

# Miniature Solid Carbide Drills

## Speed and Feed Recommendations

### List No. 5372

	WORKPIECE MATERIAL	HARDNESS	SURFACE SPEED (SFM)	FEED PER REVOLUTION BY DRILL DIA. (IPR)				
				1/64"	1/32"	1/16"	3/32"	1/8"
ISO P	<b>Free Machining &amp; Low Carbon Steels:</b> 1006, 1008, 1015, 1018, B3: B34 1020, 1022, 1025, 1117, 1140, 1141, 11L08, 11L14, 1213, 12L13, 12L14, 1215, 1330	≤ 28 Rc	300	.0003	.0006	.0012	.0018	.0023
	<b>Medium Carbon &amp; High Carbon Steels, Alloy Steels &amp; Easy to Machine Tool Steels:</b> 1030, 1035, 1040, 1045, 1050, 1052, 1055, 1060, 1085, 1095, 1541, 1551, 9255, 2515, 3135, 3415, 4130, 4137, 4140, 4150, 4320, 4340, 4520, 5015, 5115, 5120, 5132, 5140, 5155, 6150, 8620, 9262, 9840, 52100, O1, O2, O6, S2, W1 to W310	28 - 38 Rc	225	.0003	.0006	.0012	.0018	.0023
	<b>Tool Steels &amp; Die Steels:</b> O7, M1, M2, M3, M4, M7, T1, T2, T4, T5, T8, T15, A2, A3, A6, A7, H10, H11, H12, H13, H19, H21, L3, L6, L7, P2, P20, S1, S5, S7, 52100, A 128, D2, D3, D4, D5, D7	28 - 44 Rc	200	.0003	.0006	.0012	.0018	.0023
ISO H	<b>Hardened Steels:</b> A2 / 52100	35 - 45 Rc	50	.0001	.0003	.0005	.0008	.0010
ISO M	<b>Free Machining Stainless Steels:</b>	≤ 28 Rc	175	.0003	.0006	.0012	.0018	.0023
	<b>Austenitic Stainless Steels:</b> 304 / 316	≤ 28 Rc	200	.0003	.0006	.0012	.0018	.0023
	<b>Ferritic / Martensitic Stainless Steels:</b>	≤ 28 Rc	100	.0003	.0006	.0012	.0018	.0023
	<b>Moderately Difficult Stainless Steels:</b> 301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH	> 28 Rc	75	.0003	.0006	.0012	.0018	.0023
ISO N	<b>Aluminum &lt;10% Si:</b>		450	.0006	.0012	.0020	.0030	.0040
	<b>Aluminum &gt;10% Si:</b>		325	.0006	.0012	.0020	.0030	.0040
	<b>Plastics:</b>		550	.0006	.0012	.0020	.0030	.0040
	<b>Composites / Fiber Reinforced Materials / Circuit Boards:</b>		650	.001-.0015	.0020	.0030	.0040	.0050
ISO K	<b>Cast Iron - Gray CG:</b> ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40	≤ 240 HB	400	.0003	.0006	.0012	.0018	.0023
	<b>Cast Iron - Ductile &amp; Malleable CGI:</b> 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450	> 240 HB	350	.0003	.0006	.0012	.0018	.0023
ISO S	<b>Titanium:</b> 6Al-4V	≤ 42 Rc	60	.0003	.0006	.0012	.0018	.0023
	<b>High Temp Alloys:</b> Inconel, Hastelloy, Waspeloy, Nickel Based Alloys, Monel	≤ 42 Rc	50	.0001	.0003	.0005	.0008	.0010

Speeds and Feeds are suggested starting points and may be increased or decreased depending on actual material and machining conditions.

**NOTE:** Information in this chart is for reference only. We will not be held liable for any consequential damages or economic loss due to the use of information contained within this chart.