

# 2D/3D ROUTER BIT

## FEED&SPEED CHART

Depth of cut: 1xCutting diameter

Tip Diameter (MM)	MATERIAL	RPM	CHIPLOAD	FEED RATE (INCH/MIN)	STEP DOWN (MM)	STEP OVER (MM)
0.5	Aluminum, Copper, Brass,	18,000	0.0003	10.8	0.5	0.2
	Wood, MDF, Sign-Foam	18,000	0.0007	25.2		
1.0	Aluminum, Copper, Brass,	18,000	0.0005	18	1.0	0.4
	Wood, MDF, Sign-Foam	18,000	0.001	36		
1.5	Aluminum, Copper, Brass,	18,000	0.001	36	1.5	0.6
	Wood, MDF, Sign-Foam	18,000	0.0015	54		
2.0	Aluminum, Copper, Brass,	18,000	0.0015	54	2.0	0.8
	Wood, MDF, Sign-Foam	18,000	0.003	108		
3.0	Aluminum, Copper, Brass,	18,000	0.002	72	3.0	1.2
	Wood, MDF, Sign-Foam	18,000	0.004	144		
4.0	Aluminum, Copper, Brass,	18,000	0.003	108	4.0	1.6
	Wood, MDF, Sign-Foam	18,000	0.005	180		
Tip Diameter (INCH)	MATERIAL	RPM	CHIPLOAD	FEED RATE (INCH/MIN)	STEP DOWN (INCH)	STEP OVER (INCH)
1/32	Aluminum, Copper, Brass,	18,000	0.0004	14.4	0.03	0.0125
	Wood, MDF, Sign-Foam	18,000	0.0008	28.8		
1/16	Aluminum, Copper, Brass,	18,000	0.001	36	0.06	0.025
	Wood, MDF, Sign-Foam	18,000	0.0015	54		
1/8	Aluminum, Copper, Brass,	18,000	0.002	72	0.125	0.05
	Wood, MDF, Sign-Foam	18,000	0.004	144		

- Adjusting Feed and Speed for Bit Diameter: The feed rate in the table above are based a cutting depth that is equal to or less than the bit's diameter.

1 x cutting diameter, Use recommended feed rate

2 x cutting diameter, Reduce feed rate by 30%

3 x cutting diameter, Reduce feed rate by 50%

- Simple machining calculations:

Feed rate=RPM x # of flutes x chipload

- Due to the extremely small diameters involved, bits are not guaranteed against breakage.
- Please exercise caution to the accurate calculations of all feed and speed rates
- Always start test the bits with a lower feed rate
- Make overhang of bits as short as possible in condition on non-interference