

Using These Tables. The Speeds & Feeds listed below are conservative recommendations for initial setup. In actual use, depending on the machining environment and workpiece material, significantly higher speeds and feeds may be achievable. Using the below as a starting point, cutting speed/feed can be gradually adjusted upwards until the optimum settings per application are found.
 Questions? Contact us by telephone at (800) 776-6170.

Series # 1131

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Common structural steels	≤100 Bhn	155	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	>100-260 Bhn	120	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Free-cutting steels	≤24 Rc	155	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	>24-30 Rc	120	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Unalloyed heat-treatable steels	≤16 Rc	155	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
	16-24 Rc	120	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
	24-30 Rc	65	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Alloyed heat-treatable steels	24-30 Rc	80	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	65	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Unalloyed case hardened steels	≤230 Bhn	160	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Alloyed case hardened steels	24-30 Rc	70	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	50	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Nitriding steels	≥24-30 Rc	65	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	45	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Tool steels	≤24 Rc	75	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>24-30 Rc	45	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
High speed steels	≥14-30 Rc	45	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Spring steels	≤330 Bhn	35	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Stainless steels, sulphured austenitic martensitic	≤24 Rc	65	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	≤24 Rc	45	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	≤24 Rc	50	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Hardened steels	≤40-48 Rc	10	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
	>48-60 Rc	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Rc	30	•	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	•	•	•
Cast iron	≤240 Bhn	155	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	<300 Bhn	120	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	135	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	<300 Bhn	95	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Chilled cast iron	≤350 Bhn	35	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Ti and Ti-alloys	≤24 Rc	45	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
	>24-38 Rc	30	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Aluminium and Al-alloys	≤120 Bhn	•	•	•	•	•	•	•	•	•	•	
Al wrought alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	310	•	0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	•	•	•
	≤200 Bhn	245	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Magnesium alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	
Copper, low-alloyed	≤120 Bhn	155	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Brass, short-chipping long-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	
	≤200 Bhn	195	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Bronze, short-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	
	>200-260 Bhn	135	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Bronze, long-chipping	≤24 Rc	120	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>24-30 Rc	95	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Duroplastics	-	•	•	•	•	•	•	•	•	•	•	
Thermoplastics	-	120	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Reinforced plastics - Kevlar	-	•	•	•	•	•	•	•	•	•	•	
Reinforced plastics - GFK / CFK	-	•	•	•	•	•	•	•	•	•	•	

Series # 1132

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Common structural steels	≤100 Bhn	195	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	>100-260 Bhn	155	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Free-cutting steels	≤24 Rc	195	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	>24-30 Rc	155	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Unalloyed heat-treatable steels	≤16 Rc	195	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
	16-24 Rc	155	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
	24-30 Rc	80	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Alloyed heat-treatable steels	24-30 Rc	95	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	80	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Unalloyed case hardened steels	≤230 Bhn	200	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Alloyed case hardened steels	24-30 Rc	90	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	65	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Nitriding steels	≥24-30 Rc	80	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>30-38 Rc	55	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Tool steels	≤24 Rc	95	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	>24-30 Rc	55	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
High speed steels	≥14-30 Rc	55	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Spring steels	≤330 Bhn	45	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Stainless steels, sulphured austenitic martensitic	≤24 Rc	80	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	≤24 Rc	55	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	≤24 Rc	65	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Hardened steels	≤40-48 Rc	15	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
	>48-60 Rc	45	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Rc	35	•	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	•	•	•
Cast iron	≤240 Bhn	195	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	<300 Bhn	155	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	170	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
	<300 Bhn	120	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Chilled cast iron	≤350 Bhn	45	•	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Ti and Ti-alloys	≤24 Rc	55	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
	>24-38 Rc	35	•	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Aluminium and Al-alloys	≤120 Bhn	•	•	•	•	•	•	•	•	•	•	
Al wrought alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	390	•	0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	•	•	•
	≤200 Bhn	310	•	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	•	•	•
Magnesium alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	
Copper, low-alloyed	≤120 Bhn	195	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Brass, short-chipping long-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	
	≤200 Bhn	245	•	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Bronze, short-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	
	>200-260 Bhn	170	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Bronze, long-chipping	≤24 Rc	155	•	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	