

Series # 654

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	130										
	≤ 32	≤ 301	100										
Free-cutting steels	≤ 25	≤ 255	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 32	≤ 301	100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Unalloyed heat-treatable steels	≤ 20	≤ 220	130		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 25	≤ 255	100		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
	≤ 32	≤ 301	50		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Alloyed heat-treatable steels	≤ 32	≤ 301	65		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Unalloyed case hardened steels	≤ 25	≤ 255	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Alloyed case hardened steels	≤ 32	≤ 301	55		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301	45		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255	65		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Stainless steels, sulphured austenitic martensitic	≤ 28	≤ 273											
	≤ 36	≤ 337											
	≤ 46	≤ 435											
Cast iron	≤ 23	≤ 242	130		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	100		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	115		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
	≤ 38	≤ 354	80		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
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											
	≤ 43	≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si ≤ 24 % Si	-	≤ 180	260		0.0065	0.0100	0.0125	0.0160	0.0160	0.0180	0.0200	0.0245	
	-	≤ 180	225		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Magnesium alloys	-	≤ 120	325		0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	0.0200	
Copper, low-alloyed	-	≤ 150	130		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Brass, short-chipping long-chipping	-	≤ 180											
	-	≤ 180	160		0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	0.0160	
Bronze, short-chipping	-	≤ 180	130		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 25	≤ 255	115		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Bronze, long-chipping	≤ 25	≤ 255	100		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
	≤ 32	≤ 301	80		0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK			65 100		0.0030 0.0040	0.0050 0.0065	0.0065 0.0080	0.0080 0.0100	0.0080 0.0100	0.0090 0.0110	0.0100 0.0125	0.0125 0.0160	

Series # 657

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											
	≤ 32	≤ 301											
Free-cutting steels	≤ 25	≤ 255											
	≤ 32	≤ 301											
Unalloyed heat-treatable steels	≤ 20	≤ 220											
	≤ 25	≤ 255											
	≤ 32	≤ 301											
Alloyed heat-treatable steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Unalloyed case hardened steels	≤ 25	≤ 255											
Alloyed case hardened steels	≤ 32	≤ 301	45	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301	40	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255	40	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402	40	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
Spring steels	≤ 38	≤ 354	30	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050				
Hardened steels	≤ 48	≤ 460	10	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040				
	≤ 66	-											
Stainless steels, sulphured austenitic martensitic	≤ 28	≤ 273	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080				
	≤ 36	≤ 337	40	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
	≤ 46	≤ 435	45	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Chilled cast iron	≤ 38	≤ 354	30	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065				
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549	25	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040				
Ti and Ti-alloys	≤ 25	≤ 255	40	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050				
	≤ 43	≤ 402	25	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050				
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si ≤ 24 % Si	-	≤ 180											
	-	≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping long-chipping	-	≤ 180											
	-	≤ 180											
Bronze, short-chipping	-	≤ 180											
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25	≤ 255	90	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080				
	≤ 32	≤ 301											
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK													