

$$\text{RPM} = \frac{\text{SFM}}{\text{DIAM. in.}} \times 3.82 \quad \text{IPM} = \text{IPR} \times \text{RPM}$$

$$\frac{\text{HOLE DEPTH in.}}{\text{IPM}} \times 60 = \text{Cut Time}$$

$$\text{mm} = \text{in.} \times 25.40$$

$$\text{m/min.} = \text{SFM} \div 3.28$$

$$\text{mm/rev.} = \text{IPR} \div 25.40$$

$$\text{Bar} = \text{PSI} \div 14.50$$

$$\text{Liter} = \text{Gal.} \div 3.79$$

## Series # 4110 body (10xD) with # 4112 insert

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. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm	1 1/4 in. 31.75mm	1 1/2 in. 38.10mm
Common structural steels	≤ 100 BHN	425	•	•	•	•	0.008	0.010	0.010	0.016	0.016	0.020
	100-260 BHN	360	•	•	•	•	0.006	0.008	0.012	0.012	0.012	0.016
Free-cutting steels	≤ 24 HRC	425	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	24-30 HRC	360	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Unalloyed heat-treatable steels	≤ 16 HRC	425	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	16-24 HRC	410	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	24-30 HRC	360	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Alloyed heat-treatable steels	24-30 HRC	360	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	30-38 HRC	295	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Unalloyed case hardened steels	≤ 230 BHN	425	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Alloyed case hardened steels	24-30 HRC	360	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	30-38 HRC	230	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Nitriding steels	24-30 HRC	345	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Tool steels	30-38 HRC	230	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
	≤ 24 HRC	195	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
High speed steels	24-30 HRC	180	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
Spring steels	14-30 HRC	180	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Stainless steels	≤ 330 BHN	165	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	sulphured austenitic martensitic	≤ 24 HRC	180	•	•	•	•	0.004	0.005	0.006	0.008	0.008
24 HRC		130	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
24 HRC		115	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Hardened steels	40-48 HRC	80	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008
	48-60 HRC	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤ 38 HRC	80	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008
Ti and Ti-alloys	≤ 24 HRC	130	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	24-38 HRC	115	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008

## Series # 4110 body (10xD) with # 4113 insert

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
Cast iron	≤240 Bhn	330	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	240-300 Bhn	295	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
New Cast Materials CGI & ADI	220-300 Bhn	260	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
New Cast Materials CGI & ADI	350-410 Bhn	260	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	395	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
	240-300 Bhn	330	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025

## Series # 4110 body (10xD) with # 4114 insert

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
Aluminium and Al-alloys	≤120 Bhn	655	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Al wrought alloys	≤150 Bhn	590	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Al cast alloys ≤ 10% Si	≤200 Bhn	490	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	≤ 24% Si	395	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Magnesium alloys	≤150 Bhn	590	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Copper, low-alloyed	≤120 Bhn	230	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Brass, short-chipping	≤200 Bhn	590	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	≤200 Bhn	395	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Bronze, short-chipping	≤200 Bhn	230	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	200-260 Bhn	165	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Bronze, long-chipping	≤24 Hrc	150	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	24-30 Hrc	115	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016

## Series # 4110 body (10xD) with # 4115 insert

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
Stainless steels, sulphured austenitic martensitic	≤24 Hrc	180	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	≤24 Hrc	130	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	≤24 Hrc	115	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Hardened steels	40-48 Hrc	80	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008
	48-60 Hrc	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤38 Hrc	80	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008
Chilled cast iron	≤350 Bhn	295	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Ti and Ti-alloys	≤24 Rc	130	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	24-38 Rc	115	•	•	•	•	0.003	0.004	0.005	0.006	0.006	0.008