

Regular Line  
MUGEN COATING  
Full Cutting Length Type

Carbon Steel P

Alloy Steel P

Prehardened Steel P

Hardened Steel ~55 HRC H

# MSB230

Size R0.05 ~ R10



# MSB230

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Full Cutting Length Type

Carbon Steel P

Alloy Steel P

Prehardened Steel P

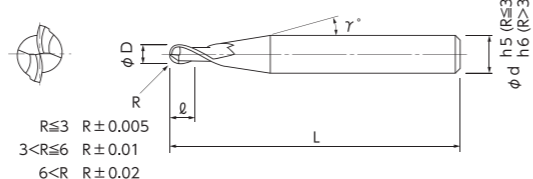
Hardened Steel ~55 HRC H

## MUGEN COATING 2-Flute Ball End Mill

Total 87 sizes

## MUGEN COATING 2-Flute Ball End Mill

2-flute standard type with helix angle 30°  
For multi-purpose, from roughing to finishing



● Suitable for precision three-dimensional cutting in the low to high speed range.

### ▲ Discontinued Products

Code No.	Radius (R)	Length of Cut (L)	Dia. (D)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
08-00501-00005	R0.05	0.1	0.1	15°	4	50
08-00500-00005	R0.05	0.1	0.1	15°	6	50
08-00501-00007	R0.075	0.15	0.15	15°	4	50
08-00500-00007	R0.075	0.15	0.15	15°	6	50
08-00501-00010	R0.1	0.2	0.2	15°	4	50
08-00500-00010	R0.1	0.2	0.2	15°	6	50
08-00501-00015	R0.15	0.3	0.3	15°	4	50
08-00500-00015	R0.15	0.3	0.3	15°	6	50
08-00501-00020	R0.2	0.6	0.4	15°	4	50
08-00500-00020	R0.2	0.6	0.4	15°	6	50
08-00501-00025	R0.25	0.8	0.5	15°	4	50
08-00500-00025	R0.25	0.8	0.5	15°	6	50
08-00501-00030	R0.3	0.9	0.6	15°	4	50
08-00500-00030	R0.3	0.9	0.6	15°	6	50
08-00500-00035	R0.35	1.1	0.7	15°	6	50
08-00501-00040	R0.4	1.2	0.8	15°	4	50
08-00500-00040	R0.4	1.2	0.8	15°	6	50
08-00500-00045	R0.45	1.4	0.9	15°	6	50
08-00501-00050	R0.5	1.5	1	15°	4	50
08-00500-00050	R0.5	1.5	1	15°	6	50
08-00500-00055	R0.55	1.7	1.1	15°	6	50
08-00501-00060	R0.6	1.8	1.2	15°	4	50
08-00500-00060	R0.6	1.8	1.2	15°	6	50
08-00500-00065	R0.65	2	1.3	15°	6	50
08-00501-00070	R0.7	2.1	1.4	15°	4	50
08-00500-00070	R0.7	2.1	1.4	15°	6	50

How to Order When you order, indicate MSB230 (R)×(d). ※(γ) is reference value.

▲ Discontinued products. The marked sizes will no longer be on sale after the stock runs out.

Unit : mm

Code No.	Radius (R)	Length of Cut (L)	Dia. (D)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
08-00501-00075	R0.75	2.3	1.5	15°	4	50
08-00500-00075	R0.75	2.3	1.5	15°	6	50
08-00501-00080	R0.8	2.4	1.6	15°	4	50
08-00500-00080	R0.8	2.4	1.6	15°	6	50
08-00500-00085	R0.85	2.6	1.7	15°	6	50
08-00500-00090	R0.9	2.7	1.8	15°	6	50
08-00500-00095	R0.95	2.9	1.9	15°	6	50
08-00501-00100	R1	3	2	9°	4	60
08-00500-00100	R1	3	2	9°	6	60
08-00500-00105	R1.05	3.2	2.1	9°	6	60
08-00500-00110	R1.1	3.3	2.2	9°	6	60
08-00500-00115	R1.15	3.5	2.3	9°	6	60
08-00500-00120	R1.2	3.6	2.4	9°	6	60
08-00501-00125	R1.25	3.8	2.5	9°	4	60
08-00500-00125	R1.25	3.8	2.5	9°	6	60
08-00500-00130	R1.3	3.9	2.6	9°	6	60
08-00500-00135	R1.35	4.1	2.7	9°	6	60
08-00500-00140	R1.4	4.2	2.8	9°	6	60
08-00500-00145	R1.45	4.4	2.9	9°	6	60
08-00501-00150	R1.5	5	3	9°	4	60
08-00500-00150	R1.5	5	3	9°	6	60
08-00500-00155	R1.55	5	3.1	9°	6	60
08-00500-00160	R1.6	5	3.2	9°	6	60
08-00500-00165	R1.65	5	3.3	9°	6	60
08-00500-00170	R1.7	5.1	3.4	9°	6	60
08-00500-00175	R1.75	5.3	3.5	9°	6	60

### ▲ Discontinued Products

Code No.	Radius (R)	Length of Cut (L)	Dia. (D)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
08-00500-00180	R1.8	5.4	3.6	9°	6	60
08-00500-00185	R1.85	5.6	3.7	9°	6	60
08-00500-00190	R1.9	5.7	3.8	9°	6	60
08-00500-00195	R1.95	5.9	3.9	9°	6	60
08-00500-00200	R2	6	4	9°	6	70
08-00500-00205	R2.05	6.2	4.1	9°	6	70
08-00500-00210	R2.1	6.3	4.2	9°	6	70
08-00500-00215	R2.15	6.5	4.3	9°	6	70
08-00500-00220	R2.2	6.6	4.4	9°	6	70
08-00500-00225	R2.25	6.8	4.5	9°	6	70
08-00500-00230	R2.3	6.9	4.6	9°	6	70
08-00500-00235	R2.35	7.1	4.7	9°	6	70
08-00500-00240	R2.4	7.2	4.8	9°	6	70
08-00500-00245	R2.45	7.4	4.9	9°	6	70
08-00500-00250	R2.5	8	5	9°	6	70
08-00500-00255	R2.55	8	5.1	9°	6	70
08-00500-00260	R2.6	8	5.2	9°	6	70
08-00500-00265	R2.65	8	5.3	9°	6	70
08-00500-00270	R2.7	8.1	5.4	9°	6	70
08-00500-00275	R2.75	8.3	5.5	9°	6	70
08-00500-00280	R2.8	8.4	5.6	9°	6	70
08-00500-00285	R2.85	8.6	5.7	9°	6	70
08-00500-00290	R2.9	8.7	5.8	9°	6	70
08-00500-00295	R2.95	8.9	5.9	9°	6	70
08-00500-00300	R3	10	6	—	6	80
08-00500-00350	R3.5	10.5	7	—	6	80

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Stainless Steel M

Aluminium Alloy N

Copper N

Resin O

Ball Coating

Stainless Steel M

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Recommended Milling Conditions

Recommended High Speed Milling Conditions

Work Material	Carbon Steels S50C		Alloy Steels Prehardened Steels SCM·SKD·SUS·HPM·NAK		Hardened Steels SKD61 (~52HRC)		Aluminium Alloy		Copper	
	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
Cutting Speed	150m/min		120~150m/min		80~100m/min		150m/min~		100~150m/min	
Radius	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min
	0.05	50,000	200	50,000	150	50,000	100	50,000	250	50,000
0.1	50,000	400	50,000	340	50,000	200	50,000	500	50,000	500
0.2	50,000	630	50,000	600	50,000	630	50,000	600	50,000	600
0.3	50,000	930	50,000	940	48,000	900	50,000	750	50,000	750
0.4	50,000	1,200	48,000	1,200	36,000	900	50,000	1,000	50,000	1,000
0.5	48,000	1,430	38,000	1,200	29,000	900	50,000	1,250	48,000	1,000
0.6	40,000	1,430	32,000	1,200	24,000	810	50,000	1,480	40,000	1,080
0.8	30,000	1,270	24,000	1,000	18,000	670	50,000	1,900	30,000	1,160
1	24,000	1,160	19,000	800	14,300	600	48,000	2,400	24,000	1,200
1.5	16,000	930	13,000	600	9,600	460	32,000	2,400	16,000	1,200
2	12,000	930	10,000	570	7,200	450	24,000	2,400	12,000	1,200
2.5	9,600	930	8,000	560	5,700	450	19,000	2,400	9,600	1,200
3	8,000	930	6,400	540	4,800	450	16,000	2,400	8,000	1,200
4	6,000	900	4,800	540	3,600	450	12,000	2,400	6,000	1,200
5	4,800	900	3,800	540	2,900	450	9,600	2,300	4,800	1,150
6	4,000	900	3,200	540	2,400	450	8,000	2,100	4,000	1,050
7	3,400	900	2,750	540	2,050	450	6,800	2,000	3,400	1,000
8	3,000	900	2,400	540	1,800	450	6,000	2,000	3,000	1,000
9	2,650	900	2,100	520	1,600	450	5,300	2,000	2,650	1,000
10	2,400	900	1,900	520	1,450	450	4,800	2,000	2,400	1,000

Depth of Cut (R:Radius)	~0.15xR R<0.1		~0.2xR 0.1≤R≤0.5		~0.3xR R>0.5		~0.16xR R≤0.3 (~45HRC)		~0.25xR R≤3 (~45HRC)		~0.3xR R≥4 (~45HRC)		~0.05xR (~55HRC)	
	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min
0.1xR (~45HRC)														
~0.08xR (~55HRC)														

Notes

- ※1 When slotting, reduce the feed by 60% from the above values.
- ※2 Length of overhang is 4 times Dia. as standard. When it is longer than 4 times Dia., adjust the conditions listed above.
- ※3 Recommended oil mist or airblow.
- ※4 Adjust both spindle speed and feed at the same rate.

Work Material	Carbon Steels S50C		Alloy Steels SCM·SKD·SUS		Prehardened Steels HPM·NAK		Hardened Steels SKD61 (~52HRC)	
	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
Cutting Speed	250m/min		200m/min		180m/min		100m/min	
Radius	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min
	0.2	~50,000	~1,500	~50,000	~1,200	~50,000	~1,000	~50,000
0.3	~50,000	~1,500	~50,000	~1,200	~50,000	~1,000	~50,000	700
0.4	~50,000	~3,000	~50,000	~2,500	~50,000	~2,200	40,000	1,000
0.5	~50,000	~3,000	~50,000	~2,500	~50,000	~2,200	32,000	1,500
1	40,000	5,000	32,000	3,200	29,000	2,900	16,000	1,500
1.5	27,000	5,000	21,000	3,200	19,000	2,900	10,600	1,500
2	20,000	5,000	16,000	3,200	14,000	2,900	8,000	1,500
3	13,500	3,000	10,600	2,000	9,500	1,800	5,300	1,200
4	10,000	3,000	8,000	2,000	7,200	1,800	4,000	1,200
5	8,000	3,000	6,400	2,000	5,700	1,800	3,200	1,200
6	6,700	2,500	5,300	1,800	4,800	1,600	2,700	1,200
8	5,000	2,000	4,000	1,500	3,600	1,300	2,000	800
10	4,000	1,500	3,200	1,200	2,900	1,000	1,600	800

Depth of Cut (R:Radius)

Notes

- ※1 When slotting, reduce the feed by 60% from the above values.
- ※2 Recommended air blow or oil mist.
- ※3 Adjust both spindle speed and feed at the same rate.
- ※4 Use a rigid machine and chuck holder.
- ※5 Adjust milling conditions according to the volume of depth of cut and rigidity of the machine.

Stainless Steel M

Aluminium Alloy N

Copper N

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