

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	360		0.0040	0.0065	0.0080	0.0100	0.0100				
	≤ 32	≤ 301	320		0.0030	0.0050	0.0065	0.0080	0.0080				
Free-cutting steels	≤ 25	≤ 255	390		0.0050	0.0080	0.0100	0.0125	0.0125				
	≤ 32	≤ 301	280		0.0040	0.0065	0.0080	0.0100	0.0100				
Unalloyed heat-treatable steels	≤ 20	≤ 220	250		0.0040	0.0065	0.0080	0.0100	0.0100				
	≤ 25	≤ 255	240		0.0040	0.0065	0.0080	0.0100	0.0100				
Alloyed heat-treatable steels	≤ 32	≤ 301	220		0.0040	0.0065	0.0080	0.0100	0.0100				
	≤ 43	≤ 402	180		0.0030	0.0050	0.0065	0.0080	0.0080				
Unalloyed case hardened steels	≤ 25	≤ 255	250		0.0050	0.0080	0.0100	0.0125	0.0125				
Alloyed case hardened steels	≤ 32	≤ 301	220		0.0040	0.0065	0.0080	0.0100	0.0100				
Nitriding steels	≤ 32	≤ 301	240		0.0030	0.0050	0.0065	0.0080	0.0080				
	≤ 43	≤ 402	200		0.0030	0.0050	0.0065	0.0080	0.0080				
Tool steels	≤ 25	≤ 255	120		0.0030	0.0050	0.0065	0.0080	0.0080				
	≤ 43	≤ 402	100		0.0030	0.0050	0.0065	0.0080	0.0080				
High speed steels	≤ 43	≤ 402	90		0.0025	0.0040	0.0050	0.0065	0.0065				
Spring steels	≤ 38	≤ 354											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Stainless steels, sulphured austenitic	≤ 28	≤ 273	70		0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 36	≤ 337	70		0.0025	0.0040	0.0050	0.0065	0.0065				
martensitic	≤ 46	≤ 435	50		0.0020	0.0030	0.0040	0.0050	0.0050				
	≤ 23	≤ 242	460		0.0050	0.0080	0.0100	0.0125	0.0125				
Cast iron	≤ 38	≤ 354	330		0.0050	0.0080	0.0100	0.0125	0.0125				
	≤ 23	≤ 242	330		0.0050	0.0080	0.0100	0.0125	0.0125				
Spheroidal graphite iron and malleable cast iron	≤ 38	≤ 354	295		0.0050	0.0080	0.0100	0.0125	0.0125				
	≤ 23	≤ 242	330		0.0050	0.0080	0.0100	0.0125	0.0125				
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25	≤ 255	60		0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 43	≤ 402	50		0.0020	0.0030	0.0040	0.0050	0.0050				
Aluminium and Al-alloys	-	≤ 120	560		0.0065	0.0100	0.0125	0.0160	0.0160				
Al wrought alloys	-	≤ 200	460		0.0050	0.0080	0.0100	0.0125	0.0125				
Al cast alloys ≤ 10 % Si	-	≤ 180	560		0.0065	0.0100	0.0125	0.0160	0.0160				
	-	≤ 24 % Si	460		0.0050	0.0080	0.0100	0.0125	0.0125				
Magnesium alloys	-	≤ 120	655		0.0050	0.0080	0.0100	0.0125	0.0125				
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180	690		0.0050	0.0080	0.0100	0.0125	0.0125				
	-	≤ 180	650		0.0050	0.0080	0.0100	0.0125	0.0125				
Bronze, short-chipping	-	≤ 180	600		0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics													
Thermoplastics													
Reinforced plastics - Kevlar													
Reinforced plastics - GFK / CFK													

Material group	Hardness		SFM	Feed Rate - IPR								
	HRC	BHN		.5 mm	1.0 mm	2.0 mm	2.5 mm	3.15 mm	4.0 mm	5.0 mm	6.3 mm	8 mm
Common structural steels	-	≤ 150	115	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
	≤ 32	≤ 301	100	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
Free-cutting steels	≤ 25	≤ 255	115	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
	≤ 32	≤ 301	115	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
Unalloyed heat-treatable steels	≤ 20	≤ 220	100	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
	≤ 25	≤ 255	80	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
Alloyed heat-treatable steels	≤ 32	≤ 301	70	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
	≤ 43	≤ 402	35	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
Unalloyed case hardened steels	≤ 25	≤ 255	100	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
Alloyed case hardened steels	≤ 32	≤ 301	60	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
Nitriding steels	≤ 32	≤ 301	45	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
	≤ 43	≤ 402	35	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
Tool steels	≤ 25	≤ 255	45	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
	≤ 43	≤ 402	25	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
High speed steels	≤ 43	≤ 402	25	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
Spring steels	≤ 38	≤ 354	25	0.0002	0.0003	0.0010	0.0013	0.0016	0.0020	0.0020	0.0025	0.0031
Hardened steels	≤ 48	≤ 460										
	≤ 66	-										
Stainless steels, sulphured austenitic	≤ 28	≤ 273	50	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
	≤ 36	≤ 337	35	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
martensitic	≤ 46	≤ 435	25	0.0003	0.0005	0.0013	0.0016	0.0020	0.0025	0.0025	0.0031	0.0039
	≤ 23	≤ 242	80	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
Cast iron	≤ 38	≤ 354	80	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
	≤ 23	≤ 242	100	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
Spheroidal graphite iron and malleable cast iron	≤ 38	≤ 354	80	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
	≤ 23	≤ 242	100	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
Chilled cast iron	≤ 38	≤ 354										
New cast materials GGV	≤ 20	≤ 220										
	≤ 32	≤ 301										
New cast materials ADI	≤ 32	≤ 301										
	≤ 43	≤ 402										
Special alloys	≤ 54	≤ 549	20	0.0002	0.0002	0.0008	0.0010	0.0013	0.0016	0.0016	0.0020	0.0025
Ti and Ti-alloys	≤ 25	≤ 255	20	0.0002	0.0003	0.0010	0.0013	0.0016	0.0020	0.0020	0.0025	0.0031
	≤ 43	≤ 402	15	0.0002	0.0003	0.0010	0.0013	0.0016	0.0020	0.0020	0.0025	0.0031
Aluminium and Al-alloys	-	≤ 120										
Al wrought alloys	-	≤ 200										
Al cast alloys ≤ 10 % Si	-	≤ 180	165	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
	-	≤ 24 % Si	180	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
Magnesium alloys	-	≤ 120	230	0.0005	0.0007	0.0025	0.0031	0.0039	0.0049	0.0049	0.0063	0.0079
Copper, low-alloyed	-	≤ 150	195	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
Brass, short-chipping	-	≤ 180	230	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
	-	≤ 180	150	0.0004	0.0006	0.0020	0.0025	0.0031	0.0039	0.0039	0.0049	0.0063
Bronze, short-chipping	-	≤ 180	115	0.0003	0.0006	0.0016	0.0020	0.0025	0.0031	0.0031	0.0039	0.0049
	≤ 25	≤ 255	100	0.0003	0.0006							