

**MSB230 / MSB230S**

2-Flute Ball End Mill

Cutting Conditions for Standard Milling



Work Material	Carbon Steels		Alloy Steels Prehardened Steels		Hardened Steels (~ 52HRC)		Aluminum		Copper	
Cutting Speed	150m/min		120 ~ 150 m/min		80 ~ 100 m/min		150 ~ m/min		100 ~ 150 m/min	
R	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
	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
<b>0.1</b>	50,000	400	50,000	340	50,000	200	50,000	500	50,000	500
<b>0.2</b>	50,000	630	50,000	600	50,000	630	50,000	600	50,000	600
<b>0.3</b>	50,000	930	50,000	940	48,000	900	50,000	750	50,000	750
<b>0.4</b>	50,000	1,200	48,000	1,200	36,000	900	50,000	1,000	50,000	1,000
<b>0.5</b>	48,000	1,430	38,000	1,200	29,000	900	50,000	1,250	48,000	1,000
<b>0.6</b>	40,000	1,430	32,000	1,200	24,000	810	50,000	1,480	40,000	1,080
<b>0.8</b>	30,000	1,270	24,000	1,000	18,000	670	50,000	1,900	30,000	1,160
<b>1</b>	24,000	1,160	19,000	800	14,300	600	48,000	2,400	24,000	1,200
<b>1.5</b>	16,000	930	13,000	600	9,600	460	32,000	2,400	16,000	1,200
<b>2</b>	12,000	930	10,000	570	7,200	450	24,000	2,400	12,000	1,200
<b>2.5</b>	9,600	930	8,000	560	5,700	450	19,000	2,400	9,600	1,200
<b>3</b>	8,000	930	6,400	540	4,800	450	16,000	2,400	8,000	1,200
<b>4</b>	6,000	900	4,800	540	3,600	450	12,000	2,400	6,000	1,200
<b>5</b>	4,800	900	3,800	540	2,900	450	9,600	2,300	4,800	1,150
<b>6</b>	4,000	900	3,200	540	2,400	450	8,000	2,100	4,000	1,050
<b>7</b>	3,400	900	2,750	540	2,050	450	6,800	2,000	3,400	1,000
<b>8</b>	3,000	900	2,400	540	1,800	450	6,000	2,000	3,000	1,000
<b>9</b>	2,650	900	2,100	520	1,600	450	5,300	2,000	2,650	1,000
<b>10</b>	2,400	900	1,900	520	1,450	450	4,800	2,000	2,400	1,000
Depth of Cut										
Notes	<ul style="list-style-type: none"> <li>• When slotting, reduce the feed by 60% from above values.</li> <li>• Length of overhang is 4 times dia. as standard. When it is longer than 4 times dia., follow figures of above table.</li> <li>• Use cutting fluid with smoke retardant.</li> <li>• Adjust the spindle speed and feed at the same ratio.</li> <li>• Speeds &amp; Feeds in this table are intended for initial set-up only. They are also stated with the consideration that all good machining practices have been followed in the initial set-up.</li> <li>• Values are to be used as a guide and may need to be adjusted until optimum set-up can be determined.</li> <li>• Tools, when not in use, should be stored properly to protect personnel as well as the tool.</li> <li>• Specifications may change without notice.</li> </ul>									

**MSB230**  
 2-Flute Ball End Mill  
 Cutting Conditions for High Speed Machining



Work Material	Carbon Steels		Alloy Steels		Prehardened Steels		Hardened Steels	
Cutting Speed	250m/min		200m/min		180m/min		100m/min	
R	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min	min <sup>-1</sup>	mm/min
<b>0.2</b>	~50,000	~1,500	~50,000	~1,200	~50,000	~1,000	~50,000	600
<b>0.3</b>	~50,000	~1,500	~50,000	~1,200	~50,000	~1,000	~50,000	700
<b>0.4</b>	~50,000	~3,000	~50,000	~2,500	~50,000	~2,200	40,000	1,000
<b>0.5</b>	~50,000	~3,000	~50,000	~2,500	~50,000	~2,200	32,000	1,500
<b>1</b>	40,000	5,000	32,000	3,200	29,000	2,900	16,000	1,500
<b>1.5</b>	27,000	5,000	21,000	3,200	19,000	2,900	10,600	1,500
<b>2</b>	20,000	5,000	16,000	3,200	14,000	2,900	8,000	1,500
<b>3</b>	13,500	3,000	10,600	2,000	9,500	1,800	5,300	1,200
<b>4</b>	10,000	3,000	8,000	2,000	7,200	1,800	4,000	1,200
<b>5</b>	8,000	3,000	6,400	2,000	5,700	1,800	3,200	1,200
<b>6</b>	6,700	2,500	5,300	1,800	4,800	1,600	2,700	1,200
<b>8</b>	5,000	2,000	4,000	1,500	3,600	1,300	2,000	800
<b>10</b>	4,000	1,500	3,200	1,200	2,900	1,000	1,600	800
Depth of Cut								
Notes	<ul style="list-style-type: none"> <li>• When slotting, reduce the feed by 60% from above values.</li> <li>• Recommend air blow or oil mist.</li> <li>• Use a rigid machine and holder.</li> <li>• Adjust the spindle speed and feed at the same ratio.</li> <li>• Speeds &amp; Feeds in this table are intended for initial set-up only. They are also stated with the consideration that all good machining practices have been followed in the initial set-up.</li> <li>• Values are to be used as a guide and may need to be adjusted until optimum set-up can be determined.</li> <li>• Tools, when not in use, should be stored properly to protect personnel as well as the tool.</li> <li>• Specifications may change without notice.</li> </ul>							