

Solid Carbide 118 Degree Point Spade Drill Router Bits

Operating RPM: 18,000

Material

RPM / IPM* / Spindle Speed SFM** / Chip Load IPR***

1/8" (0.125)

3/16" (0.1875)

1/4" (0.250)

5/16" (0.3125)

3/8" (0.375)

Material	1/8" (0.125)	3/16" (0.1875)	1/4" (0.250)	5/16" (0.3125)	3/8" (0.375)
High Si Aluminum >10%	10,700 / 32" / 350 / .003"	8,020 / 29" / 350 / .004"	5,350 / 27" / 350 / .005"	4,450 / 25" / 350 / .006"	3,550 / 23" / 350 / .007"
Low Si Aluminum <10%	13,000 / 39" / 425 / .003"	9,750 / 38" / 425 / .004"	6,500 / 36" / 425 / .006"	5,400 / 33" / 425 / .006"	4,300 / 30" / 425 / .007"
Brass & Copper	8,250 / 25" / 270 / .003"	6,120 / 23" / 270 / .004"	4,000 / 21" / 270 / .005"	3,370 / 20" / 270 / .006"	2,750 / 19" / 270 / .007"
Graphite	10,700 / 32" / 350 / .003"	8,020 / 29" / 350 / .004"	5,350 / 27" / 350 / .005"	4,450 / 25" / 350 / .006"	3,550 / 23" / 350 / .007"
Cast Iron	3,650 / 11" / 120 / .003"	2,740 / 10" / 120 / .004"	1,830 / 9" / 120 / .005"	1,520 / 9" / 120 / .006"	1,220 / 8" / 120 / .007"
Hardened Steels >48 RC	1,830 / 4" / 60 / .002"	1,370 / 3" / 60 / .003"	920 / 3" / 60 / .004"	760 / 3" / 60 / .004"	600 / 2" / 60 / .004"
Steels	3,360 / 8" / 110 / .003"	2,520 / 7" / 110 / .003"	1,680 / 7" / 110 / .004"	1,400 / 7" / 110 / .005"	1,120 / 6" / 110 / .006"
Stainless Steels	2,440 / 5" / 80 / .002"	1,830 / 4" / 80 / .003"	1,220 / 4" / 80 / .004"	1,010 / 4" / 80 / .004"	800 / 4" / 80 / .005"
Titanium	1,370 / 3" / 45 / .002"	1,030 / 2" / 45 / .003"	690 / 2" / 45 / .004"	570 / 2" / 45 / .004"	450 / 2" / 45 / .004"

Tool Reference #'s	
51682	1/8" Dia.
51684	3/16" Dia.
51686	1/4" Dia.
51688	5/16" Dia.
51689	3/8" Dia.

IPM* Inches per minute

SFM** Surface feet per minute

IPR*** Inches per revolution

Simple Machining Calculations:

To find **RPM**: SFM x 3.82 / diameter of tool

To find **SFM**: 0.262 x diameter of tool x RPM

To find **Feed Rate**: RPM x # of flutes x chip load

To find **Chip Load**: IPM / (RPM x # of Flutes)

Depth of Cut: 1 x D Use recommended chip load

2 x D Reduce chip load by 25%

3 x D Reduce chip load by 50%

Disclaimer: These values are based on test results using 18,000 RPM. Your results may vary. It is important to understand that these values are only recommendations.