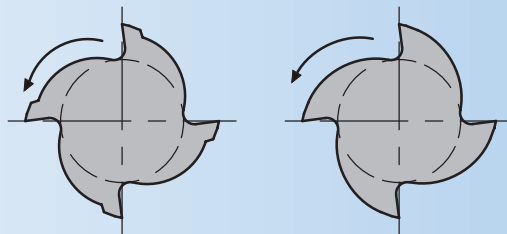


# High performance universal machining

## PM series

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



a) PM chipbreaker

b) Conventional chipbreaker



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

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

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

b) Tool from overseas manufacturer

Mmachine tool: Mikron UCP1000

Workpiece material: NAK80(40HRC)

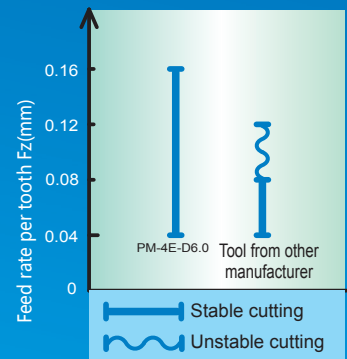
Cooling system: air blow

Machining operation: side milling (down milling)

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

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

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

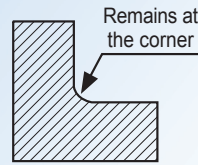


- With excellent wear resistance and toughness, high wear resistance and breakage resistance is achieved even during high performance milling.

The characteristic of corner protection end mill:

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

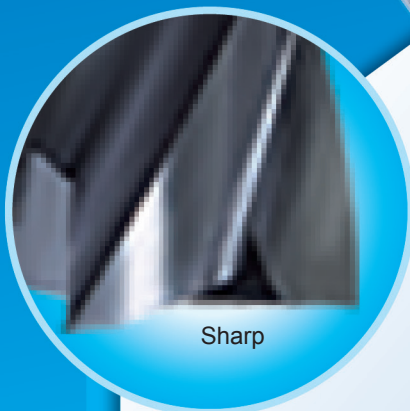
- It's not easy to break with high cutting edge strength.
- The sharpness of the corner is reduced, and there are residues in it.



Corner protection

Updated flattened end mills  
End mills series of sharp and corner protection type

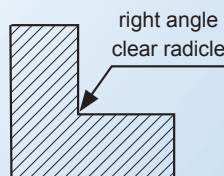
Sharp



The characteristic of sharp end mill:

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

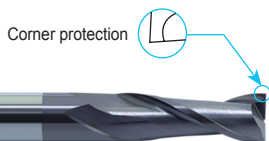
The corner part is sharp; it is applicable in finishing or soft material machining. Especially, it is usually used in machining of non-ferrous material such as Al.



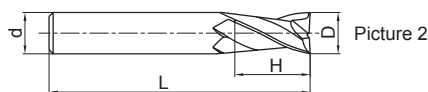
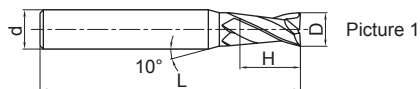
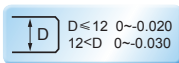
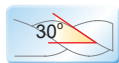
### 2-flute flattened end mills with straight shank



#### PM-2E



- Very suitable for slot milling.
- Wide application.



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

● Stock available ○ Make-to-order

#### Applicable workpiece material table

● Very suitable ○ Suitable

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

Non-standard customization

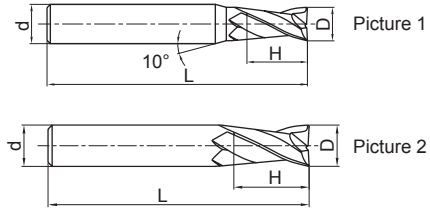
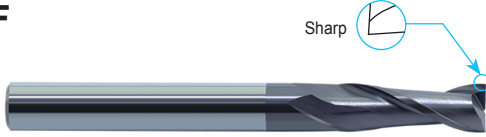
B570-B571



2-flute flattened end mills with straight shank



PM-2F



- Very suitable for slot milling.
- Wide application.



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

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

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

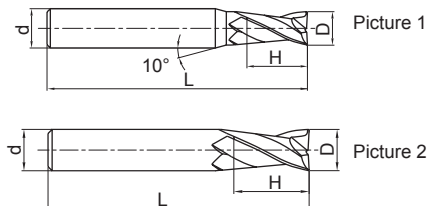
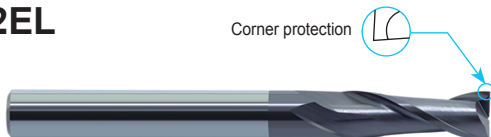
Code key **B258** Graphics category and identification **B259** Cutting parameters **B476** Non-standard customization **B570-B571**

Indexable milling tools  
Solid carbide end mills  
PM series

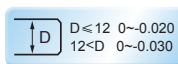
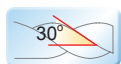
### 2-flute flattened end mills with straight shank and long cutting edge



#### PM-2EL



● PM-2E series with long cutting edge.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B475

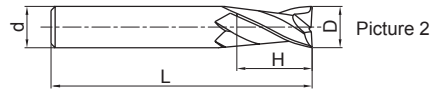
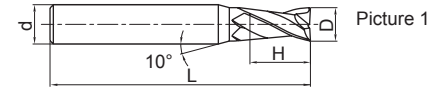
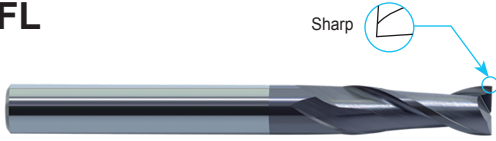
Non-standard customization

B570-B571

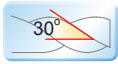
2-flute flattened end mills with straight shank and long cutting edge



PM-2FL



● PM-2F series with long cutting edge.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ○Very suitable ○Suitable

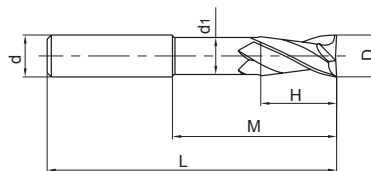
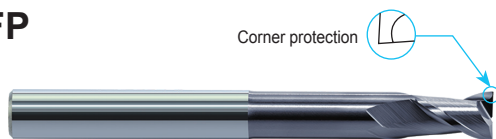
| Workpiece material |             |                                   |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|-----------------------------------|--------|--------|--------|-----------------|--------------------------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



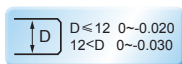
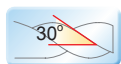
### 2-flute flattened end mills with straight shank, long neck and short cutting edge



#### PM-2EFP



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B477

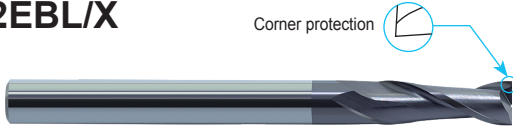
Non-standard customization

B570-B571

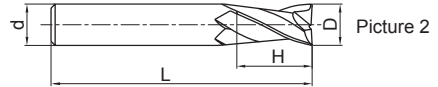
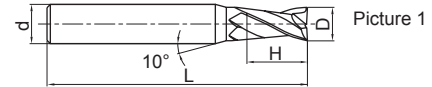
2-flute flattened endmills with long shank



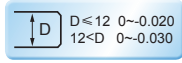
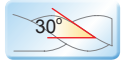
PM-2EBL/X



Corner protection



● PM-2E series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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

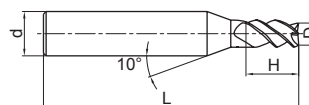
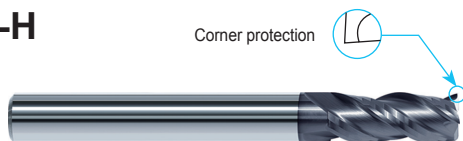




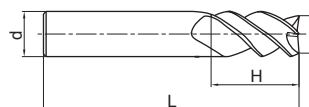
### 3-flute flattened end mills with straight shank



#### PM-3E-H

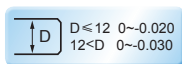
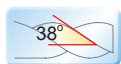


Picture 1



Picture 2

- Especially suitable for slot milling.
- Wide application.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

#### Applicable workpiece material table

○ Very suitable ○ Suitable

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B478

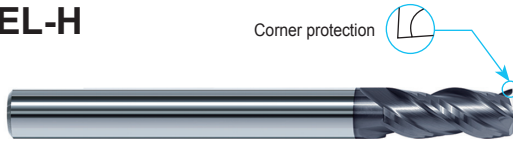
Non-standard customization

B570-B571

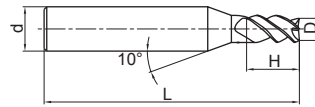
### 3-flute flattened end mills with straight shank and long cutting edge



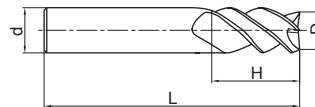
#### PM-3EL-H



Corner protection

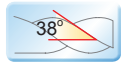


Picture 1



Picture 2

● PM-3E-H series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

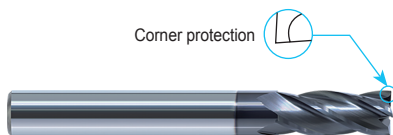
| Workpiece material |             |                                   |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|-----------------------------------|--------|--------|--------|-----------------|--------------------------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



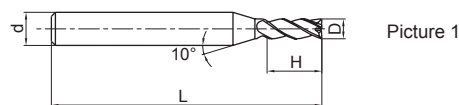
### 4-flute flattened end mills with straight shank



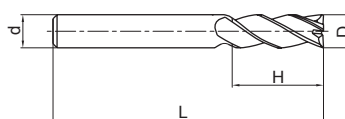
#### PM-4E-G



Corner protection

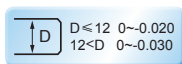
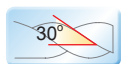


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

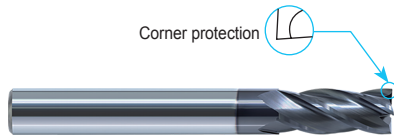
Non-standard customization

B570-B571

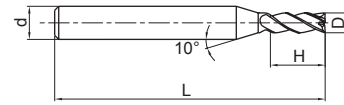
### 4-flute flattened end mills with straight shank



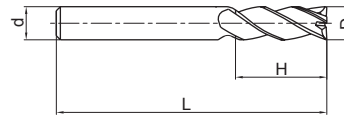
#### PM-4E-G



Corner protection

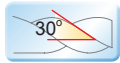


Picture 1



Picture 2

- Very suitable for side milling.
- Wide application.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

### Applicable workpiece material table

● Very suitable ○ Suitable

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

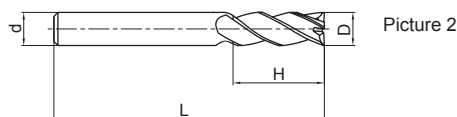
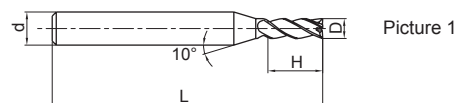
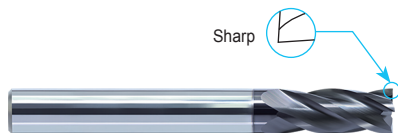
Non-standard customization

B570-B571

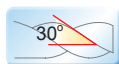
### 4-flute flattened end mills with straight shank



#### PM-4F-G



- Very suitable for side milling.
- Wide application.



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

#### Applicable workpiece material table

● Stock available ○ Make-to-order

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

Non-standard customization

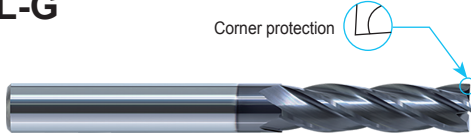
B570-B571



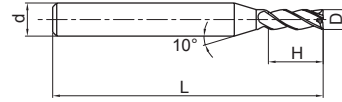
4-flute flattened end mills with straight shank and long cutting edge



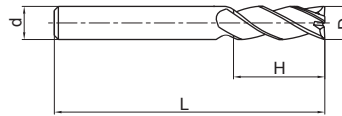
PM-4EL-G



Corner protection

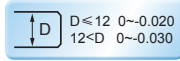
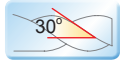


Picture 1



Picture 2

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



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ○Very suitable ○Suitable

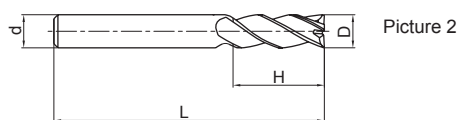
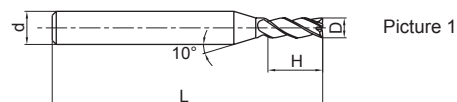
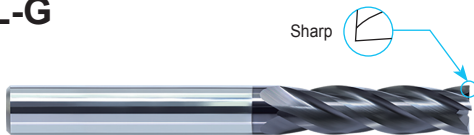
| Workpiece material |             |                                    |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|------------------------------------|--------|--------|--------|-----------------|------------------------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



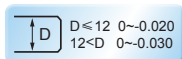
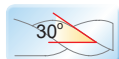
### 4-flute flattened end mills with straight shank and long cutting edge



#### PM-4FL-G



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B481-B482

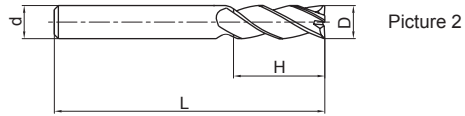
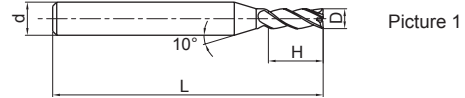
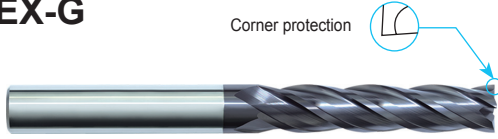
Non-standard customization

B570-B571

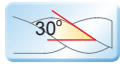
4-flute flattened end mills with straight shank and extra long cutting edge



PM-4EX-G



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ● Very suitable ○ Suitable

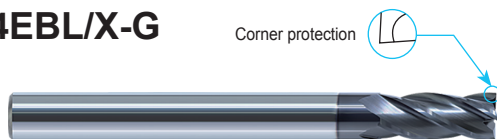
| Workpiece material |             |                                    |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|------------------------------------|--------|--------|--------|-----------------|------------------------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



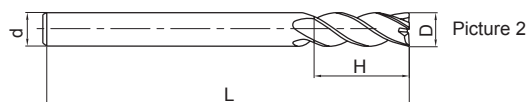
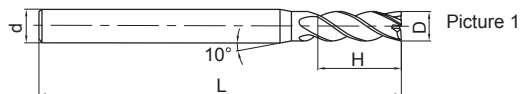
### 4-flute flattened endmills with long shank



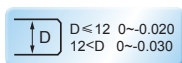
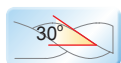
#### PM-4EBL/X-G



Corner protection



● PM-4E-G series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

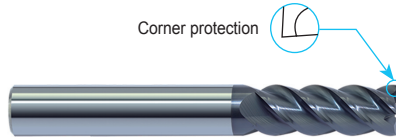
Non-standard customization

B570-B571

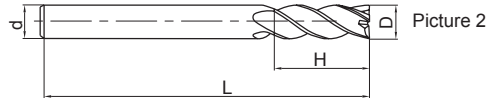
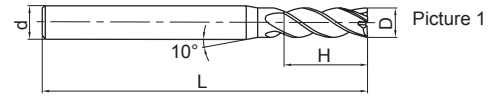
4-flute flattened end mills with straight shank



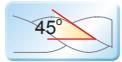
PM-4E



Corner protection



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



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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

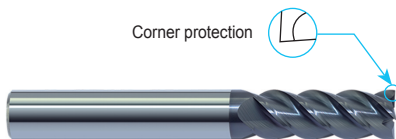




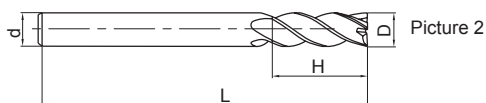
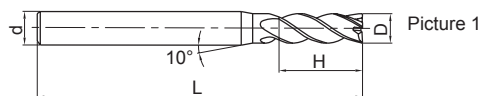
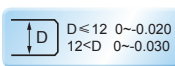
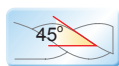
### 4-flute flattened end mills with straight shank



#### PM-4E



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B484-B485

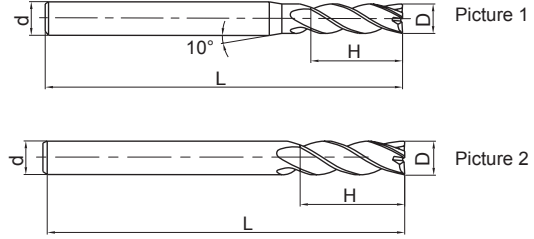
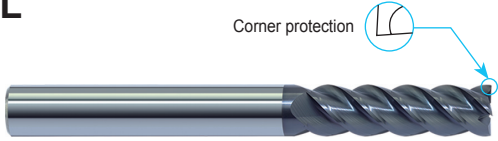
Non-standard customization

B570-B571

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



PM-4EL



PM-4E series with long cutting edge.



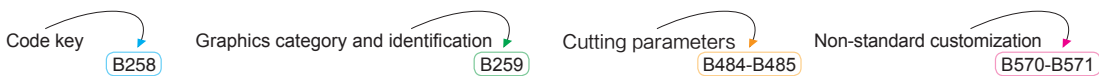
| Type         | Basic dimension(mm) |    |    |     | Number of teeth Z | Geometry  | Stock |
|--------------|---------------------|----|----|-----|-------------------|-----------|-------|
|              | D                   | d  | H  | L   |                   |           |       |
| PM-4EL-D3.0  |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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ○Very suitable ○Suitable

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



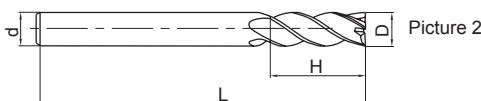
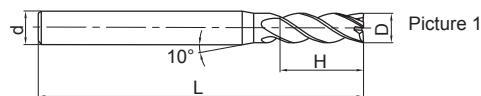
### 4-flute flattened end mills with straight shank



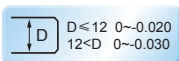
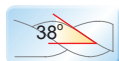
#### PM-4E-H



Corner protection



- Most suitable for slot milling.
- Wide application.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

### Applicable workpiece material table

● Very suitable ○ Suitable

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B479-B480

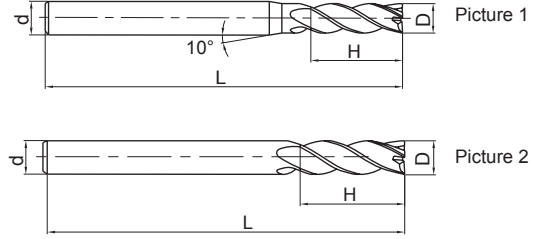
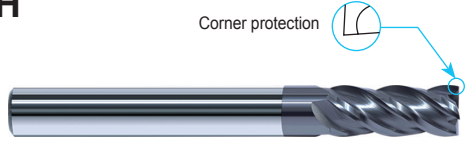
Non-standard customization

B570-B571

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



PM-4EL-H



● PM-4E-H series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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

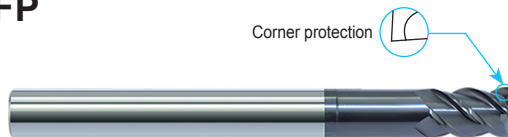


High-performance general milling PM series

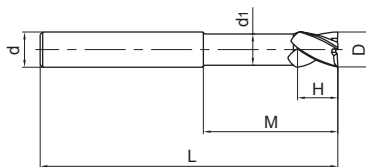
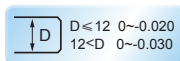
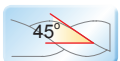
## 4-flute flattened end mills with straight shank, long neck and short cutting edge



### PM-4EFP



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B486-B487

Non-standard customization

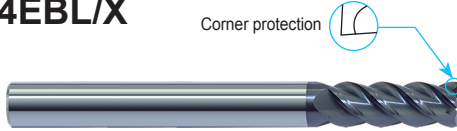
B570-B571



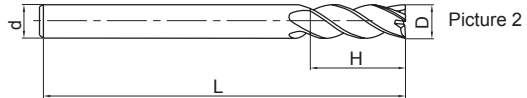
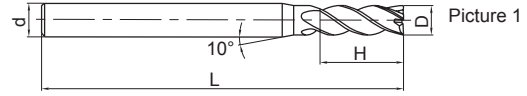
4-flute flattened endmills with long shank



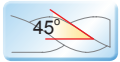
PM-4EBL/X



Corner protection



● PM-4E series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

Applicable workpiece material table ● Very suitable ○ Suitable

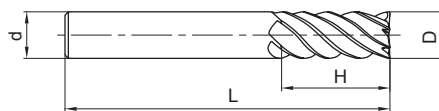
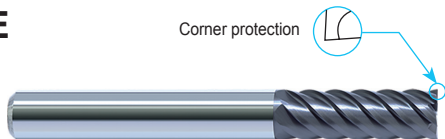
| Workpiece material |             |                                    |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|------------------------------------|--------|--------|--------|-----------------|------------------------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



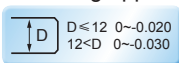
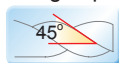
### 6-flute flattened end mills with straight shank



#### PM-6E



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B488

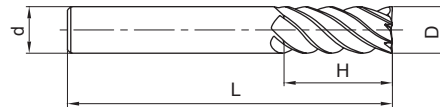
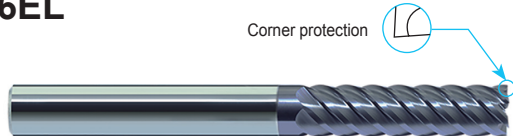
Non-standard customization

B570-B571

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



PM-6EL



● PM-6E series with long cutting edge.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

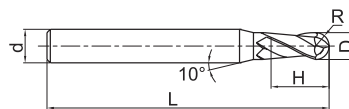
| Workpiece material |             |                                    |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|------------------------------------|--------|--------|--------|-----------------|------------------------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



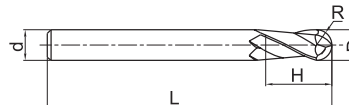
### 2-flute ball nose end mills with straight shank



#### PM-2B

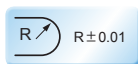
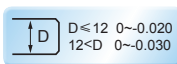
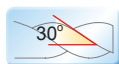


Picture 1



Picture 2

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



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

● Stock available ○ Make-to-order

#### Applicable workpiece material table

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B490-B491

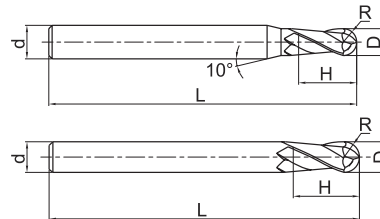
Non-standard customization

B570-B571

2-flute ball nose end mills with long shank



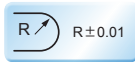
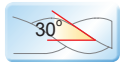
PM-2BL/M/X



Picture 1

Picture 2

● PM-2B series with long shank.



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

● Stock available ○ Make-to-order

Applicable workpiece material table ● Very suitable ○ Suitable

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



Indexable milling tools  
Solid carbide end mills  
PM series

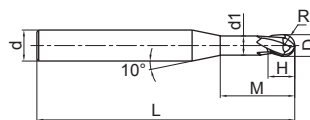
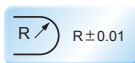
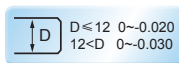
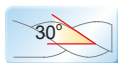
### 2-flute ball nose end mills with straight shank, long neck and short cutting edge



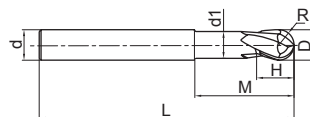
#### PM-2BFP



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



Picture 1



Picture 2

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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B490-B491

Non-standard customization

B570-B571

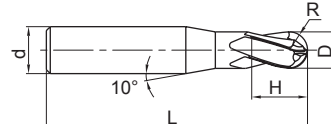
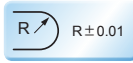
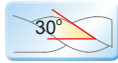
4-flute ball nose end mills with straight shank



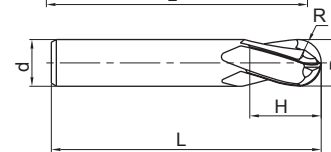
PM-4B



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



Picture 1



Picture 2

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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ○Very suitable ○Suitable

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





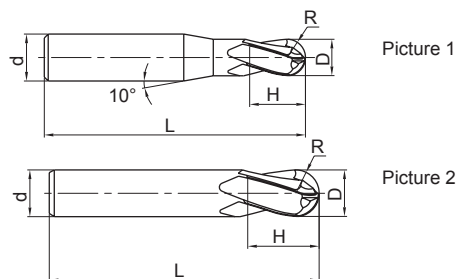
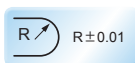
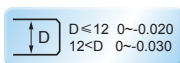
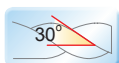
### 4-flute ball nose end mills wit long shank



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



● PM-4B series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B492

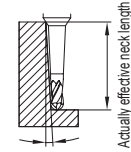
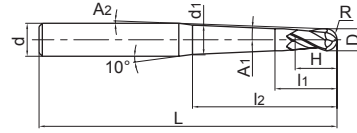
Non-standard customization

B570-B571

2-flute ball nose end mills with taper neck

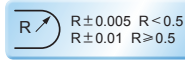
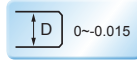
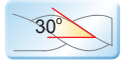


PM-2BC



Degree of workpiece declining

● High-rigidity taper neck structure.



| Type               | Basic dimension(mm) |      |      |      |      |      |      |      |      |      | Number of teeth Z | Degree of workpiece declining corresponding actually effective neck length |      |      |      | Stock |
|--------------------|---------------------|------|------|------|------|------|------|------|------|------|-------------------|--|------|------|------|-------|
|                    | D                   | R    | A1   | H    | l2   | l1   | A2   | d1   | L    | d    |                   | 0.5°   | 1°   | 2°   | 3°   |       |
|                    | PM-2BC05-R0.25-M03  | 0.5  | 0.25 | 0.5° | 0.5  | 3    | 1.5  | 7.8° | 0.49 | 50   |                   | 4  | 2    | 3.3  | 3.5  |       |
| PM-2BC05-R0.25-M05 | 5                   |      |      |      |      | 6.8° |      | 0.53 | 2    |      | 5.3               |  | 5.6  | 6.2  | 7.1  | ○     |
| PM-2BC10-R0.25-M03 | 1.0°                |      |      | 3    |      | 7.8° |      | 0.52 | 2    |      | -                 |  | 3.4  | 3.8  | 4.3  | ○     |
| PM-2BC10-R0.25-M05 |                     |      |      | 5    |      | 6.9° |      | 0.59 | 2    |      | -                 |  | 5.4  | 6.0  | 6.8  | ○     |
| PM-2BC15-R0.25-M03 | 1.5°                |      |      | 3    |      | 7.9° |      | 0.54 | 2    |      | -                 |  | -    | 3.7  | 4.1  | ○     |
| PM-2BC15-R0.25-M05 |                     |      |      | 5    |      | 7.0° |      | 0.65 | 2    |      | -                 |  | -    | 5.8  | 6.6  | ○     |
| PM-2BC05-R0.30-M05 | 0.6                 | 0.30 | 0.5° | 0.6  | 5    | 1.6  | 6.8° | 0.62 | 50   | 4    | 2                 | 5.3  | 5.6  | 6.2  | 7.1  | ○     |
| PM-2BC05-R0.30-M08 |                     |      |      |      | 8    |      | 5.7° | 0.68 |      |      | 2                 | 8.3  | 8.7  | 9.8  | 11.1 | ○     |
| PM-2BC10-R0.30-M05 |                     |      | 1.0° |      | 5    |      | 6.8° | 0.68 |      |      | 2                 | -  | 5.4  | 6.0  | 6.8  | ○     |
| PM-2BC10-R0.30-M08 |                     |      |      |      | 8    |      | 5.8° | 0.79 |      |      | 2                 | -  | 8.4  | 9.4  | 10.7 | ○     |
| PM-2BC10-R0.30-M10 |                     |      | 1.5° |      | 10   |      | 5.2° | 0.86 |      |      | 2                 | -  | 10.4 | 11.6 | 13.2 | ○     |
| PM-2BC10-R0.30-M12 |                     |      |      |      | 12   |      | 4.8° | 0.93 |      |      | 2                 | -  | 12.4 | 13.9 | 15.8 | ○     |
| PM-2BC10-R0.30-M15 | 0.8                 | 0.40 | 0.5° | 0.8  | 15   | 1.8  | 4.2° | 1.03 | 50   | 4    | 2                 | -  | 15.4 | 17.2 | 19.6 | ○     |
| PM-2BC15-R0.30-M05 |                     |      |      |      | 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 |                     |      | 1.0° |      | 8    |      | 5.5° | 0.87 |      |      | 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 |                     |      | 1.5° |      | 8    |      | 5.6° | 0.98 |      |      | 50                | 2  | -    | 8.4  | 9.4  | 10.7  |
| PM-2BC10-R0.40-M12 | 12                  | 4.6° |      | 1.12 | 60   | 2    | -    | 12.4 | 13.9 | 15.8 | ○                 |  |      |      |      |       |
| PM-2BC15-R0.40-M08 | 1.5°                | 8    | 5.8° | 1.09 | 50   | 2    | -    | -    | 9.0  | 10.2 | ○                 |  |      |      |      |       |
| PM-2BC15-R0.40-M12 |                     | 12   | 4.8° | 1.30 | 60   | 2    | -    | -    | 13.2 | 15.0 | ○                 |  |      |      |      |       |

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ●Very suitable ○Suitable

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

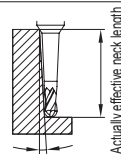
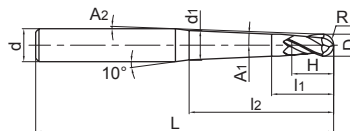
B570-B571

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

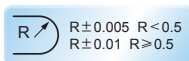
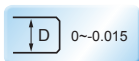
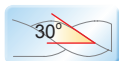


Deep ball nose slot

#### PM-2BC



● High-rigidity taper neck structure.



| Type               | Basic dimension(mm) |      |                |     |                |                |                |                |      |   | Number of teeth Z | Degree of workpiece declining corresponding actually effective neck length |      |      |      | Stock |   |
|--------------------|---------------------|------|----------------|-----|----------------|----------------|----------------|----------------|------|---|-------------------|--|------|------|------|-------|---|
|                    | D                   | R    | A <sub>1</sub> | H   | l <sub>2</sub> | l <sub>1</sub> | A <sub>2</sub> | d <sub>1</sub> | L    | d |                   | 0.5°   | 1°   | 2°   | 3°   |       |   |
| PM-2BC05-R0.50-M10 | 1.0                 | 0.50 | 0.5°           | 1.0 | 10             | 2.5            | 6.1°           | 1.08           | 60   | 6 | 2                 | 10.4   | 10.9 | 12.2 | 13.9 | ○     |   |
| PM-2BC05-R0.50-M15 |                     |      |                |     | 15             |                | 5.1°           | 1.16           | 60   |   | 2                 | 15.4   | 16.2 | 18.2 | 20.7 | ○     |   |
| PM-2BC05-R0.50-M20 |                     |      |                |     | 20             |                | 4.4°           | 1.25           | 70   |   | 2                 | 20.4   | 21.5 | 24.1 | 27.4 | ○     |   |
| PM-2BC05-R0.50-M25 |                     |      |                |     | 25             |                | 3.8°           | 1.34           | 70   |   | 2                 | 25.4   | 26.8 | 30.0 | 34.2 | ○     |   |
| PM-2BC05-R0.50-M30 |                     |      |                |     | 30             |                | 3.4°           | 1.42           | 70   |   | 2                 | 30.4   | 32.0 | 35.9 | 41.0 | ○     |   |
| PM-2BC10-R0.50-M10 |                     |      |                |     | 10             |                | 1.0°           | 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 |                     |      | 1.5°           |     | 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             |                | 2°             | 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             |                | 3°             | 5.0°           | 2.78 |   | 70                | 2  | -    | -    | -    | 21.2  | ○ |
| PM-2BC50-R0.50-M20 |                     |      | 20             |     | 5°             |                | 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 |                     |      |                |     | 12             |                | 5.7°           | 1.47           | 60   |   | 2                 | -  | 12.5 | 14.0 | 15.9 | ○     |   |
| PM-2BC10-R0.60-M24 |                     |      | 24             |     | 3.9°           |                | 1.89           | 70             | 2    |   | -                 | 24.5   | 27.5 | 31.3 | ○    |       |   |
| PM-2BC15-R0.60-M12 |                     |      | 12             |     | 1.5°           |                | 5.8°           | 1.63           | 60   |   | 2                 | -  | -    | 13.4 | 15.2 | ○     |   |
| PM-2BC15-R0.60-M24 |                     |      | 24             |     |                |                | 4.1°           | 2.26           | 70   |   | 2                 | -  | -    | 26.2 | 29.8 | ○     |   |

● Stock available ○ Make-to-order

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

B570-B571

2-flute ball nose end mills with taper neck

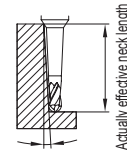
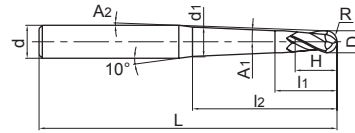
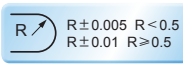
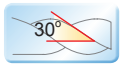


Deep ball nose slot

PM-2BC



- High-rigidity taper neck structure.



Degree of workpiece declining

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

Applicable workpiece material table ○Very suitable ○Suitable

● Stock available ○ Make-to-order

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

Non-standard customization

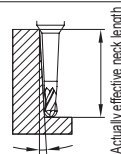
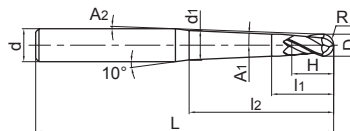
B570-B571



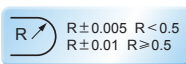
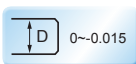
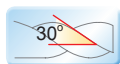
Deep ball nose slot

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

#### PM-2BC



● High-rigidity taper neck structure.



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

B258

Graphics category and identification

B259

Cutting parameters

B493-B495

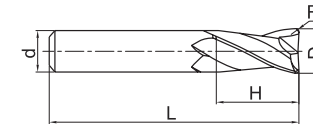
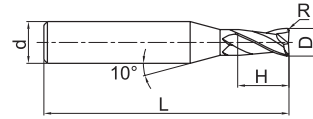
Non-standard customization

B570-B571

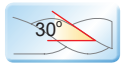
2-flute R end mills with straight shank



PM-2R



● Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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



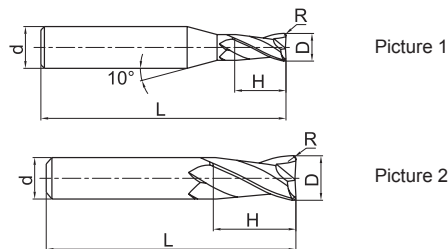
### 2-flute R end mills with straight shank



#### PM-2R



- Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Indexable  
milling tools

Solid carbide  
end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B496

Non-standard customization

B570-B571



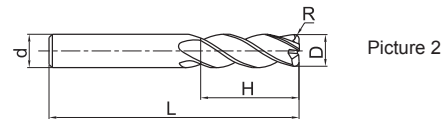
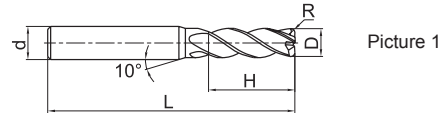
4-flute R end mills with straight shank



PM-4R



● Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

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

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

Indexable milling tools  
Solid carbide end mills  
PM series

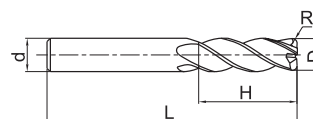
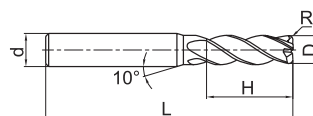
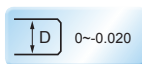
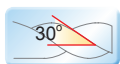
### 4-flute R end mills with straight shank



#### PM-4R



● Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

Non-standard customization

B570-B571

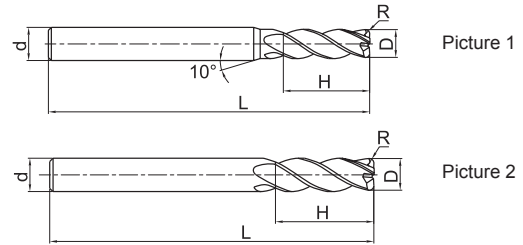
4-flute R end mills with long shank



PM-4RBL/M/X



● PM-4R series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

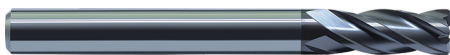
| Workpiece material |             |                                    |        |        |        |                 |                              |              |                |                |                      |
|--------------------|-------------|------------------------------------|--------|--------|--------|-----------------|------------------------------|--------------|----------------|----------------|----------------------|
| 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 |                 |                              |              |                |                |                      |
| ○                  | ○           | ○                                  | ○      | ○      |        | ○               |                              |              | ○              | ○              |                      |



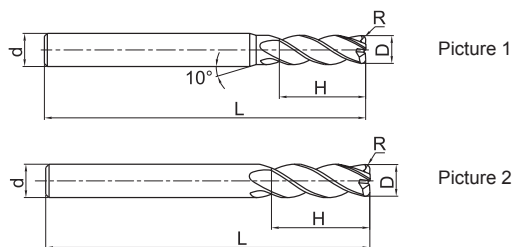
### 4-flute R end mills with long shank



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



● PM-4R series with long shank.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

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

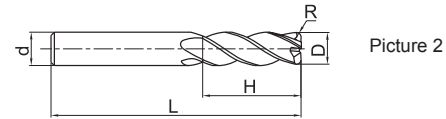
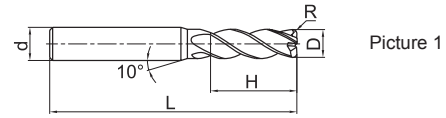
4-flute R end mills with straight shank



PM-4R-H



● Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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



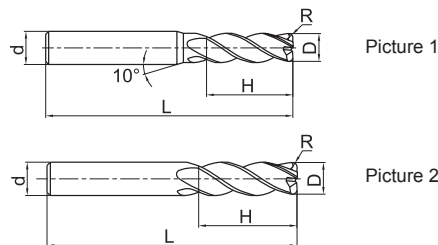
### 4-flute R end mills with straight shank



#### PM-4R-H



● Wide applications, applicable for several machining styles.



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key **B258**

Graphics category and identification **B259**

Cutting parameters **B497**

Non-standard customization **B570-B571**

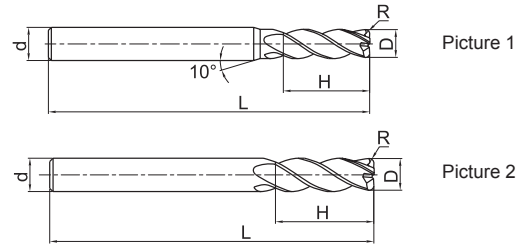
4-flute R end mills with long shank



PM-4RBL/M/X-H



● PM-4R-H series with long shank.



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

● Stock available ○ Make-to-order

Applicable workpiece material table ●Very suitable ○Suitable

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

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

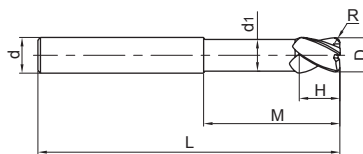
Indexable milling tools  
Solid carbide end mills  
PM series



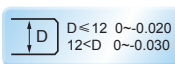
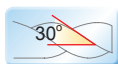
4-flute R end mills with straight shank, long neck and short cutting edge



### PM-4RFP



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



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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

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

Code key

B258

Graphics category and identification

B259

Cutting parameters

B497

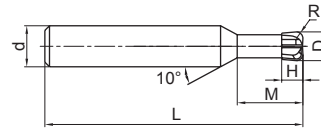
Non-standard customization

B570-B571

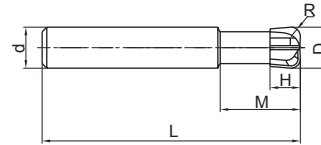
4-flute end mills with high feed rate



PM-4H

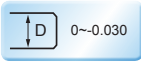


Picture 1



Picture 2

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



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

● Stock available ○ Make-to-order

Indexable milling tools  
Solid carbide end mills  
PM series

Applicable workpiece material table ● Very suitable ○ Suitable

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



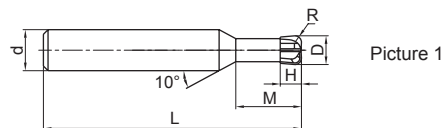
### 4-flute end mills with high feed rate



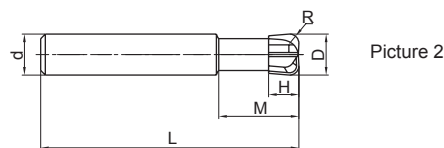
#### PM-4HL



● PM-4H series with long shank.



Picture 1



Picture 2

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

● Stock available ○ Make-to-order

Indexable milling tools

Solid carbide end mills

PM series

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

| Workpiece material                 |                                    |                                    |                                    |                                    |        |                                     |                                    |              |                |                                     |                                     |
|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|--------|-------------------------------------|------------------------------------|--------------|----------------|-------------------------------------|-------------------------------------|
| Carbon steel                       | Alloy steel                        | Pre-hardened steel, Hardened steel |                                    |                                    |        | Stainless steel                     | Cast iron, Nodular cast iron       | Copper alloy | Aluminum alloy | Titanium alloy                      | Heat resistant alloy                |
|                                    |                                    | ~40HRC                             | ~50HRC                             | ~55HRC                             | ~68HRC |                                     |                                    |              |                |                                     |                                     |
| <span style="color: red;">○</span> | <span style="color: red;">○</span> | <span style="color: red;">○</span> | <span style="color: red;">○</span> | <span style="color: red;">○</span> |        | <span style="color: blue;">○</span> | <span style="color: red;">○</span> |              |                | <span style="color: blue;">○</span> | <span style="color: blue;">○</span> |

Code key

B258

Graphics category and identification

B259

Cutting parameters

B498-B499

Non-standard customization

B570-B571