Amana Tool®

INDUSTRIAL DIAMOND TECHNOLOGY

Polycrystalline Diamond (PCD) 60° and 90° Engraving, V-Grooving and Chamfering CNC Router Bits

Tool No. DRB-416 (60°)			Surface Cutting Speed		Chip Load Per Tooth		RPM		Feed Rate	
Material	**Diameter** Inch/mm	**No. Teeth**	**From** Inch (mm)/min	**To** Inch (mm)/min	**From** Inch (mm)/min	**To** Inch (mm)/min	**From**	**To**	**From** Inch (mm)/min	**To** Inch (mm)/min
Titanium	1/4" (6.35mm)	2	1.5" (40mm)	2" (45mm)	.002" (0.05mm)	.006" (0.15mm)	2,000	2,300	8" (201mm)	27" (677mm)
Wood	1/4" (6.35mm)	2	12" (300mm)	20" (500mm)	.002" (0.05mm)	.007" (0.17mm)	15,000	24,000	60" (1,505mm)	340" (8,526mm)
Homogenous Marble	1/4" (6.35mm)	2	2" (50mm)	8" (200mm)	.002" (0.05mm)	.007" (0.17mm)	2,500	10,000	10" (251mm)	140" (3,410mm)
MDF with or Without Coating	1/4" (6.35mm)	2	9.5" (240mm)	16" (405mm)	.0016" (0.04mm)	.0056" (0.14mm)	12,000	19,000	50" (1270mm)	270" (6858mm)
Chipboard with or without Coating	1/4" (6.35mm)	2	13" (330mm)	22"(560mm)	.002" (0.05mm)	.008" (0.2mm)	16,500	24,000	65" (1651mm)	375" (9525mm)
Veneer across grain	1/4" (6.35mm)	2	8.5" (215mm)	14" (355mm)	.002" (0.05mm)	.007" (0.17mm)	10,500	16,500	40" (1016mm)	240" (6096mm)
Aluminum	1/4" (6.35mm)	2	11" (280mm)	18" (460mm)	.002" (0.05mm)	.007" (0.17mm)	13,500	21,500	55" (1397mm)	300" (7620mm)

Tool No. DRB-418 (90°)			Surface Cutting Speed		Chip Load Per Tooth		RPM		Feed Rate	
Material	**Diameter** Inch/mm	**No. Teeth**	**From** Inch (mm)/min	**To** Inch (mm)/min	**From** Inch (mm)/min	**To** Inch (mm)/min	**From**	**To**	**From** Inch (mm)/min	**To** Inch (mm)/min
Titanium	1/2" (12.7mm)	1	1.5" (35mm)	2.5" (60mm)	.002" (0.05mm)	.006" (0.15mm)	880	1,500	1.7" (44mm)	9" (226mm)
Wood	1/2" (12.7mm)	1	12" (300mm)	20" (500mm)	.002" (0.05mm)	.007" (0.17mm)	15,000	24,000	60" (1,505mm)	340" (8,526mm)
Homogenous Marble	1/2" (12.7mm)	1	2" (50mm)	8" (200mm)	.002" (0.05mm)	.007" (0.17mm)	1,250	5,000	2.5" (63mm)	35" (853mm)
MDF with or Without Coating	1/2" (12.7mm)	1	9.5" (240mm)	16" (405mm)	.0016" (0.04mm)	.0056" (0.14mm)	12,000	19,000	50" (1270mm)	270" (6858mm)
Chipboard with or without Coating	1/2" (12.7mm)	1	13" (330mm)	22"(560mm)	.002" (0.05mm)	.008" (0.2mm)	16,500	24,000	65" (1651mm)	375" (9525mm)
Veneer across grain	1/2" (12.7mm)	1	8.5" (215mm)	14" (355mm)	.002" (0.05mm)	.007" (0.17mm)	10,500	16,500	40" (1016mm)	240" (6096mm)
Aluminum	1/2" (12.7mm)	1	11" (280mm)	18" (460mm)	.002" (0.05mm)	.007" (0.17mm)	13,500	21,500	55" (1397mm)	300" (7620mm)

⚠ **Maximum RPM:** 24,000

Warning: Maximum recommended material depth in one pass varies from 1/64" (0.5mm) - 1/8" (3.0mm) depending on the hardness of the material. The harder the material the less the depth.

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. Your results may vary.
It is important to understand that these values are only recommendations.