

**Series 450, 453, 460, 470**

General Purpose Drills | 2 & 3 FL | Twist | Straight

Material				(IPR) Cutting Tool Diameter								
				Hardness	SFM	1/32	1/16	1/8	1/4	3/8	1/2	5/8
<b>P</b>	Steel	Free Machining & Low Carbon: 10XX, 11XX, 12XX, A36	≤ 28 Rc	175								
	Steel	Medium/High Carbon Steels, Alloy Steels: 13XX, 41XX, 43XX, 86XX	28-38 Rc	165	0.0010	0.0020	0.0030	0.0060	0.0080	0.0100	0.0110	0.0120
	Die Steels	A2, H13, L6, P20, S7	28-44 Rc	150								
<b>M</b>	Stainless Steels	Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	≤ 28 Rc	140	0.0010	0.0020	0.0030	0.0060	0.0080	0.0100	0.0110	0.0120
	Stainless Steels	Moderately Difficult to Machine, Nitronic 50, 301, 303, 304, 304L, 316, 316L, 321, 347	≤ 28 Rc	60	0.0003	0.0005	0.0020	0.0040	0.0050	0.0060	0.0080	0.0100
<b>S</b>	Super Alloys	High Temp, Nimonic, Inconel, Monel, Hastelloy	≤ 42 Rc	60								
	Super Alloys	Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al	≤ 42 Rc	80	0.0003	0.0005	0.0020	0.0040	0.0050	0.0060	0.0080	0.0100
<b>H</b>	Hardened Steels	4140H, P20, H13	35-45 Rc	50	0.0003	0.0010	0.0010	0.0010	0.0020	0.0020	0.0020	0.0030
<b>K</b>	Cast Iron	Gray: SAE J431, ASTM A48	160-200 HB	175								
	Cast Iron	Ductile & Malleable, ASTM A536, ASTM 897, ASTM A47, ASTM A220	200-250 HB	175	0.0010	0.0020	0.0030	0.0060	0.0080	0.0100	0.0110	0.0120
<b>N</b>	Non-Ferrous	Aluminum, Brass, Bronze, Copper, Plastics	-	300								
	Non-Ferrous	Kevlar/Graphite	-	375	0.0003	0.0005	0.0020	0.0040	0.0050	0.0060	0.0080	0.0100