

RECOMMENDED CUTTING CONDITIONS

Side milling

(inch)

Dia. DC (mm) (inch)	Carbon Steel, Alloy Steel, Mild Steel				Pre-hardened Steel, Carbon Steel, Alloy Steel, Alloy Tool Steel				Austenitic, Ferritic and Martensitic Stainless Steels, Titanium Alloys				Hardened Stainless Steels, Cobalt Chromium Alloys			
	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae
	6 .236	9500	63.0	.945	.024	8500	47.2	.945	.024	5300	31.5	.945	.012	4800	27.6	.945
8 .315	7200	63.0	1.260	.031	6400	51.2	1.260	.031	4000	31.5	1.260	.016	3600	27.6	1.260	.016
10 .394	5700	59.1	1.575	.039	5100	47.2	1.575	.039	3200	27.6	1.575	.020	2900	27.6	1.575	.020
12 .472	4800	59.1	1.890	.047	4200	47.2	1.890	.047	2700	27.6	1.890	.024	2400	23.6	1.890	.024

The diagram illustrates the geometry of side milling. It shows a vertical cutting tool with a diameter 'DC' moving horizontally across a workpiece. The axial depth of cut is labeled 'ae' and the radial depth of cut is labeled 'ap'.

Dia. DC (mm) (inch)	Copper, Copper Alloys				Heat Resistant Alloys			
	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae	Revolution (min ⁻¹)	Feed rate (IPM)	Depth of cut ap	Depth of cut ae
	6 .236	10600	70.9	.945	.024	1600	3.9	.945
8 .315	8000	70.9	1.260	.031	1200	3.9	1.260	.006
10 .394	6400	63.0	1.575	.039	1000	3.9	1.575	.008
12 .472	5300	63.0	1.890	.047	800	3.9	1.890	.009

The diagram illustrates the geometry of side milling. It shows a vertical cutting tool with a diameter 'DC' moving horizontally across a workpiece. The axial depth of cut is labeled 'ae' and the radial depth of cut is labeled 'ap'.

- Note 1) SMART MIRACLE coating has very low electrical conductivity; therefore, an electrical contact type of tool setter may not work. When measuring the tool length, please use a mechanical contact type or a laser tool setter.
- Note 2) The irregular pitch flute end mill has a larger effect on controlling vibration when compared to standard end mills. However, if the rigidity of the machine or the workpiece material installation is poor, vibration or abnormal sounds can occur. In that case, please adjust the revolution, feed rate and depth of cut.
- Note 3) The revolution and feed rate can be increased with a smaller depth of cut.
- Note 4) For stainless steel, titanium alloys and heat resistant alloys, the use of water-soluble coolant is effective.