

M104 Application Guide (Inch) • Speed & Feed

ISO Classification	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (SFM)	Feed (Inches Per Tooth)						
							1/8	1/4	3/8	1/2	5/8	3/4	1
P	Low Carbon Steel 1018, 12L14, 8620	Slotting	1 x D	1 x D	4	350	.0006	.0012	.0018	.0024	.0030	.0036	.0047
		Peripheral - Rough	1.25 x D	.4 x D	4	425	.0007	.0015	.0022	.0030	.0037	.0044	.0059
	Medium Carbon Steels < 38 HRC 4140, 4340	Slotting	.75 x D	1 x D	4	275	.0006	.0011	.0017	.0023	.0029	.0034	.0046
		Peripheral - Rough	1.25 x D	.4 x D	4	350	.0007	.0014	.0021	.0029	.0036	.0043	.0057
	Tool & Die Steels < = 38 HRC A2, D2, H13, P20	Slotting	.5 x D	1 x D	4	275	.0006	.0012	.0018	.0024	.0029	.0035	.0047
		Peripheral - Rough	1.25 x D	.3 x D	4	350	.0007	.0015	.0022	.0029	.0037	.0044	.0059
M	Martensitic Stainless Steel 416, 410, 440C	Slotting	.5 X D	1 x D	4	250	.0005	.0010	.0016	.0021	.0026	.0031	.0042
		Peripheral - Rough	1.25 x D	.3 x D	4	300	.0007	.0013	.0020	.0026	.0033	.0039	.0052

D = Tool diameter

Common Machining Formulas

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

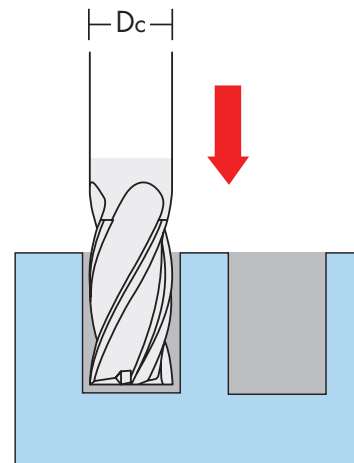
$$SFM = RPM \times D \times .262$$

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

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

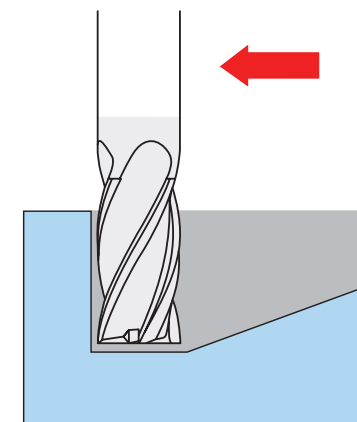
D Tool Cutting Diameter
R Tool Radius
Z Number of Flutes
RPM Revolutions per Minute
SFM Surface Feet per Minute
IPM Inches per Minute
MRR Metal Removal Rate
RDOC Radial Depth of Cut
ADOC Axial Depth of Cut

Adjustments – Apply these adjustments when programming the following applications.



1. Plunge entry into work piece

- Reduce chip load by 80% of recommended slotting rate
- Peck mill if axial DOC (ap) exceeds 50% of Dc



2. Ramp entry into work piece

- Ramp at 1.5°–2.5° angle
- Reduce chip load by 20% of recommended slotting rate