Series # 653

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	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
	>100-260 Bhn	115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
Free-cutting steels	≤24 Rc	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
	>24-30 Rc	115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
Unalloyed heat-treatable steels	≤16 Rc	145	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
	16-24 Rc	100	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
	24-30 Rc	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Alloyed heat-treatable steels	24-30 Rc	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>30-38 Rc	•	•	•	•	•	•	•	•	•	•	•
Unalloyed case hardened steels	≤230 Bhn	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
Alloyed case hardened steels	24-30 Rc	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>30-38 Rc	•	•	•	•	•	•	•	•	•	•	•
Nitriding steels	≥24-30 Rc	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>30-38 Rc	•	•	•	•	•	•	•	•	•	•	•
Tool steels	≤24 Rc	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>24-30 Rc	•	•	•	•	•	•	•	•	•	•	•
High speed steels	≥14-30 Rc	•	•	•	•	•	•	•	•	•	•	•
Spring steels	≤330 Bhn	•	•	•	•	•	•	•	•	•	•	•
Stainless steels, sulphured	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
austenitic	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
martensitic	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
Hardened steels	≤40-48 Rc	•	•	•	•	•	•	•	•	•	•	•
	>48-60 Rc	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Rc	•	•	•	•	•	•	•	•	•	•	•
Cast iron	≤240 Bhn	145	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
	<300 Bhn	115	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
Spheroidal graphite iron and	≤240 Bhn	130	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
malleable cast iron	<300 Bhn	90	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
Chilled cast iron	≤350 Bhn	•	•	•	•	•	•	•	•	•	•	•
Ti and Ti-alloys	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
	>24-38 Rc	•	•	•	•	•	•	•	•	•	•	•
Aluminium and Al-alloys	≤120 Bhn	•	•	•	•	•	•	•	•	•	•	•
Al wrought alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	•
Al cast alloys ≤ 10 % Si	≤200 Bhn	295	0.0020	0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200	0.0245	•
> 10 % Si	≤200 Bhn	260	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	•
Magnesium alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	•
Copper, low-alloyed	≤120 Bhn	145	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
Brass, short-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
long-chipping	≤200 Bhn	180	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
Bronze, short-chipping	≤200 Bhn	145	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>200-260 Bhn	130	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Bronze, long-chipping	≤24 Rc	110	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>24-30 Rc	90	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Duroplastics	–	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Thermoplastics	–	115	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	•
Reinforced plastics - Kevlar	–	•	•	•	•	•	•	•	•	•	•	•
Reinforced plastics - GFK / CFK	–	•	•	•	•	•	•	•	•	•	•	•