-flute flattened end mills with long shank



PM-2EBL/X



● PM-2E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	

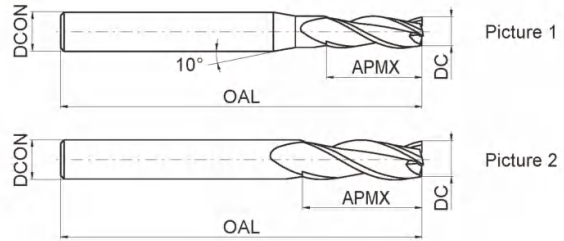




### 3-flute flattened end mills with straight shank



#### PM-3E-H



● Especially suitable for slot milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

### 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						
○	○	○	○	○	○	○	○	○	○	○	

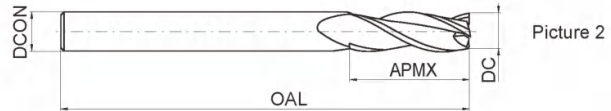
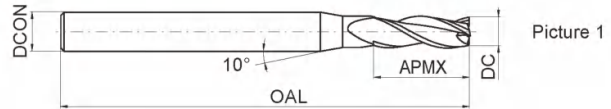
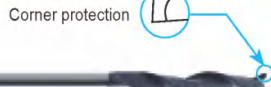


Intextable milling tools  
 Solid carbide end mills  
 PM series

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



PM-3EL-H



● PM-3E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





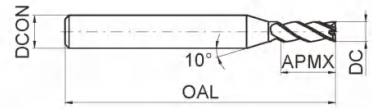
### 4-flute flattened end mills with straight shank



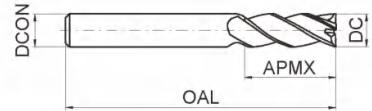
#### PM-4E-G



Corner protection

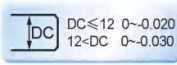


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

#### 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

B294

Graphics category and identification

B295

Cutting parameters

B556-B557

Non-standard customization

B652-B653

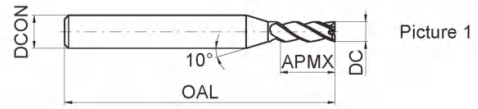
4-flute flattened end mills with straight shank



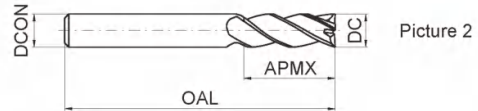
PM-4E-G



Corner protection

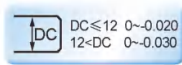


Picture 1



Picture 2

● Very suitable for side milling. ● Wide application.



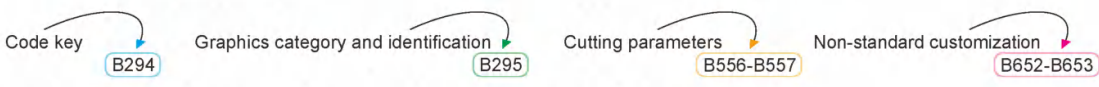
Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PM-4E-D5.5-G	5.5	6	16	50	4	Picture 1	●
PM-4E-D6.0-G	6.0	6	16	50	4	Picture 2	●
PM-4E-D7.0-G	7.0	8	20	60	4	Picture 1	●
PM-4E-D8.0-G	8.0	8	20	60	4	Picture 2	●
PM-4E-D9.0-G	9.0	10	22	75	4	Picture 1	●
PM-4E-D10.0-G	10.0	10	25	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						
○	○	○	○	○	○	○	○	○	○	○	

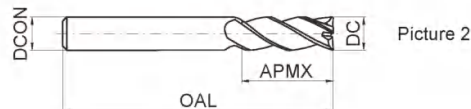
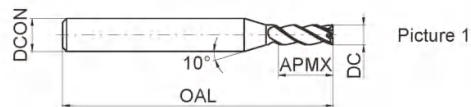




### 4-flute flattened end mills with straight shank



#### PM-4F-G



● Very suitable for side milling. ● Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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 ● 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 **B294** Graphics category and identification **B295** Cutting parameters **B558-B559** Non-standard customization **B652-B653**

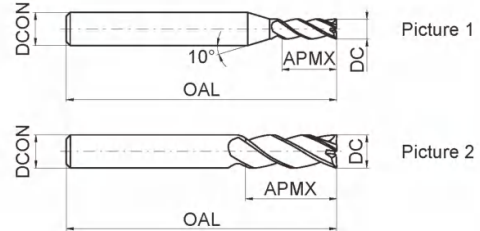
4-flute flattened end mills with straight shank and long cutting edge



PM-4EL-G



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





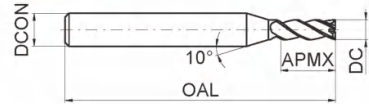
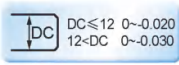
### 4-flute flattened end mills with straight shank and long cutting edge



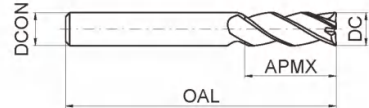
#### PM-4FL-G



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



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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 **B294**

Graphics category and identification **B295**

Cutting parameters **B558-B559**

Non-standard customization **B652-B653**

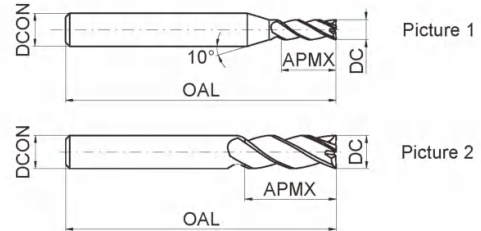
4-flute flattened end mills with straight shank and extra long cutting edge



PM-4EX-G



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



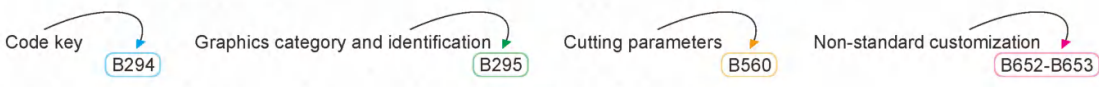
Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PM-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	○
PM-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	○
PM-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	○
PM-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	○
PM-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	○
PM-4EX-D10.0-G	10.0	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

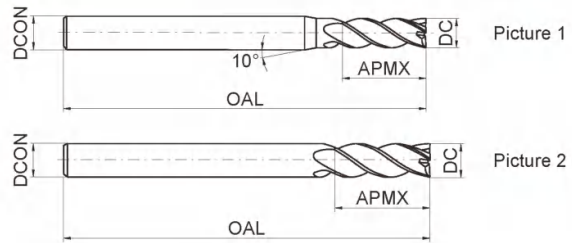


#### PM-4EBL/X-G



Corner protection

● PM-4E-G series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B556-B557

Non-standard customization

B652-B653

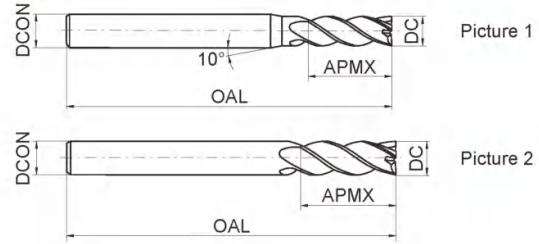
4-flute flattened end mills with straight shank



PM-4E



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

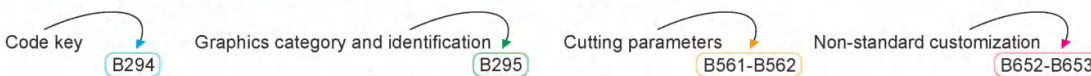


Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PM-4E-D1.0F	1.0	3	3	50	4	Picture 1	○
PM-4E-D1.0S	1.0	4	3	50	4	Picture 1	○
PM-4E-D1.0	1.0	6	3	50	4	Picture 1	○
PM-4E-D1.5F	1.5	3	4	50	4	Picture 1	○
PM-4E-D1.5S	1.5	4	4	50	4	Picture 1	○
PM-4E-D1.5	1.5	6	4	50	4	Picture 1	○
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

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



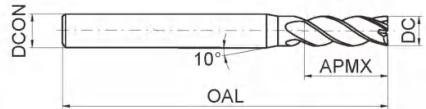
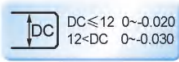
### 4-flute flattened end mills with straight shank



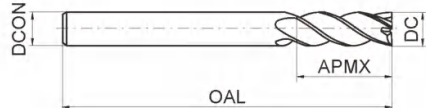
#### PM-4E



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



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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 **B294**

Graphics category and identification **B295**

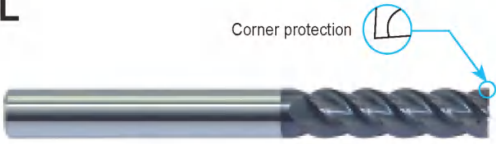
Cutting parameters **B561-B562**

Non-standard customization **B652-B653**

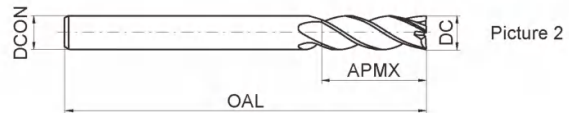
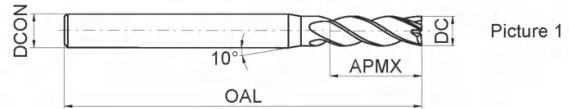
4-flute flattened end mills with straight shank and long cutting edge



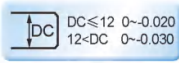
PM-4EL



Corner protection



● PM-4E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	

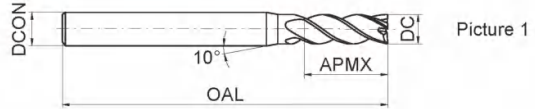




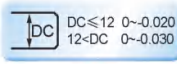
### 4-flute flattened end mills with straight shank



#### PM-4E-H



- Most suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

#### 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						
○	○	○	○	○	○	○	○	○	○	○	

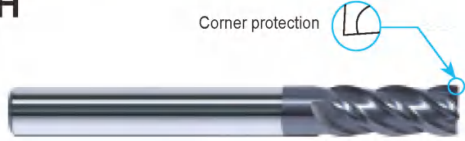


Intextable milling tools  
 Solid carbide end mills  
 PM series

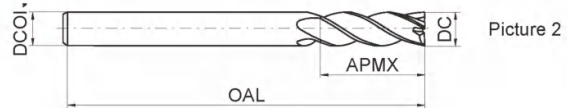
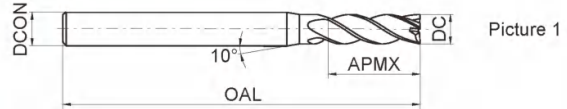
4-flute flattened end mills with straight shank and long cutting edge



PM-4EL-H



Corner protection



● PM-4E-H series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





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

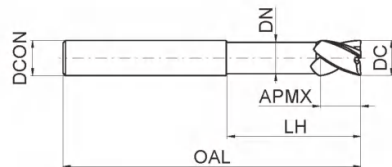
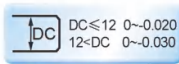


#### PM-4EFP



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
	DC	DCON	APMX	LH	DN	OAL		
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

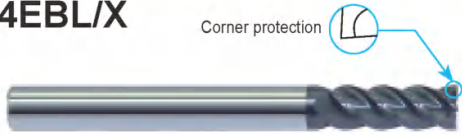
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



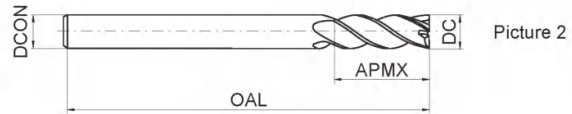
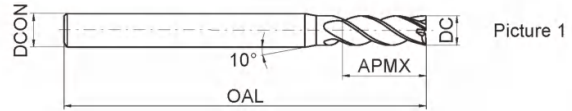
4-flute flattened end mills with long shank



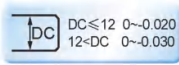
PM-4EBL/X



Corner protection



● PM-4E series with long shank.



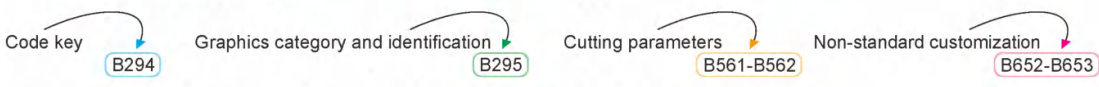
Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
PM-4EBL-D3.0S	3.0	4	8	75	4	Picture 1	○
PM-4EBL-D3.0	3.0	6	8	75	4	Picture 1	○
PM-4EBL-D4.0S	4.0	4	11	75	4	Picture 2	○
PM-4EBL-D4.0	4.0	6	11	75	4	Picture 1	○
PM-4EBL-D6.0	6.0	6	16	75	4	Picture 2	○
PM-4EBX-D6.0	6.0	6	16	100	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						
○	○	○	○	○	○	○	○	○	○	○	

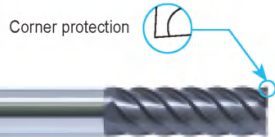




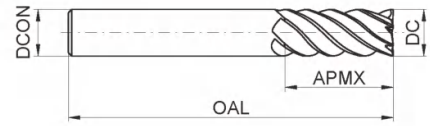
### 6-flute flattened end mills with straight shank



#### 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
	DC	DCON	APMX	OAL		
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

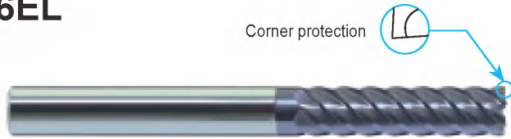
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○	○	○	○	○	○	○	○	



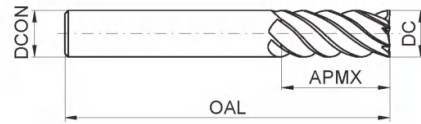
6-flute flattened end mills with straight shank and long cutting edge



PM-6EL



Corner protection



● PM-6E series with long cutting edge.



DC ≤ 12	0 ~ -0.020
12 < DC	0 ~ -0.030



Type	Basic dimension(mm)				Number of teeth Z	Stock
	DC	DCON	APMX	OAL		
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						
○	○	○	○	○		○	○			○	○





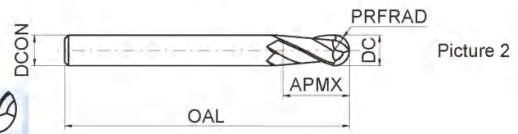
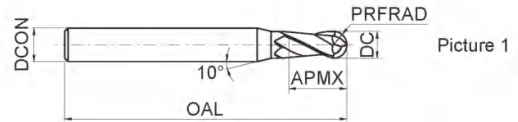
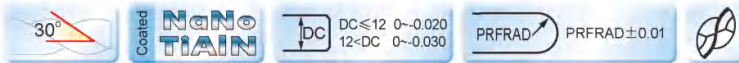
### 2-flute ball nose end mills with straight shank



#### PM-2B



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



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
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 ○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

B294

Graphics category and identification

B295

Cutting parameters

B567-B568

Non-standard customization

B652-B653



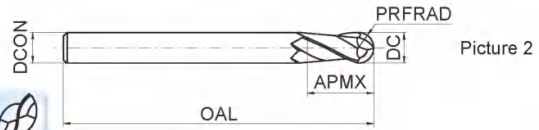
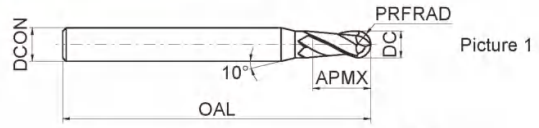
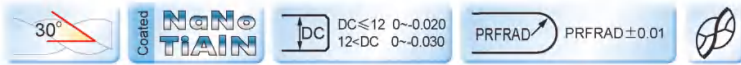
2-flute ball nose end mills with long shank



PM-2BL/M/X



● PM-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
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



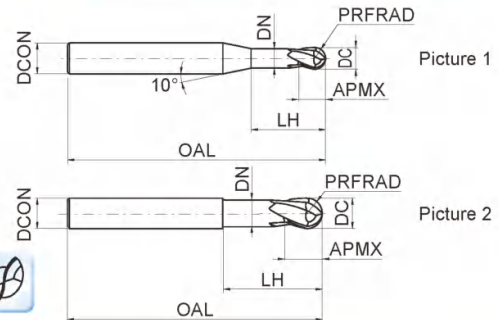
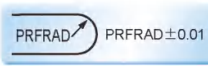
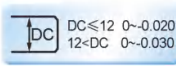
### 2-flute ball nose end mills with straight shank, long neck and short cutting edge



#### PM-2BFP



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



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	PRFRAD	APMX	DN	LH	DCON	OAL			
PM-2BFP-R0.5	1.0	0.5	1.0	0.95	2.5	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R0.75	1.5	0.75	1.5	1.45	3.0	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R1.0	2.0	1.0	2.0	1.95	4.0	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R1.5	3.0	1.5	3.0	2.85	6.0	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R2.0	4.0	2.0	4.0	3.85	8.0	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R2.5	5.0	2.5	5.0	4.85	10.0	6	75	2	Picture 1	<input type="radio"/>
PM-2BFP-R3.0	6.0	3.0	6.0	5.8	12.0	6	75	2	Picture 2	<input type="radio"/>
PM-2BFP-R4.0	8.0	4.0	8.0	7.8	16.0	8	100	2	Picture 2	<input type="radio"/>
PM-2BFP-R5.0	10.0	5.0	10.0	9.6	20.0	10	100	2	Picture 2	<input type="radio"/>
PM-2BFP-R6.0	12.0	6.0	12.0	11.5	24.0	12	100	2	Picture 2	<input type="radio"/>
PM-2BFP-R8.0	16.0	8.0	16.0	15.5	32.0	16	150	2	Picture 2	<input type="radio"/>
PM-2BFP-R10.0	20.0	10.0	20.0	19.5	40.0	20	150	2	Picture 2	<input type="radio"/>

● Stock available ○ Make-to-order

Interchangeable 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						
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Code key **B294**

Graphics category and identification **B295**

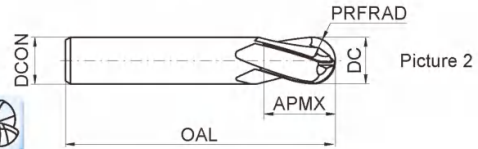
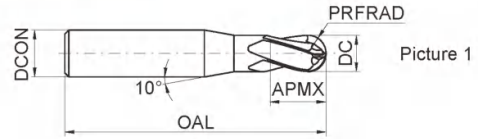
Cutting parameters **B567-B568**

Non-standard customization **B652-B653**

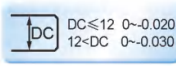
4-flute ball nose end mills with straight shank



PM-4B



● 4-flute ball nose end mill can operate with higher feed speed and machining efficiency.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





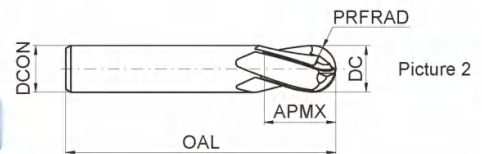
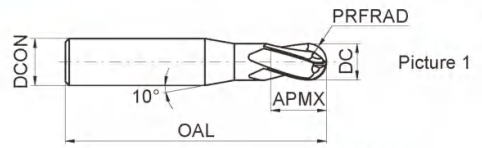
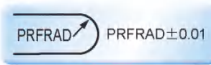
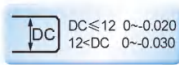
### 4-flute ball nose end mills wit long shank



#### PM-4BL/M/X



● PM-4B series with long shank.

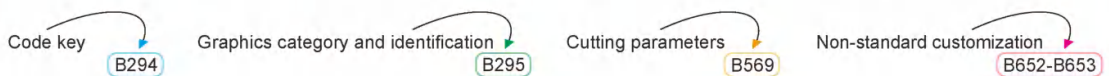


Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
PM-4BL-R1.5S	3.0	1.5	4	6	75	4	Picture 1	○
PM-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
PM-4BL-R2.0S	4.0	2.0	4	8	75	4	Picture 2	○
PM-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
PM-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
PM-4BL-R3.0	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

#### Applicable workpiece material table ●Very suitable ○Suitable

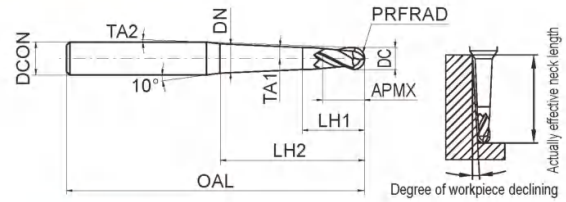
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
●	●	●	●	●	○	●			○	○	



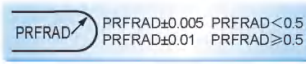
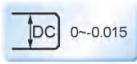
2-flute ball nose end mills with taper neck



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
	DC	PRFRAD	TA1	APMX	LH2	LH1	TA2	DN	OAL	DCON		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	4.4	○
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			12		4.8°		0.93	2			-	12.4	13.9	15.8	○	
PM-2BC10-R0.30-M12								15			4.2°	1.03	2	-	15.4	17.2
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

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 **B294** Graphics category and identification **B295** Cutting parameters **B570-B572** Non-standard customization **B652-B653**

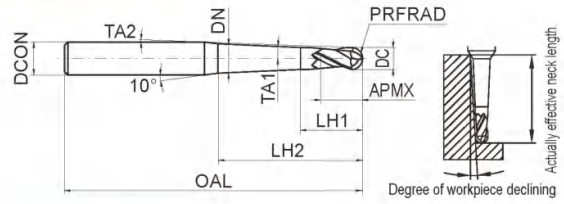
Indexable milling tools  
Solid carbide end mills  
PM series



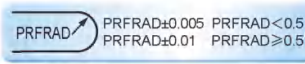
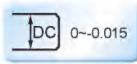
### 2-flute ball nose end mills with taper neck



#### 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	
	DC	PRFRAD	TA1	APMX	LH2	LH1	TA2	DN	OAL	DCON		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	0.5°	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			1.0°		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					1.5°		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

B294

Graphics category and identification

B295

Cutting parameters

B570-B572

Non-standard customization

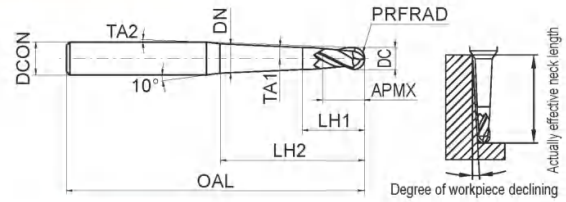
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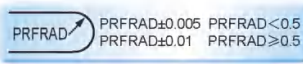
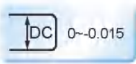
2-flute ball nose end mills with taper neck



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
	DC	PRFRAD	TA1	APMX	LH2	LH1	TA2	DN	OAL	DCON		0.5°	1°	2°	3°	
PM-2BC05-R0.75-M10	1.5	0.75	0.5°		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			1.5	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			1.5	10	3	6.1°	1.81	60	6		2	-	-	11.3	12.8	○
PM-2BC15-R0.75-M15			1.5°	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°		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			2.0	25	4	3.4°	2.64	60	6		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			1.5°	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	2°	2	30	4	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	3°	40	2.9°	5.68	80	2	-	-	non-interference	○						

● 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

B294

Graphics category and identification

B295

Cutting parameters

B570-B572

Non-standard customization

B652-B653

Includes milling tools  
Solid carbide end mills  
PM series

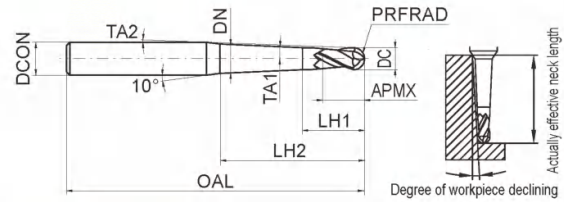


### 2-flute ball nose end mills with taper neck

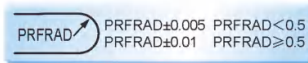
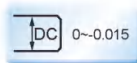


Deep ball nose slot

#### 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
	DC	PRFRAD	TA1	APMX	LH2	LH1	TA2	DN	OAL	DCON		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	non-interference	○
PM-2BC05-R1.5-M50					50		1.6°	3.67	90		2	50.7	53.4	non-interference	non-interference	○
PM-2BC10-R1.5-M30			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	non-interference	○	
PM-2BC15-R1.5-M30			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	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°	60		1.0°		5.76	110		2	-		61.1	non-interference	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

B294

Graphics category and identification

B295

Cutting parameters

B570-B572

Non-standard customization

B652-B653

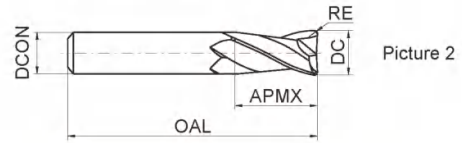
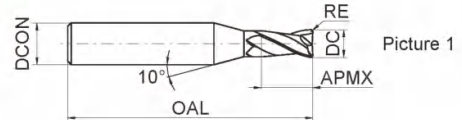
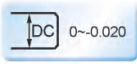
2-flute R end mills with straight shank



PM-2R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





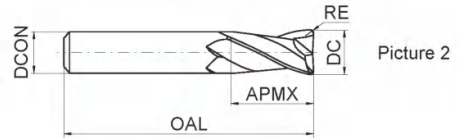
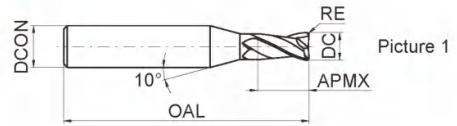
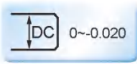
### 2-flute R end mills with straight shank



#### PM-2R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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

Interchangeable 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

B294

Graphics category and identification

B295

Cutting parameters

B573

Non-standard customization

B652-B653

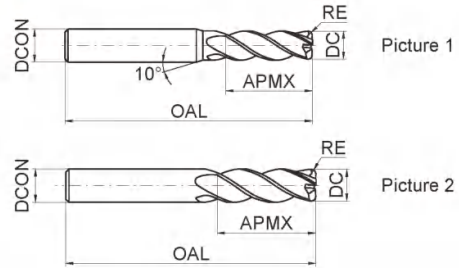
4-flute R end mills with straight shank



PM-4R



Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	



Indexable milling tools  
Solid carbide end mills  
PM series



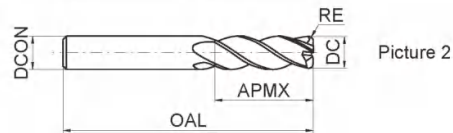
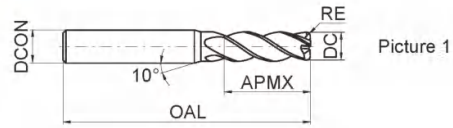
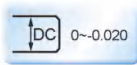
### 4-flute R end mills with straight shank



#### PM-4R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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 **B294**

Graphics category and identification **B295**

Cutting parameters **B574**

Non-standard customization **B652-B653**

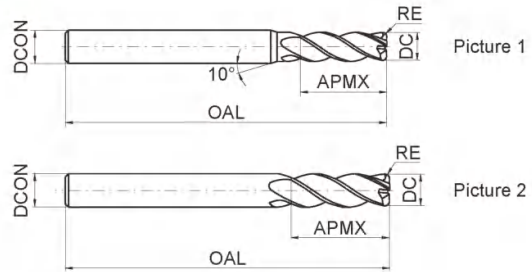
4-flute R end mills with long shank



PM-4RBL/M/X



● PM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○		○	○	



Indexable milling tools  
Solid carbide end mills  
PM series



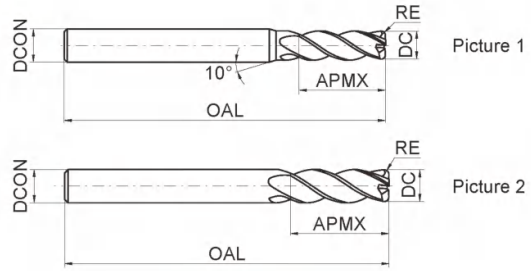
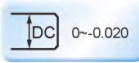
### 4-flute R end mills with long shank



#### PM-4RBL/M/X



● PM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	



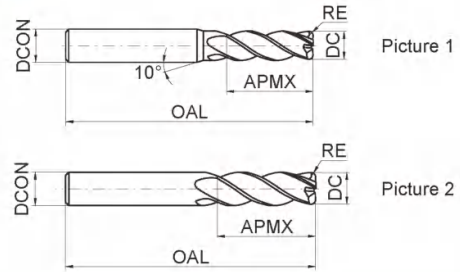
4-flute R end mills with straight shank



PM-4R-H



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





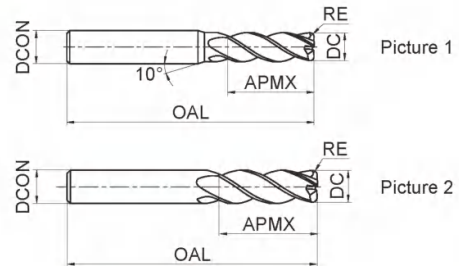
### 4-flute R end mills with straight shank



#### PM-4R-H



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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

### ➤ 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						
○	○	○	○	○	○	○	○	○	○	○	



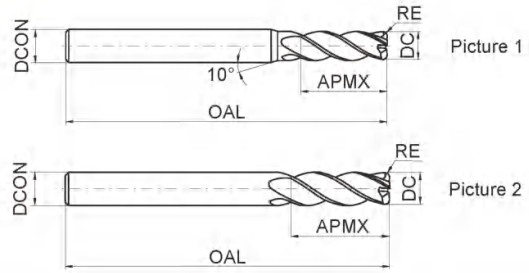
4-flute R end mills with long shank



PM-4RBL/M/X-H



PM-4R-H series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	



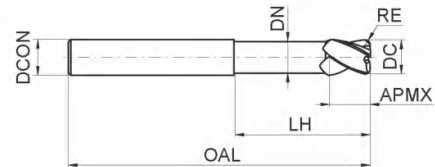
Indurable milling tools  
Solid carbide end mills  
PM series



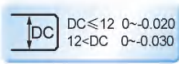
### 4-flute R end mills with straight shank, long neck and short cutting edge



#### PM-4RFP



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



Type	Basic dimension(mm)							Number of teeth Z	Stock
	DC	RE	DCON	DN	APMX	LH	OAL		
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

#### ➤ 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						
○	○	○	○	○	○	○	○	○	○	○	



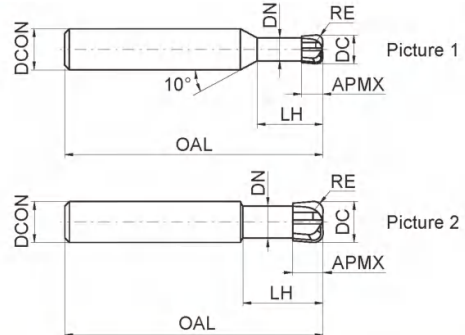
4-flute end mills with high feed rate



PM-4H



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



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	RE	DCON	DN	APMX	LH	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





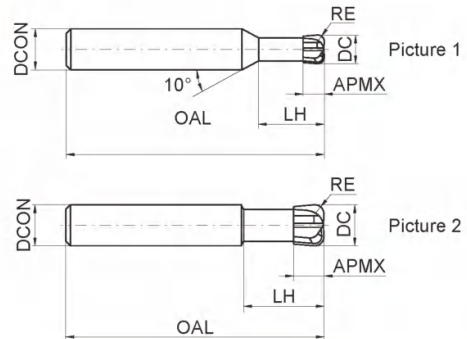
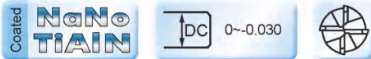
### 4-flute end mills with high feed rate



### PM-4HL



● PM-4H series with long shank.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	RE	DCON	d <sub>1</sub>	APMX	LH	OAL			
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 **B294**

Graphics category and identification **B295**

Cutting parameters **B575-B576**

Non-standard customization **B652-B653**

# GMM

## 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.

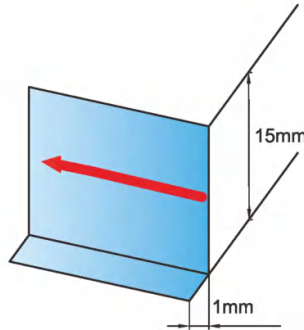
### Versatile product series

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



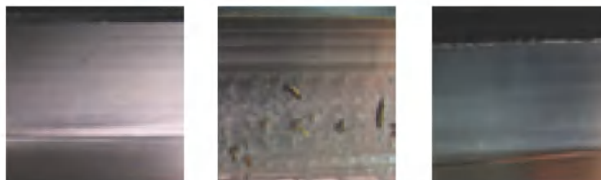
### Cutting edge abrasion and workpiece surface quality

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 is further completed specification, which better meet various machining needs.

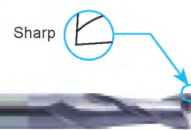
## Flattened end mills series with sharp corner or corner protection

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

GM series for general machining

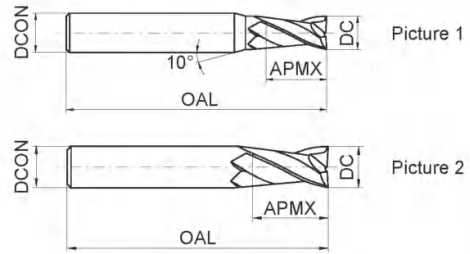
2-flute flattened end mills with straight shank



GM-2E



- Very suitable for slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

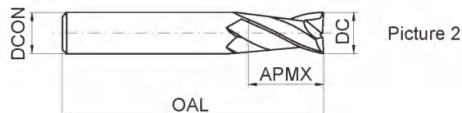
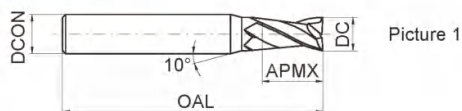
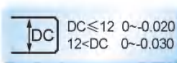
## 2-flute flattened end mills with straight shank



### GM-2F



- Slot milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B578

Non-standard customization

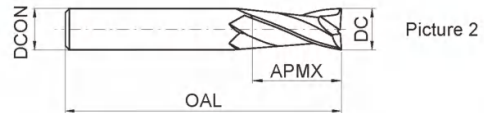
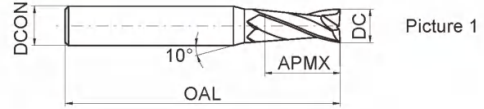
B652-B653

GM series for general machining

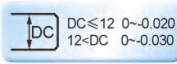
2-flute flattened end mills with straight shank and long cutting edge



GM-2EL



● GM-2E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					





GM series for general machining

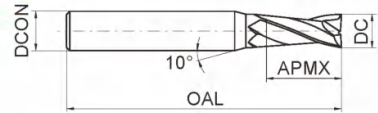
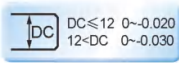
## 2-flute flattened end mills with straight shank and long cutting edge



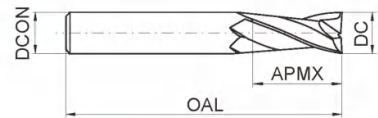
### GM-2FL



● GM-2F series with long cutting edge.



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					



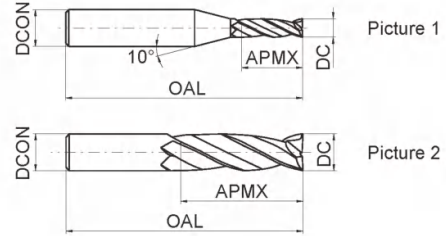
2-flute flattened end mills with straight shank and extra long cutting edge



GM-2EX



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					



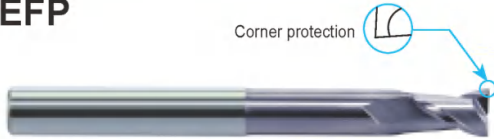


GM series for general machining

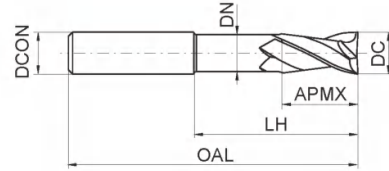
## 2-flute flattened end mills with straight shank, long neck and short cutting edge



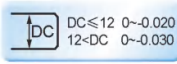
### GM-2EFP



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
	DC	DCON	APMX	LH	DN	OAL		
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

B294

Graphics category and identification

B295

Cutting parameters

B580

Non-standard customization

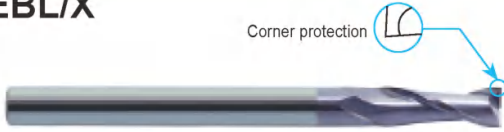
B652-B653

GM series for general machining

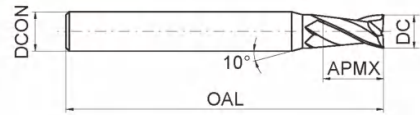
2-flute flattened end mills with long shank



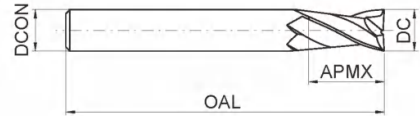
GM-2EBL/X



Corner protection



Picture 1



Picture 2

● GM-2E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					

Code key **B294** Graphics category and identification **B295** Cutting parameters **B577** Non-standard customization **B652-B653**



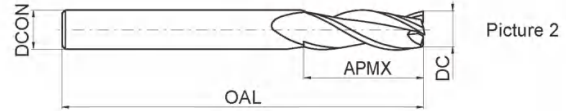
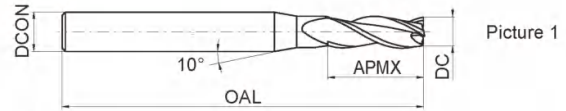
### 3-flute flattened end mills with straight shank



#### GM-3E



● 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
	DC	DCON	APMX	OAL			
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

### 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 **B294** Graphics category and identification **B295** Cutting parameters **B581** Non-standard customization **B652-B653**

GM series for general machining

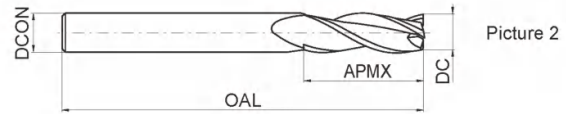
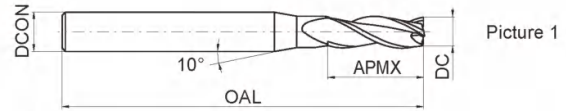
3-flute flattened end mills with straight shank



GM-3E



● 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
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					

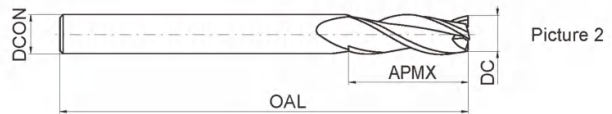
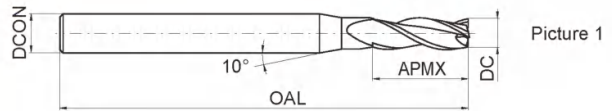




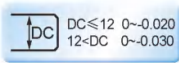
### 3-flute flattened end mills with straight shank and long cutting edge



#### GM-3EL



● GM-3E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					



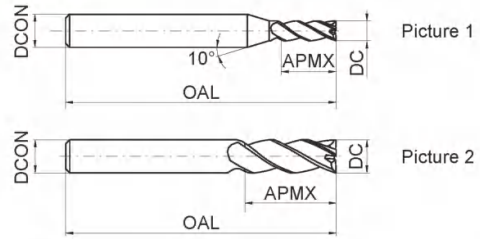
4-flute flattened end mills with straight shank



GM-4E-G



- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○			○	○				



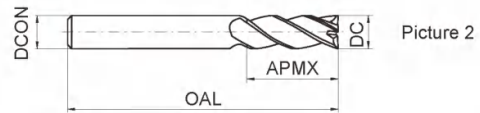
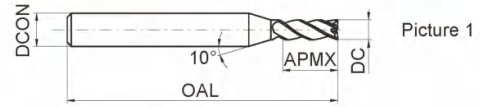


## 4-flute flattened end mills with straight shank

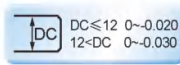
### GM-4E-G



Corner protection



- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B582

Non-standard customization

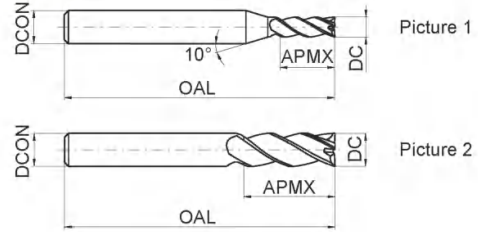
B652-B653

GM series for general machining

4-flute unequal pitch flattened end mills with straight shank



GM-4F-G



- Very suitable for side milling.
- Wide application.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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	○

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 **B294** Graphics category and identification **B295** Cutting parameters **B583** Non-standard customization **B652-B653**

Indexable milling tools  
Solid carbide end mills  
GM series



GM series for general machining

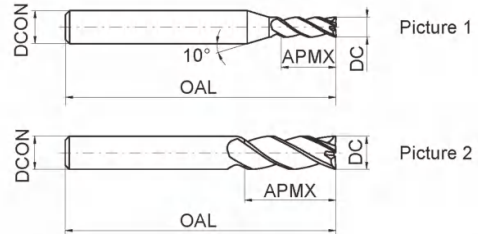
## 4-flute flattened end mills with straight shank and long cutting edge



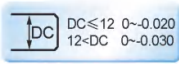
### GM-4EL-G



Corner protection



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

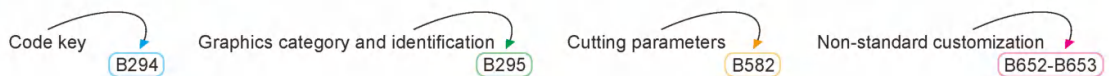
Indexable  
milling tools

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						
○	○	○	○		○	○					



GM series for general machining

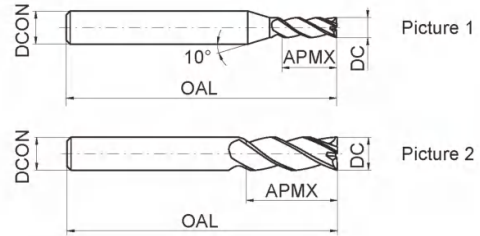
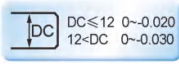
4-flute flattened end mills with straight shank and long cutting edge



GM-4FL-G



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

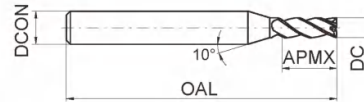
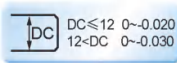


#### GM-4EX-G

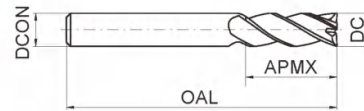


Corner protection

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



Picture 1



Picture 2

Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
GM-4EX-D3.0-G	3.0	6	20	75	4	Picture 1	<input type="radio"/>
GM-4EX-D4.0-G	4.0	6	25	75	4	Picture 1	<input type="radio"/>
GM-4EX-D5.0-G	5.0	6	30	75	4	Picture 1	<input type="radio"/>
GM-4EX-D6.0-G	6.0	6	30	75	4	Picture 2	<input type="radio"/>
GM-4EX-D8.0-G	8.0	8	40	100	4	Picture 2	<input type="radio"/>
GM-4EX-D10.0-G	10.0	10	50	110	4	Picture 2	<input type="radio"/>
GM-4EX-D12.0-G	12.0	12	50	110	4	Picture 2	<input type="radio"/>
GM-4EX-D16.0-G	16.0	16	70	150	4	Picture 2	<input type="radio"/>
GM-4EX-D20.0-G	20.0	20	75	150	4	Picture 2	<input type="radio"/>

● 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						
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input checked="" type="radio"/>				

Code key

B294

Graphics category and identification

B295

Cutting parameters

B584

Non-standard customization

B652-B653

GM series for general machining

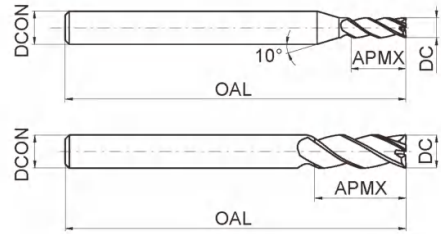
4-flute flattened end mills with long shank



GM-4EBL/X-G



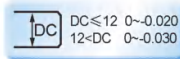
Corner protection



Picture 1

Picture 2

● GM-4E-G series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○	○	○	○	○	○	○	○	





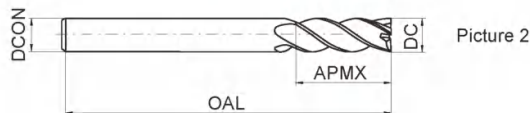
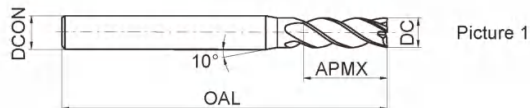
### 4-flute flattened end mills with straight shank



#### GM-4E



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

#### 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 **B294** Graphics category and identification **B295** Cutting parameters **B585** Non-standard customization **B652-B653**

GM series for general machining

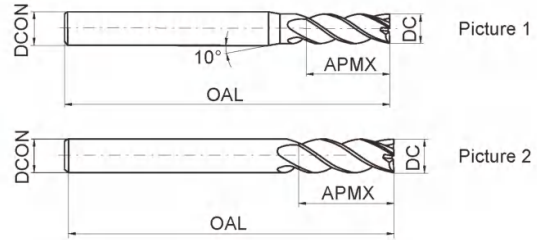
4-flute flattened end mills with straight shank



GM-4E



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



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					



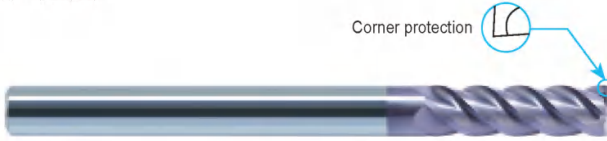


GM series for general machining

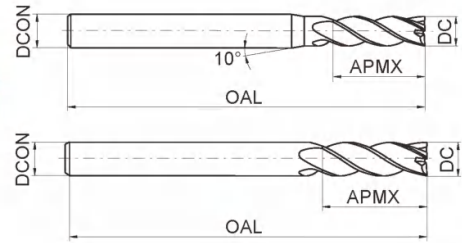
## 4-flute flattened end mills with straight shank and long cutting edge



### GM-4EL



Corner protection



Picture 1

Picture 2

● GM-4E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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						
○	○	○	○		○	○					

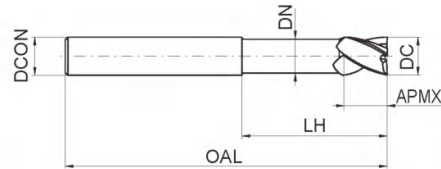
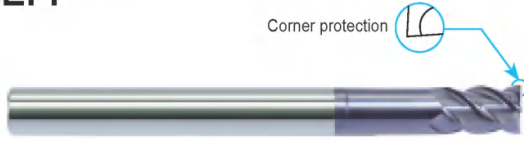


GM series for general machining

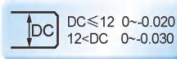
4-flute flattened end mills with straight shank, long neck and short cutting edge



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
	DC	DCON	APMX	LH	DN	OAL		
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						
○	○	○	○			○	○				

Code key **B294**

Graphics category and identification **B295**

Cutting parameters **B586**

Non-standard customization **B652-B653**



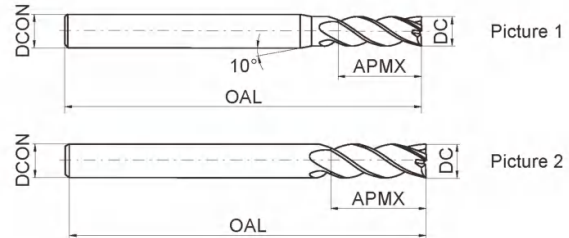
### 4-flute flattened end mills with long shank



#### GM-4EBL/X



Corner protection



● GM-4E series with long shank.



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B585

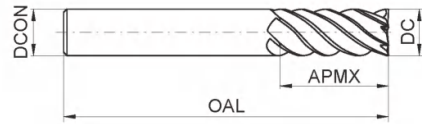
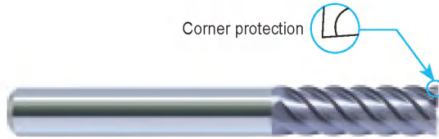
Non-standard customization

B652-B653

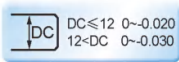
6-flute flattened end mills with straight shank



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
	DC	DCON	APMX	OAL		
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 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						
○	○	○	○			○	○				



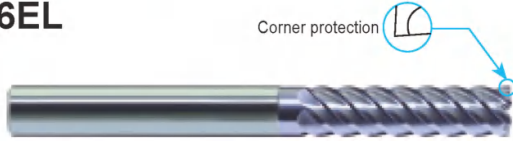


GM series for general machining

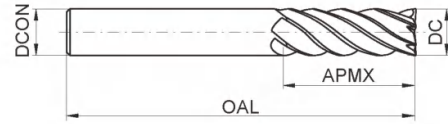
## 6-flute flattened end mills with straight shank and long cutting edge



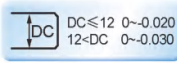
### GM-6EL



Corner protection



● GM-6E series with long cutting edge.



Type	Basic dimension(mm)				Number of teeth Z	Stock
	DC	DCON	APMX	OAL		
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						
○	○	○	○		○	○					



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

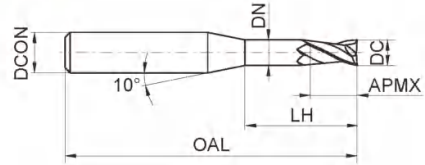
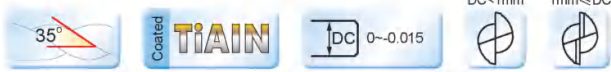


Deep flattened slot

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
	DC	DCON	APMX	LH	DN	OAL		
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 **B294** Graphics category and identification **B295** Cutting parameters **B589-B590** Non-standard customization **B652-B653**

Indexable milling tools  
Solid carbide end mills  
GM series



GM series for general machining

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

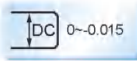


Deep flattened slot

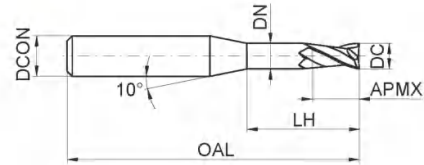
### GM-2EP



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



DC < 1mm 1mm ≤ DC



Type	Basic dimension(mm)						Number of teeth Z	Stock
	DC	DCON	APMX	LH	DN	OAL		
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

B294

Graphics category and identification

B295

Cutting parameters

B589-B590

Non-standard customization

B652-B653

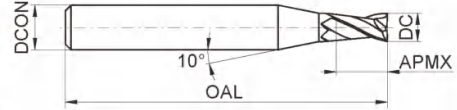


GM series for general machining

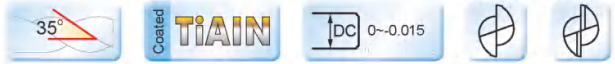
2-flute flattened end mills with straight shank and tiny diameter



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
	DC	DCON	APMX	OAL		
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 **B294** Graphics category and identification **B295** Cutting parameters **B591** Non-standard customization **B652-B653**

Indexable milling tools  
Solid carbide end mills  
GM series



GM series for general machining

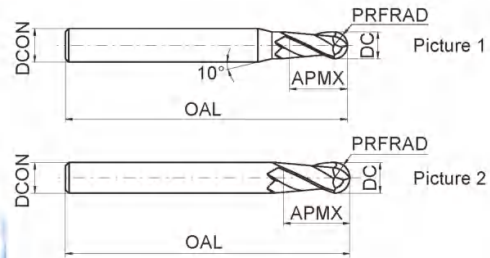
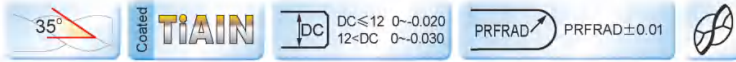
## 2-flute ball nose end mills with straight shank



### GM-2B



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



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
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	●

● 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 [B294](#) Graphics category and identification [B295](#) Cutting parameters [B592](#) Non-standard customization [B652-B653](#)

Milling tools  
Solid carbide end mills  
GM series



GM series for general machining

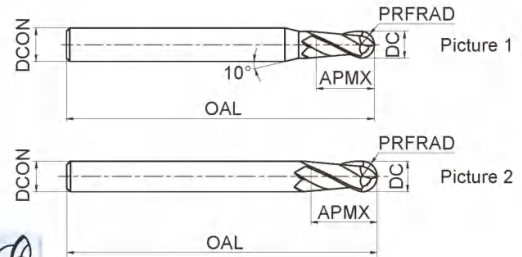
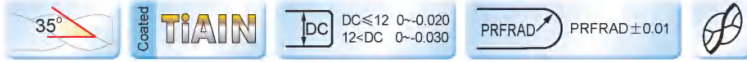
2-flute ball nose end mills with long shank



GM-2BL/M/X



● GM-2B series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	AMPX	OAL			
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	●

● 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 **B294** Graphics category and identification **B295** Cutting parameters **B592** Non-standard customization **B652-B653**

Indexable milling tools  
Solid carbide end mills  
GM series



GM series for general machining

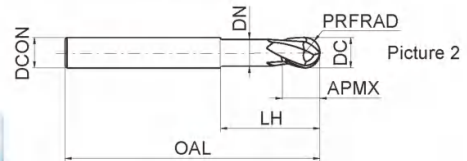
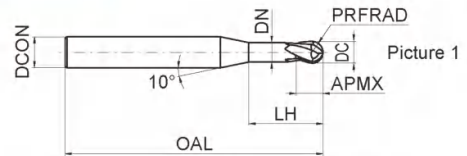
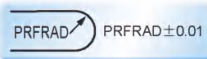
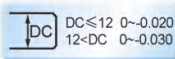
## 2-flute ballnose end mills with long neck and short cutting edge



### GM-2BFP

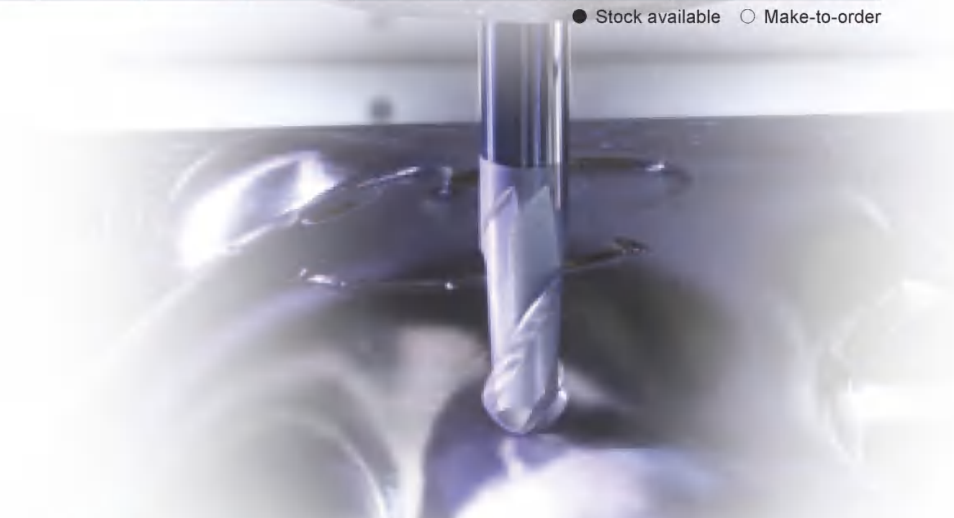


- High rigidity short cutting edge, suitable for heavy cutting.



Type	Basic dimension(mm)							Number of teeth Z	Geometry	Stock
	DC	PRFRAD	APMX	DN	LH	DCON	OAL			
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

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						
○	○	○	○		○	○					



Intexable milling tools  
 Solid carbide end mills  
 GM series

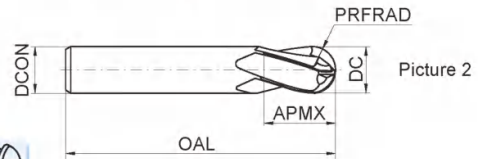
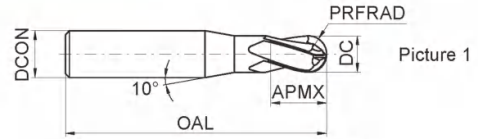
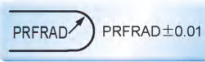
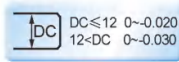
4-flute ball nose end mills with straight shank



GM-4B



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



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
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						
○	○	○	○		○	○					





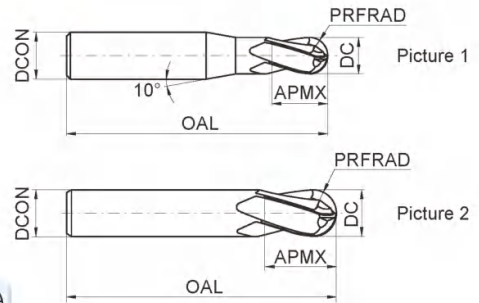
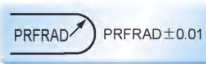
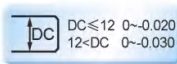
### 4-flute ball nose end mills with long shank



#### GM-4BL/M/X



● GM-4B series with long shank.

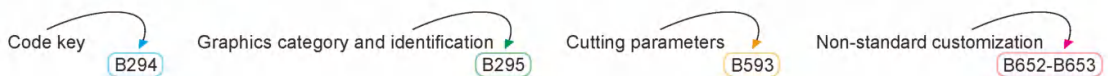


Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	PRFRAD	DCON	APMX	OAL			
GM-4BL-R1.5S	3.0	1.5	4	6	75	4	Picture 1	○
GM-4BL-R1.5	3.0	1.5	6	6	75	4	Picture 1	○
GM-4BL-R2.0S	4.0	2.0	4	8	75	4	Picture 2	○
GM-4BL-R2.0	4.0	2.0	6	8	75	4	Picture 1	○
GM-4BL-R2.5	5.0	2.5	6	10	75	4	Picture 1	○
GM-4BL-R3.0	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

### Applicable workpiece material table ○ Very suitable ○ Suitable

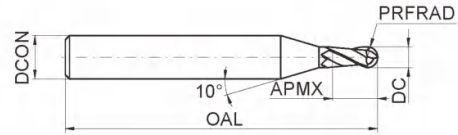
Workpiece material											
Carbon steel	Alloy steel	Pre-hardened steel, Hardened steel				Stainless steel	Cast iron, Nodular cast iron	Copper alloy	Aluminum alloy	Titanium alloy	Heat resistant alloy
		~40HRC	~50HRC	~55HRC	~68HRC						
○	○	○	○		○	○					



2-flute 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.

35° Coated TiAlN DC 0~-0.015 PRFRAD PRFRAD±0.005 PRFRAD<0.5 PRFRAD±0.01 PRFRAD≥0.5

Type	Basic dimension(mm)					Number of teeth Z	Stock
	DC	PRFRAD	DCON	APMX	OAL		
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						
○	○	○	○		○	○					

Code key **B294** Graphics category and identification **B295** Cutting parameters **B594** Non-standard customization **B652-B653**

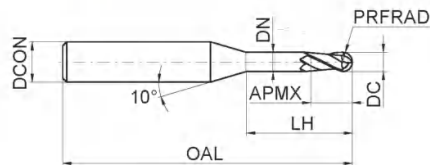


### 2-flute ball nose end mills with straight shank, long neck and short cutting edge

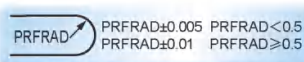
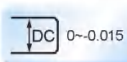


Deep ball nose slot

#### GM-2BP



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



Type	Basic dimension(mm)							Number of teeth Z	Stock
	DC	PRFRAD	APMX	DN	LH	DCON	OAL		
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

B294

Graphics category and identification

B295

Cutting parameters

B595-B596

Non-standard customization

B652-B653

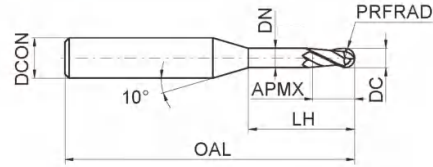


2-flute ball nose end mills with straight shank, long neck and short cutting edge

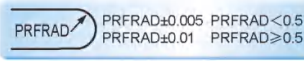
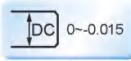


Deep ball nose slot

GM-2BP



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



Type	Basic dimension(mm)							Number of teeth Z	Stock
	DC	PRFRAD	APMX	DN	LH	DCON	OAL		
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						
○	○	○	○		○	○					

Code key B294 Graphics category and identification B295 Cutting parameters B595-B596 Non-standard customization B652-B653



### 2-flute R end mills with straight shank



Radius shoulder



Profile

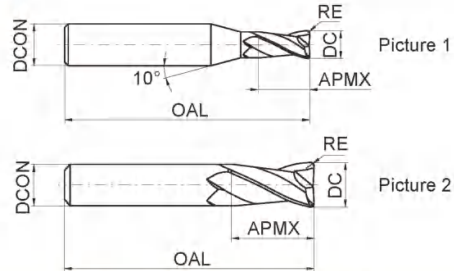
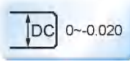


Radius corner slot

### GM-2R



● Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B597

Non-standard customization

B652-B653



GM series for general machining

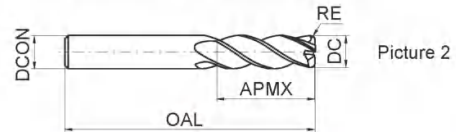
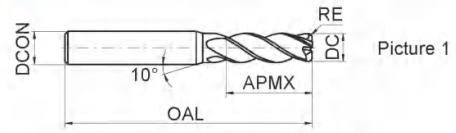
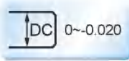
4-flute R end mills with straight shank



GM-4R



Wide applications, applicable for several machining styles.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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	●

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 **B294** Graphics category and identification **B295** Cutting parameters **B598** Non-standard customization **B652-B653**

Innovative milling tools  
Solid carbide end mills  
GM series



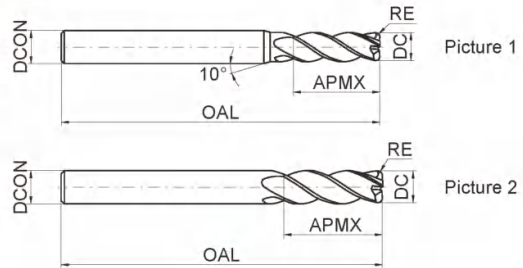
## 4-flute R end mills with long shank



### GM-4RL/M/X



● GM-4R series with long shank.

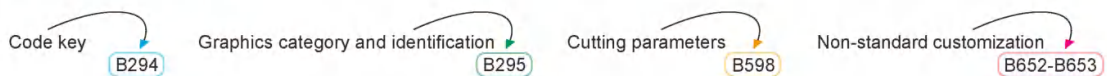


Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
GM-4RL-D4.0R0.2S	4.0	0.2	4	10	75	4	Picture 2	●
GM-4RL-D4.0R0.2	4.0	0.2	6	10	75	4	Picture 1	●
GM-4RL-D4.0R0.5S	4.0	0.5	4	10	75	4	Picture 2	●
GM-4RL-D4.0R0.5	4.0	0.5	6	10	75	4	Picture 1	●
GM-4RL-D6.0R0.2	6.0	0.2	6	16	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						
○	○	○	○		○	○					



GM series for general machining

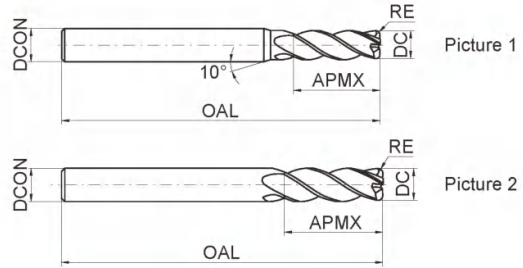
4-flute R end mills with long shank



GM-4RL/M/X



● GM-4R series with long shank.



Type	Basic dimension(mm)					Number of teeth Z	Geometry	Stock
	DC	RE	DCON	APMX	OAL			
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						
○	○	○	○			○	○				





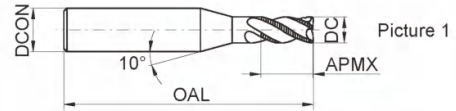
### 4-flute flattened end mills with straight shank and corrugated edges



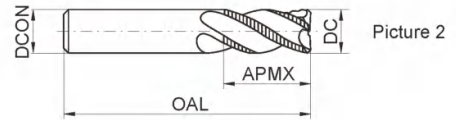
#### GM-4W



Corner protection



Picture 1



Picture 2

● Very suitable for high-efficiency rough machining.



DC	DC ≤ 6	0 ~ 0.048	6 < DC ≤ 10	0 ~ 0.058
DC	10 < DC ≤ 18	0 ~ 0.07	18 < DC	0 ~ 0.084



Type	Basic dimension(mm)				Number of teeth Z	Geometry	Stock
	DC	DCON	APMX	OAL			
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

B294

Graphics category and identification

B295

Cutting parameters

B599-B600

Non-standard customization

B652-B653