RPM = $\frac{SFM}{DIAM.\ in.}$ x 3.82 IPM = IPR x RPM $\frac{HOLE\ DEPTH\ in.}{IPM}$ x 60 = Cut Time mm = in. x 25.40 m/min. = SFM ÷ 3.28 mm/rev. = IPR x 25.40 Bar = PSI ÷ 14.50 Liter = Gal. ÷ 3.79

Series # 317

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	•	•	•	•	•	•	•	•	•	•	•
	>100-260 Bhn	•	•	•	•	•	•	•	•	•	•	•
Free-cutting steels	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
	>24-30 Rc	75	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Unalloyed heat-treatable steels	≤16 Rc	•	•	•	•	•	•	•	•	•	•	•
	16-24 Rc	75	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
	24-30 Rc	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Alloyed heat-treatable steels	24-30 Rc	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>30-38 Rc	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Unalloyed case hardened steels	≤230 Bhn	•	•	•	•	•	•	•	•	•	•	•
Alloyed case hardened steels	24-30 Rc	45	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>30-38 Rc	30	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Nitriding steels	≥24-30 Rc	35	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>30-38 Rc	25	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Tool steels	≤24 Rc	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>24-30 Rc	25	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
High speed steels	≥14-30 Rc	25	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Spring steels	≤330 Bhn	15	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	•	•	•
Stainless steels, sulphured	≤24 Rc	35	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
austenitic	≤24 Rc	25	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
martensitic	≤24 Rc	30	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
Hardened steels	≤40-48 Rc	•	•	•	•	•	•	•	•	•	•	•
	>48-60 Rc	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Rc	15	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040	0.0045	•	•	•
Cast iron	≤240 Bhn	95	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
	<300 Bhn	75	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Spheroidal graphite iron and	≤240 Bhn	75	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
malleable cast iron	<300 Bhn	65	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	•	•	•
Chilled cast iron	≤350 Bhn	15	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	•	•	•
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	•	•	•	•	•	•	•	•	•	•	•
> 10 % Si	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
Magnesium alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	•
Copper, low-alloyed	≤120 Bhn	95	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Brass, short-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
long-chipping	≤200 Bhn	120	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	•	•	•
Bronze, short-chipping	≤200 Bhn	95	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>200-260 Bhn	75	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Bronze, long-chipping	≤24 Rc	75	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
	>24-30 Rc	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Duroplastics	–	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	•	•	•
Thermoplastics	–	•	•	•	•	•	•	•	•	•	•	•
Reinforced plastics - Kevlar	–	•	•	•	•	•	•	•	•	•	•	•
Reinforced plastics - GFK / CFK	–	•	•	•	•	•	•	•	•	•	•	•

Series # 329

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	•	•	•	•	•	•	•	•	•	•	•
	>100-260 Bhn	•	•	•	•	•	•	•	•	•	•	•
Free-cutting steels	≤24 Rc	•	•	•	•	•	•	•	•	•	•	•
	>24-30 Rc	95	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	•	•
Unalloyed heat-treatable steels	≤16 Rc	•	•	•	•	•	•	•	•	•	•	•
	16-24 Rc	95	0.0015	0.0040	0.0065	0.0080	0.0100	0.0100	0.0110	0.0125	•	•
	24-30 Rc	70	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
Alloyed heat-treatable steels	24-30 Rc	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
	>30-38 Rc	50	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Unalloyed case hardened steels	≤230 Bhn	•	•	•	•	•	•	•	•	•	•	•
Alloyed case hardened steels	24-30 Rc	55	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
	>30-38 Rc	45	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Nitriding steels	≥24-30 Rc	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
	>30-38 Rc	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Tool steels	≤24 Rc	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
	>24-30 Rc	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
High speed steels	≥14-30 Rc	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Spring steels	≤330 Bhn	30	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	0.0065	•	•
Stainless steels, sulphured	≤24 Rc	50	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	•	•
austenitic	≤24 Rc	35	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
martensitic	≤24 Rc	45	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Hardened steels	≤40-48 Rc	•	•	•	•	•	•	•	•	•	•	•
	>48-60 Rc	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Rc	25	0.0005	0.0015	0.0025	0.0030	0.0040	0.0040	0.0045	0.0050	•	•
Cast iron	≤240 Bhn	130	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	•	•
	<300 Bhn	95	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	•	•
Spheroidal graphite iron and	≤240 Bhn	115	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	•	•
malleable cast iron	<300 Bhn	90	0.0017	0.0050	0.0080	0.0100	0.0125	0.0125	0.0140	0.0160	•	•
Chilled cast iron	≤350 Bhn	30	0.0010	0.0025	0.0040	0.0050	0.0065	0.0065	0.0070	0.0080	•	•
Ti and Ti-alloys	≤24 Rc	35	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	0.0065	•	•
	>24-38 Rc	25	0.0007	0.0020	0.0030	0.0040	0.0050	0.0050	0.0055	0.0065	•	•
Aluminium and Al-alloys	≤120 Bhn	•	•	•	•	•	•	•	•	•	•	•
Al wrought alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	•
Al cast alloys ≤ 10 % Si	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
> 10 % Si	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
Magnesium alloys	≤150 Bhn	•	•	•	•	•	•	•	•	•	•	•
Copper, low-alloyed	≤120 Bhn	•	•	•	•	•	•	•	•	•	•	•
Brass, short-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
long-chipping	≤200 Bhn	•	•	•	•	•	•	•	•	•	•	•
Bronze, short-chipping	≤200 Bhn	130	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>200-260 Bhn	115	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Bronze, long-chipping	≤24 Rc	95	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
	>24-30 Rc	80	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Duroplastics	–	65	0.0012	0.0030	0.0050	0.0065	0.0080	0.0080	0.0090	0.0100	0.0125	•
Thermoplastics	–	•	•	•	•	•	•	•	•	•	•	•
Reinforced plastics - Kevlar	–	•	•	•	•	•	•	•	•	•	•	•
Reinforced plastics - GFK / CFK	–	•	•	•	•	•	•	•	•	•	•	•