

# M706 Application Guide – Speed & Feed (inch)

ISO Code	Tool Dia	Type of Cut	Axial Max	Radial Max	Speed (SFM)	RPM	IPT	IPM
<b>H</b> 51 HRC- 63 HRC	1/8	Roughing	.125	.025	65	1986	.00035	4
		Finishing	.1875	.0015	100	3056	.0004	7
	3/16	Roughing	.1875	.0375	65	1324	.0005	4
		Finishing	.28125	.002	100	2037	.0005	6
	1/4	Roughing	.250	.05	65	993	.0007	4
		Finishing	.375	.003	100	1528	.0007	6
	5/16	Roughing	.3125	.0625	65	795	.0009	4
		Finishing	.46875	.004	100	1222	.0009	6
	3/8	Roughing	.375	.075	65	662	.0011	4
		Finishing	.563	.005	100	1019	.0011	6
	1/2	Roughing	.5	.100	65	497	.0015	4
		Finishing	.375	.007	100	764	.0015	6
	5/8	Roughing	.625	.125	65	397	.0019	4
		Finishing	.938	.010	100	611	.0019	7
	3/4	Roughing	.750	.150	65	331	.0024	4
		Finishing	1.125	.012	100	509	.0024	7
	1	Roughing	1.000	.200	65	248	.003	4
		Finishing	1.500	.015	100	382	.003	6
<b>K</b> <b>H</b> 43 HRC- 50 HRC	1/8	Roughing	.125	.031	200	6112	.0003	11
		Finishing	.1875	.0015	275	8404	.0003	15
	3/16	Roughing	.1875	.047	200	4075	.0005	12
		Finishing	.28125	.002	275	5603	.0005	16
	1/4	Roughing	.250	.063	200	3056	.0007	12
		Finishing	.375	.003	275	4202	.0007	17
	5/16	Roughing	.3125	.078	200	2445	.0009	13
		Finishing	.46875	.004	275	3362	.0009	18
	3/8	Roughing	.375	.094	200	2037	.0011	13
		Finishing	.563	.005	275	2801	.0011	18
	1/2	Roughing	.5	.125	200	1528	.0015	13
		Finishing	.375	.007	275	2101	.0015	18
	5/8	Roughing	.625	.156	200	1222	.0018	13
		Finishing	.938	.010	275	1681	.0018	18
	3/4	Roughing	.750	.188	200	1019	.0022	13
		Finishing	1.125	.012	275	1401	.0022	18
	1	Roughing	1.000	.250	200	764	.0030	13
		Finishing	1.500	.015	275	1051	.0030	18
<b>P</b> <b>M</b> 36 HRC- 42 HRC	1/8	Roughing	.125	.044	250	7640	.0004	91
		Finishing	.1875	.002	325	9932	.0004	34
	3/16	Roughing	.1875	.065625	250	5093	.0005	79
		Finishing	.28125	.004	325	6621	.0006	36
	1/4	Roughing	.250	.0875	250	3820	.0007	110
		Finishing	.375	.005	325	4966	.0009	45
	5/16	Roughing	.3125	.109	250	3056	.0009	110
		Finishing	.46875	.007	325	3973	.0011	47
	3/8	Roughing	.375	.132	250	2547	.0011	110
		Finishing	.563	.01	325	3311	.0013	45
	1/2	Roughing	.5	.175	250	1910	.0015	110
		Finishing	.375	.012	325	2483	.0018	45
	5/8	Roughing	.625	.21875	250	1528	.0019	110
		Finishing	.938	.015	325	1986	.0022	45
	3/4	Roughing	.750	.2625	250	1273	.0024	110
		Finishing	1.125	.015	325	1655	.0027	45
	1	Roughing	1.000	.350	250	955	.003	110
		Finishing	1.500	.015	325	1242	.0036	45

D = Tool Diameter

≈	Approximately Equals	<	Less Than
≤	Less Than or Equal To	>	Greater Than
≥	Greater Than or Equal To	=	Equals
x	Multiply		

## Common Machining Formulas

$$RPM = \frac{SFM \times 3.82}{D}$$

$$SFM = RPM \times D \times .262$$

$$IPM = RPM \times IPT \times Z$$

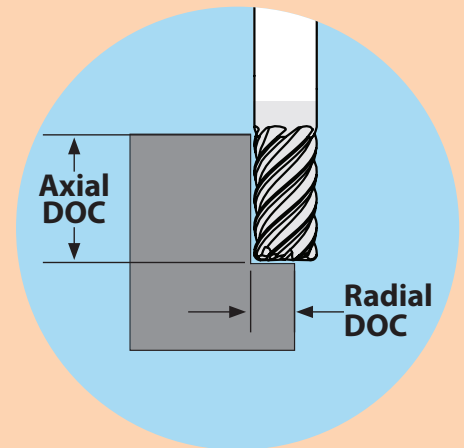
$$MRR = RDOC \times ADOC \times IPM$$

$$RPM = \frac{M/min \times 318.3}{D}$$

$$M/min = RPM \times D \times .00314$$

$$MMPM = RPM \times MMPT \times Z$$

$$MRR = RDOC \times ADOC \times MMPM$$



- D** Tool Diameter
- Z** Number of Flutes
- RPM** Revolutions per Minute
- SFM** Surface Feet per Minute
- M/min** Surface Meters per Minute
- IPM** Inches per Minute
- MMPM** Millimeters per Minute
- IPT** Inch per Tooth
- MMPT** Millimeters per Tooth
- MRR** Metal Removal Rate
- RDOC** Radial Depth of Cut
- ADOC** Axial Depth of Cut

## Technical Resources

Information on tips and adjustments for the following milling operations can be found in our Technical Resources section beginning on page 125.

- HEM slotting
- Face milling
- Helical entry ramping
- Straight line ramping
- Long tool projection adjustments
- Ball nose milling adjustments
- Other helpful tips and calculations