List VGM6: 6 Flute

Side Milling

Hardness	–		Up to 30 HRC		–		–		–		–		–		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Inconel 718		Inconel 625		Cast Iron		Hardened Steel	
Cutting	350-550 SFM		350-550 SFM		150-350 SFM		150-350 SFM		100-200 SFM		150-250 SFM		350-650SFM		150-350 SFM	
Depth of Cut	Aa = up to Max LOC, Ar= 0.2xD				Aa = up to Max LOC, Ar= 0.15xD				Aa = up to Max LOC, Ar= 0.08xD				Aa = up to Max LOC, Ar= 0.2xD		Aa = up to Max LOC, Ar= 0.1xD	
Mill Dia. Inch	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
1/4	6,870	90.7	6,870	90.7	3,817	50.4	3,817	50.4	2,290	27.5	3,053	36.6	7,634	100.8	3,817	50.4
5/16	5,496	98.9	5,496	98.9	3,053	55.0	3,053	55.0	1,832	22.0	2,443	29.3	6,107	109.9	3,053	55.0
3/8	4,580	96.2	4,580	96.2	2,545	53.4	2,545	53.4	1,527	22.9	2,036	30.5	5,089	106.9	2,545	53.4
1/2	3,435	86.6	3,435	86.6	1,908	48.1	1,908	48.1	1,145	17.2	1,527	22.9	3,817	96.2	1,908	48.1
5/8	2,748	69.3	2,748	69.3	1,527	38.5	1,527	38.5	916	13.7	1,221	18.3	3,053	76.9	1,527	38.5
3/4	2,290	60.5	2,290	60.5	1,272	33.6	1,272	33.6	763	11.5	1,018	15.3	2,545	67.2	1,272	33.6
1	1,718	45.3	1,718	45.3	954	25.2	954	25.2	573	10.3	763	13.7	1,908	50.4	954	25.2

1. The above milling condition is a guideline for L/D ratio 1.25 and 1.5.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed.
   Adjustments may be necessary depending on the rigidity or the workpiece, fixture, and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel and titanium alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.

Speed & Feed Reduction Chart by L/D Ratio

Hardness	–		Up to 30 HRC		–		–		–		–		–		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Inconel 718		Inconel 625		Cast Iron		Hardened Steel	
L/D Ratio	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
4	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
5	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

Aa & Ar Adjustment Chart by L/D Ratio

Hardness	–		Up to 30 HRC		–		–		–		–		–		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Inconel 718		Inconel 625		Cast Iron		Hardened Steel	
L/D Ratio	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar
2	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.1 x D	Up to Max. LOC	0.1 x D	Up to Max. LOC	0.05 x D	Up to Max. LOC	0.05 x D	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.08 x D
2.5		0.15 x D		0.15 x D		0.1 x D		0.1 x D		0.05 x D		0.05 x D		0.15 x D		0.08 x D
3		0.1x D		0.1x D		0.08x D		0.08x D		0.03 x D		0.03 x D		0.1x D		0.05x D
4		0.08x D		0.08x D		0.05x D		0.05x D		0.02 x D		0.02 x D		0.08x D		0.03x D
5		0.08x D		0.08x D		0.05x D		0.05x D		0.02 x D		0.02 x D		0.08x D		0.03x D
6		0.05 x D		0.05 x D		0.03 x D		0.03 x D		0.01 x D		0.01 x D		0.05 x D		0.02 x D