

<b>Key Cutters Speeds &amp; Feeds</b>		
Material	Grades	SFM
<b>P - Steels</b>		
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, O1	80-90
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	180
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	170
<b>M- Stainless Steels</b>		
Austenitic	301-304L, 310, 316L, 321, 347	100
Martensitic	403, 410, 416, 420, 430, 431, 440	110
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	120
<b>K - Cast Irons</b>		
Ductile	A536, J434, 60-40-18	180
Gray	A48, A436, A319, Class 20, G4000	140
Malleable	A220, A602, J158	100
<b>N - Non-Ferrous</b>		
Aluminum Alloys	2014, 2024, 6061, 7075	300
Aluminum High Silicon	A380, A390	300
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	230-250
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	180-200
Copper		100-200
Magnesium		300
<b>S - High Temp Alloys</b>		
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	80
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoly, Udimet 500 & 700	80
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	90

**NOTE:** Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 417-441.

<b>Speeds Formula for Calculating RPM</b>
$\frac{\text{SFM} \times 4 = F}{\text{Diameter of Cutter}} = \text{RPM}$
<b>EXAMPLE: 1/2" ø Cutter in Aluminum</b>
$\frac{\text{SFM (300)} \times 4 = 1200 (F)}{.500} = 2400 \text{ RPM}$

<b>Feeds Formula for Calculating IPM</b>
$.001 \times \# \text{ of Teeth in Cutter} \times \text{RPM} = \text{IPM}$
<b>EXAMPLE: 1/2" ø Cutter in Aluminum</b>
$.001 \times 6 \times 2400 = 14.4 \text{ IPM}$