

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													

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	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		
martensitic	≤ 46	≤ 435	165		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125		
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											
	≤ 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	0.0100		
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		
Al wrought alloys	-	≤ 200	1015		0.0080	0.0125	0.0160	0.0200	0.0200	0.0220	0.0245		
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	0.0140	0.0160		
	≤ 32	≤ 301	260		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160		