

Material group	Hardness		SFM	Feed Rate - IPR									
	HRC	BHN		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	-	< 150	475		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 32	< 301	395		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140			
Free-cutting steels	< 25	< 255	560		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
	< 32	< 301	475		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
Unalloyed heat-treatable steels	< 20	< 220	425		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
	< 25	< 255	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
Alloyed heat-treatable steels	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 43	< 402	345		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
Unalloyed case hardened steels	< 25	< 255	475		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
Alloyed case hardened steels	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 43	< 402	280		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
Nitriding steels	< 32	< 301	360		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 43	< 402	345		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
Tool steels	< 25	< 255	260		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140			
	< 43	< 402	215		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
High speed steels	< 43	< 402	195		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090			
Spring steels	< 38	< 354	195		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070			
Hardened steels	< 48	< 460	180		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070			
	< 66	-	115		0.0020	0.0030	0.0040	0.0050	0.0050	0.0055			
Stainless steels, sulphured	< 28	< 273	195		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
austenitic	< 36	< 337	180		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
martensitic	< 46	< 435	165		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110			
Cast iron	< 23	< 242	690		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
	< 38	< 354	525		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
Spheroidal graphite iron and malleable cast iron	< 23	< 242	460		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
	< 38	< 354	425		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
Chilled cast iron	< 38	< 354	130		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070			
New cast materials GGV	< 20	< 220											
	< 32	< 301											
New cast materials ADI	< 32	< 301											
	< 43	< 402											
Special alloys	< 54	< 549	115		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090			
Ti and Ti-alloys	< 25	< 255	150		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090			
	< 43	< 402	130		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090			
Aluminium and Al-alloys	-	< 120	1015		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
Al wrought alloys	-	< 200	1015		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
Al cast alloys ≤ 10 % Si	-	< 180	855		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
≤ 24 % Si	-	< 180	720		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265			
Magnesium alloys	-	< 120	920		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
Copper, low-alloyed	-	< 150	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
Brass, short-chipping	-	< 180	1065		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220			
long-chipping	-	< 180	720		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
Bronze, short-chipping	-	< 180	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180			
	< 25	< 255	345		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140			
Bronze, long-chipping	< 25	< 255	295		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140			
	< 32	< 301	260		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140			
Duroplastics													
Thermoplastics													
Reinforced plastics - Kevlar													
Reinforced plastics - GFK / CFK													

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Common structural steels	-	< 150	475		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 32	< 301	395		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160		
Free-cutting steels	< 25	< 255	560		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
	< 32	< 301	475		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
Unalloyed heat-treatable steels	< 20	< 220	425		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
	< 25	< 255	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
Alloyed heat-treatable steels	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 43	< 402	345		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
Unalloyed case hardened steels	< 25	< 255	475		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
Alloyed case hardened steels	< 32	< 301	395		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 43	< 402	280		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
Nitriding steels	< 32	< 301	350		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 43	< 402	330		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
Tool steels	< 25	< 255	240		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160		
	< 43	< 402	180		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
High speed steels	< 43	< 402	195		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100		
Spring steels	< 38	< 354	195		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080		
Hardened steels	< 48	< 460	180		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080		
	< 66	-	115		0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	0.0065		
Stainless steels, sulphured	< 28	< 273	195		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
austenitic	< 36	< 337	180		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
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Cast iron	< 23	< 242	690		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265	0.0290		
	< 38	< 354	525		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265	0.0290		
Spheroidal graphite iron and malleable cast iron	< 23	< 242	450		0.0100	0.0160	0.0200	0.0245	0.0245	0.0265	0.0290		
	< 38	< 354	425		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
Chilled cast iron	< 38	< 354	130		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080		
New cast materials GGV	< 20	< 220											
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Ti and Ti-alloys	< 25	< 255	150		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100		
	< 43	< 402	130		0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080		
Aluminium and Al-alloys	-	< 120	1015		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
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Al cast alloys ≤ 10 % Si	-	< 180	855		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
≤ 24 % Si	-	< 180	720		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
Magnesium alloys	-	< 120	920		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
Copper, low-alloyed	-	< 150	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
Brass, short-chipping	-	< 180	1065		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
long-chipping	-	< 180	720		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
Bronze, short-chipping	-	< 180	410		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200		
	< 25	< 255	345		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160		
Bronze, long-chipping	< 25	< 255	295		0.0050	0.0080	0.0100	0.0125	0.0125</				