Identification(Shoulder Milling)

Reduce the cutting parameters by the coefficient values shown according to the length of overhang.
For long edge and oversize types heads refer to their specific recommended conditions.

(inch)

Workpiece Material	Carbon Steels, Alloy Steels, Mild Steels, Copper, Copper Alloys			Pre-hardened Steels, Carbon Steels, Alloy Steels, Alloy Tool Steels			Austenitic Stainless Steels, Ferritic and Martensitic Stainless Steels, Titanium Alloys		
L/D	Revolution **n** (min^{-1})	Feed per Tooth **fz** (IPT)	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed per Tooth **fz** (IPT)	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed per Tooth **fz** (IPT)	Width of Cut **ae**
2	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	80%	90%	70%	80%	90%	70%	80%	90%	70%
5	60%	80%	40%	60%	80%	40%	60%	80%	40%
6	50%	70%	30%	50%	70%	30%	50%	70%	30%
7	40%	70%	20%	40%	70%	20%	30%	60%	20%
8	40%	60%	10%	40%	60%	10%	30%	50%	10%
9	30%	60%	10%	30%	60%	10%	20%	50%	10%

Workpiece Material	Precipitation Hardening Stainless Steels, Cobalt Chromium Alloys			Heat Resistant Alloys Inconel718		
L/D	Revolution **n** (min^{-1})	Feed per Tooth **fz** (IPT)	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed per Tooth **fz** (IPT)	Width of Cut **ae**
2	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%
4	80%	90%	70%	80%	90%	70%
5	60%	80%	40%	60%	80%	40%
6	50%	70%	30%	50%	70%	30%
7	30%	60%	20%	30%	60%	20%
8	30%	50%	10%	30%	50%	10%
9	20%	50%	10%	20%	50%	10%

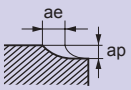
iMX-C4FV

Corner radius head, 4 flute, Irregular helix, For high efficiency machining

Recommended Cutting Conditions

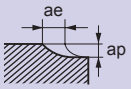
Large Depth of Cut Milling

(inch)

Workpiece Material		Carbon Steels, Alloy Steels, Gray Cast Irons				Pre-hardened Steels, Alloy Tool Steels				Hardened Steels (45–55HRC)			
DC (mm)	DC (inch)	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**
	.3750	3000	117.6	.045	.169	2500	91.0	.038	.169	2000	69.6	.026	.169
10	.3937	2900	113.7	.047	.177	2400	87.4	.039	.177	1900	66.1	.028	.177
12	.4724	2400	94.1	.071	.236	2000	72.8	.055	.236	1600	55.7	.035	.236
	.5000	2300	90.2	.075	.250	1900	69.2	.058	.250	1500	52.2	.038	.250
	.6250	1800	70.6	.070	.293	1500	54.6	.055	.293	1200	41.8	.035	.293
16	.6299	1800	70.6	.071	.295	1500	54.6	.055	.295	1200	41.8	.035	.295
	.7500	1500	58.8	.068	.338	1300	43.7	.053	.338	990	34.5	.034	.338
20	.7874	1400	54.9	.071	.354	1200	43.7	.055	.354	950	33.1	.035	.354
25	.9843	1100	43.1	.094	.453	950	34.6	.071	.453	760	26.4	.047	.453
	1.0000	1100	43.1	.096	.460	940	34.2	.072	.460	740	25.8	.048	.460
Depth of Cut													

High Speed Milling

(inch)

Workpiece Material		Carbon Steels, Alloy Steels, Gray Cast Irons				Pre-hardened Steels, Alloy Tool Steels				Hardened Steels (40–55HRC)			
DC (mm)	DC (inch)	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (IPM)	Depth of Cut **ap**	Width of Cut **ae**
	.3750	5000	314.0	.023	.169	4200	231.8	.017	.169	3400	160.5	.014	.169
10	.3937	4800	301.4	.024	.177	4000	220.8	.018	.177	3200	151.0	.014	.177
12	.4724	4000	283.2	.035	.236	3300	207.2	.028	.236	2700	127.4	.018	.236
	.5000	3700	262.0	.038	.250	3100	194.7	.029	.250	2500	118.0	.019	.250
	.6250	3000	236.4	.035	.293	2500	177.0	.027	.293	2000	94.4	.018	.293
16	.6299	3000	236.4	.035	.295	2500	177.0	.028	.295	2000	94.4	.018	.295
	.7500	2500	197.0	.034	.338	2100	148.7	.026	.338	1700	93.8	.017	.338
20	.7874	2400	189.1	.035	.354	2000	141.6	.028	.354	1600	88.3	.018	.354
25	.9843	1900	149.7	.047	.453	1600	113.3	.035	.453	1300	71.8	.024	.453
	1.0000	1900	149.7	.048	.460	1600	113.3	.036	.460	1300	71.8	.024	.460
Depth of Cut													

Note 1) The irregular helix 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 sound can occur. In this case, please reduce the revolution and the feed rate proportionately, or set a lower depth of cut.

Note 2) If the depth of cut is smaller, the revolution and the feed rate can be increased.

Note 3) For profile machining such as molds, machining conditions may differ considerably depending on the workpiece material geometry, machining methods and depth of cut. Reduce the feed rate especially when machining the corner sections of a workpiece material.

Note 4) Air blow or oil mist is recommended for good chip evacuation.