

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

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

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

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

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

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

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

### Series # 2747 / # 5242 (3xD body)

Material group	Hardness	SFM	Feed Rate - IPR					
			≤16.000 mm	41/64 - 25/32 in. 16.001 - 20.000 mm	51/64 - 31/32 in. 20.001 - 25.000 mm	63/64 - 1 17/64 in. 25.001 - 31.500 mm	1 1/4 - 1 9/16 in. 31.501 - 40.000 mm	1 37/64 - 1 61/64 in. 40.001 - 50.000 mm
Common structural steels	≤100 Bhn >100-260 Bhn	• •	• •	• •	• •	• •	• •	• •
Free-cutting steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed heat-treatable steels	≤16 Rc 16-24 Rc 24-30 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Alloyed heat-treatable steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed case hardened steels	≤230 Bhn	•	•	•	•	•	•	•
Alloyed case hardened steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Nitriding steels	≥24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Tool steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
High speed steels	≥14-30 Rc	•	•	•	•	•	•	•
Spring steels	≤330 Bhn	•	•	•	•	•	•	•
Stainless steels, sulphured austenitic martensitic	≤24 Rc ≤24 Rc ≤24 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Hardened steels	≤40-48 Rc >48-60 Rc	• •	• •	• •	• •	• •	• •	• •
Special alloys	≤38 Rc	•	•	•	•	•	•	•
Cast iron	≤240 Bhn >240-300 Bhn	325 260	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200	0.0200 0.0200	0.0250 0.0250	0.0315 0.0315
Spheroidal graphite iron and malleable cast iron	≤240 Bhn >240-300 Bhn	260 230	0.0125 0.0100	0.0160 0.0125	0.0200 0.0160	0.0200 0.0160	0.0250 0.0200	0.0315 0.0250
Chilled cast iron	≤350 Bhn	35	0.0040	0.0050	0.0065	0.0065	0.0080	0.0100
Ti and Ti-alloys	≤24 Rc >24-38 Rc	• •	• •	• •	• •	• •	• •	• •
Aluminium and Al-alloys	≤120 Bhn	660	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Al wrought alloys	≤150 Bhn	595	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn ≤200 Bhn	490 390	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200	0.0200 0.0200	0.0250 0.0250	0.0315 0.0315
Magnesium alloys	≤150 Bhn	590	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Copper, low-alloyed	≤120 Bhn	225	0.0100	0.0125	0.0160	0.0160	0.0200	0.0250
Brass, short-chipping long-chipping	≤200 Bhn ≤200 Bhn	585 390	0.0125 0.0100	0.0160 0.0125	0.0200 0.0160	0.0200 0.0160	0.0250 0.0200	0.0315 0.0250
Bronze, short-chipping	≤200 Bhn >200-260 Bhn	230 160	0.0100 0.0100	0.0125 0.0125	0.0160 0.0160	0.0160 0.0160	0.0200 0.0200	0.0250 0.0250
Bronze, long-chipping	≤24 Rc >24-30 Rc	145 115	0.0100 0.0080	0.0100 0.0100	0.0125 0.0125	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200
Duroplastics	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Thermoplastics	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Reinforced plastics - Kevlar	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Reinforced plastics - GFK / CFK	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200

### Series # 2747 / # 5243 (5xD body)

Material group	Hardness	SFM	Feed Rate - IPR					
			≤16.000 mm	41/64 - 25/32 in. 16.001 - 20.000 mm	51/64 - 31/32 in. 20.001 - 25.000 mm	63/64 - 1 17/64 in. 25.001 - 31.500 mm	1 1/4 - 1 9/16 in. 31.501 - 40.000 mm	1 37/64 - 1 61/64 in. 40.001 - 50.000 mm
Common structural steels	≤100 Bhn >100-260 Bhn	• •	• •	• •	• •	• •	• •	• •
Free-cutting steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed heat-treatable steels	≤16 Rc 16-24 Rc 24-30 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Alloyed heat-treatable steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed case hardened steels	≤230 Bhn	•	•	•	•	•	•	•
Alloyed case hardened steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Nitriding steels	≥24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Tool steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
High speed steels	≥14-30 Rc	•	•	•	•	•	•	•
Spring steels	≤330 Bhn	•	•	•	•	•	•	•
Stainless steels, sulphured austenitic martensitic	≤24 Rc ≤24 Rc ≤24 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Hardened steels	≤40-48 Rc >48-60 Rc	• •	• •	• •	• •	• •	• •	• •
Special alloys	≤38 Rc	•	•	•	•	•	•	•
Cast iron	≤240 Bhn >240-300 Bhn	295 230	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200	0.0200 0.0200	0.0250 0.0250	0.0315 0.0315
Spheroidal graphite iron and malleable cast iron	≤240 Bhn >240-300 Bhn	230 195	0.0125 0.0100	0.0160 0.0125	0.0200 0.0160	0.0200 0.0160	0.0250 0.0200	0.0315 0.0250
Chilled cast iron	≤350 Bhn	35	0.0040	0.0050	0.0065	0.0065	0.0080	0.0100
Ti and Ti-alloys	≤24 Rc >24-38 Rc	• •	• •	• •	• •	• •	• •	• •
Aluminium and Al-alloys	≤120 Bhn	595	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Al wrought alloys	≤150 Bhn	595	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn ≤200 Bhn	455 355	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200	0.0200 0.0200	0.0250 0.0250	0.0315 0.0315
Magnesium alloys	≤150 Bhn	590	0.0125	0.0160	0.0200	0.0200	0.0250	0.0315
Copper, low-alloyed	≤120 Bhn	230	0.0100	0.0125	0.0160	0.0160	0.0200	0.0250
Brass, short-chipping long-chipping	≤200 Bhn ≤200 Bhn	585 390	0.0125 0.0100	0.0160 0.0125	0.0200 0.0160	0.0200 0.0160	0.0250 0.0200	0.0315 0.0250
Bronze, short-chipping	≤200 Bhn >200-260 Bhn	230 160	0.0100 0.0100	0.0125 0.0125	0.0160 0.0160	0.0160 0.0160	0.0200 0.0200	0.0250 0.0250
Bronze, long-chipping	≤24 Rc >24-30 Rc	145 115	0.0100 0.0080	0.0125 0.0100	0.0160 0.0125	0.0160 0.0125	0.0200 0.0160	0.0250 0.0200
Duroplastics	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Thermoplastics	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Reinforced plastics - Kevlar	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Reinforced plastics - GFK / CFK	-	165	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200

Feeds/Speeds

**Using These Tables.** The Speeds & Feeds listed below are conservative recommendations for initial setup. In actual use, depending on the machining environment and workpiece material, significantly higher speeds and feeds may be achievable. Using the below as a starting point, cutting speed/feed can be gradually adjusted upwards until the optimum settings per application are found. Questions? Contact us by telephone at (800) 776-6170.

## Series # 2747 / # 5248 (7xD body)

Material group	Hardness	SFM	Feed Rate - IPR					
			≤16.000 mm	41/64 - 25/32 in. 16.001 - 20.000 mm	51/64 - 31/32 in. 20.001 - 25.000 mm	63/64 - 1 17/64 in. 25.001 - 31.500 mm	1 1/4 - 1 9/16 in. 31.501 - 40.000 mm	1 37/64 - 1 61/64 in. 40.001 - 50.000 mm
Common structural steels	≤100 Bhn >100-260 Bhn	• •	• •	• •	• •	• •	• •	• •
Free-cutting steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed heat-treatable steels	≤16 Rc 16-24 Rc 24-30 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Alloyed heat-treatable steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Unalloyed case hardened steels	≤230 Bhn	•	•	•	•	•	•	•
Alloyed case hardened steels	24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Nitriding steels	≥24-30 Rc >30-38 Rc	• •	• •	• •	• •	• •	• •	• •
Tool steels	≤24 Rc >24-30 Rc	• •	• •	• •	• •	• •	• •	• •
High speed steels	≥14-30 Rc	•	•	•	•	•	•	•
Spring steels	≤330 Bhn	•	•	•	•	•	•	•
Stainless steels, sulphured austenitic martensitic	≤24 Rc ≤24 Rc ≤24 Rc	• • •	• • •	• • •	• • •	• • •	• • •	• • •
Hardened steels	≤40-48 Rc >48-60 Rc	• •	• •	• •	• •	• •	• •	• •
Special alloys	≤38 Rc	•	•	•	•	•	•	•
Cast iron	≤240 Bhn <300 Bhn	295 230	0.0100 0.0100	0.0125 0.0125	0.0160 0.0160	0.0160 0.0160	0.0200 0.0200	0.0250 0.0250
Spheroidal graphite iron and malleable cast iron	≤240 Bhn <300 Bhn	230 195	0.0100 0.0080	0.0125 0.0100	0.0160 0.0125	0.0160 0.0125	0.0200 0.0160	0.0250 0.0200
Chilled cast iron	≤350 Bhn	35	0.0040	0.0050	0.0065	0.0065	0.0080	0.0100
Ti and Ti-alloys	≤24 Rc >24-38 Rc	• •	• •	• •	• •	• •	• •	• •
Aluminium and Al-alloys	≤120 Bhn	595	0.0100	0.0125	0.0160	0.0160	0.0200	0.0250
Al wrought alloys	≤150 Bhn	595	0.0100	0.0125	0.0160	0.0160	0.0200	0.0250
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn ≤200 Bhn	455 355	0.0100 0.0100	0.0125 0.0125	0.0160 0.0160	0.0160 0.0160	0.0200 0.0200	0.0250 0.0250
Magnesium alloys	≤150 Bhn	590	0.0100	0.0125	0.0160	0.0160	0.0200	0.0250
Copper, low-alloyed	≤120 Bhn	230	0.0080	0.0100	0.0125	0.0125	0.0160	0.0200
Brass, short-chipping long-chipping	≤200 Bhn ≤200 Bhn	585 390	0.0100 0.0080	0.0125 0.0100	0.0160 0.0125	0.0160 0.0125	0.0200 0.0160	0.0250 0.0200
Bronze, short-chipping	≤200 Bhn >200-260 Bhn	230 160	0.0080 0.0080	0.0100 0.0100	0.0125 0.0125	0.0125 0.0125	0.0160 0.0160	0.0200 0.0200
Bronze, long-chipping	≤24 Rc >24-30 Rc	145 115	0.0080 0.0065	0.0100 0.0080	0.0125 0.0100	0.0125 0.0100	0.0160 0.0125	0.0200 0.0160
Duroplastics	-	165	0.0065	0.0080	0.0100	0.0100	0.0125	0.0160
Thermoplastics	-	165	0.0065	0.0080	0.0100	0.0100	0.0125	0.0160
Reinforced plastics - Kevlar	-	165	0.0065	0.0080	0.0100	0.0100	0.0125	0.0160
Reinforced plastics - GFK / CFK	-	165	0.0065	0.0080	0.0100	0.0100	0.0125	0.0160

Note: When drilling from solid with #5248 holder, spot drilling (≥140° point angle to a depth of at least 2/3 insert diameter) is recommended.