

### Series Koolcarb, Kooltwist, Durapoint, Carbide-Tipped

#### 2 FL | Carbide | Carbide-Tip | Drills



Material Group No.	Material / Workpiece	Chip Class	Tool Group							
			SOLID CARBIDE NON-COOLANT FED						CARBIDE TIP NON-COOLANT FED	
			High Penetration Spiral Flute	High Penetration Spiral Flute	Standard Helix	3 Flute High Helix	Str. Flute Heavy Duty	Bore Drill Straight Flute	Standard Helix	Str. Flute Heavy Duty
			TIN TiAlN	TiCN						
			A	B	D	C	E	F	G	J
1	Aluminum Alloys [ < 5% Si ] 2011 6061 2014 7075 2024	( )	(12) 250-450	○	(6-7) a 150-350	(8-9) 200-400	○	○	○	○
2	Aluminum [ > 5% Si ] AZ61A 356 319 380 355 390	( )	(12) 350-600	○	(6-7) 200-400	(8-9) 300-500	○	(6-7) 200-400	(6-7) 150-350	○
3	Copper - Zinc (Brass) 268-Yellow 464-Naval 380-Free Cut 836-Red	( )	(9) 200-400	○	(5-6) a 150-300	(7-8) 175-350	(4-5) 150-300	(4-5) 150-300	(5-6) 150-300	(4-5) 150-300
4	Copper Alloys (Bronze) 510-Phos. Bronze 614-Alum. Bronze 905-Tin Bronze	( )	(9) 200-400	○	(5-6) 150-250	(6-7) 200-300	(4-5) 150-250	(4-5) 150-300	(5-6) 150-300	(4-5) 150-200
5	Cast (Grey) Iron G3000 G4500 G4000 G5500	( )	(9-10) 150-350	○	(5-7) 150-300	(6-8) 175-325	○	(5-6) 200-350	(5-7) 150-225	○
6	Ductile (Nodular) Iron Powder Metal D4018 80-55-06 60-40-18 100-70-03 65-45-12	( )	(9) 150-300	(9) 150-300	(4-6) 150-250	(6-8) 150-250	○	(3-5) 150-250	(4-6) 125-275	○
7	Carbon Steels [ ≤ 35C ] 1018 5120 4118 1035 5134 4130 1117 8620 516-70 1215 9310 4620	( )	(8) 150-250	(10-11) 200-350	○	○	○	○	○	○
8	Medium Carbon Steels [ > 35 to 50C ] P20 1541 1045 4140 1050 4150 1141 4340 1144 6150	( )	(6-8) 150-250	(6-8) 130-220	○	○	○	○	○	○
9	High Carbon and Tool Steels [ > 50C ] A-2 M-2 D-2 O-1 H-13 S-7	( )	(5-7) 80-140	(5-7) 65-120	○	○	(1-2) 60-125	○	○	(1-2) 60-125
10	Hardened Steels (48 to 65Rc)	( )	(1-2) 40-80	○	○	○	(1) 25-60	○	○	(1) 25-60
11	Free Machining Stainless Steel 303 440F	( )	(5-6) 100-200	○	(3-5) 80-180	(4-6) 80-180	(2-3) 80-180	○	(3-4) 80-160	○
12	Stainless Steel 15-5PH 316 17-4PH 410 440	( )	(5-6) 90-150	(5-6) 90-150	(3-5) 60-140	(4-6) 60-140	(2-3) 60-140	○	○	○
13	High Nickel Stainless Steel Nitronic 50 304 321 13-8	( )	(5-6) 30-70	(5-6) 30-70	○	○	○	○	○	○
14	Titanium 6AL4V Commercially Pure = Type B Tool	( )	(5-6) 60-120	(5-7) 55-110	(3-5) 50-90	(3-5) 50-90	(2-3) 50-100	○	(2-3) 40-80	○
15	Moderate Temperature Alloys Inconel 718	( )	(2-3) 50-100	○	○	○	(1-2) 50-100	○	○	○
16	High Temperature Alloys Rene Hastelloy L605	( )	(2-3) 25-80	○	○	○	(1-2) 25-80	○	○	(1-2) 25-80
17	Hard Plastics, Resin Fiberglass, Graphite and Carbon	( )	○	○	(3-5) 100-200	(4-6) 125-225	○	○	(3-5) 100-200	○

(Feed Curve) Notes

SFM - Surface Feet per Minute

Most Appropriate    Occasionally Appropriate    Do Not Use