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## Title: Guide to Cutting Brass

**Gerber FastFact #:** 5040

**Supplied by:** Gerber Service

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**Summary:** This document offers tips and information on cutting brass.

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***Brass is an attractive and durable material used for interior and exterior signage. Cutting brass using your Gerber Routing System is not difficult. With some extra attention up front, brass will cut very nicely on your Gerber Routing System.***

### **Materials:**

The type of brass that works best is **Half Hard, Leaded Brass**. This type of brass can usually be found at supply houses.

Solid Carbide Router Bits are recommended for all your brass cutting needs. Always select a bit with a cutting edge length (CEL) just slightly longer than the thickness of the material and with the largest diameter possible to minimize vibration and give the best results.

### **Brass Setup:**

For small letters and shapes, set up the brass using a sacrificial material that has a high density. Scrap pieces of acrylic stock work well. Avoid using press board-type material as it will absorb mist coolant and release the double-sided tape, reducing your hold down effectiveness. To hold the brass sheet to the sacrificial material use a high tack, solvent resistant double-faced tape. Avoid foam filled tapes, as they do not keep the material rigid. Place strips of this tape on the sacrificial sheet in a manner that ensures the centers of shapes will be held securely. If you are using very thin brass, a spray adhesive may be substituted as the double-sided tape may damage the finished shape when removed. Thoroughly clean the brass sheet of any debris and oil and use firm pressure to ensure a good bond between the brass and sacrificial material.

When cutting large shapes, you can use Gerbermask II tape. Simply apply this tape to the back of the brass and "cut to mask" as you would any other material.

***Safety Note:*** *It is important to ensure that all shapes are properly secured to the table using double sided tape or Gerbermask II so that inside shapes and/or small shapes do not get caught in the bit and thrown off the table, which can affect the quality of cut.*

### **System Setup:**

1. Remove the vacuum shroud pressure foot assembly (never uses this assembly when cutting metals due to clogging and fume issues).

2. When cutting brass, mist coolant must be used. Mist coolant keeps the tool cool and lubricated and will extend tool life. Refer to the mist coolant manual for type of coolant and mixing ratios needed or refer to FastFacts # 5011 titled: Router Mist Coolant Mixing Ratios.
  
3. You may use the T-VAC to hold the material down on the table. If necessary, clamp the material to the table using the clamps provided with your Gerber Routing System. To reduce vibration, place the clamps evenly around the material and tighten securely. Use as many clamps as possible. When cutting a small area on a large sheet, keep the clamps as close to the cutting area as possible.
  
4. **Speeds and Feeds:** *The* following speeds and feeds are recommended values only. With experience you may find that faster speeds are possible. You will find that all values are dependent upon bit used, material grade and quality and hold down techniques. It is recommended that you do a series of test cuts to find the optimum speed and feed. More information can be found in the owner's manual for your Gerber Routing System.

Material Thickness	Bit Size	Depth per pass	Feed Rate (IPM)	Plunge (IPM)	RPM
1/8" (.125)	1/8" (.125)	.125	15 IPM	10 IPM	19,000
1/4" (.250)	1/8" (.125)	.125	25 IPM	10 IPM	19,000
1/8" (.125)	1/4" (.250)	.125	10 IPM	10 IPM	19,000
1/4" (.250)	1/4" (.250)	.125	20 IPM	10 IPM	19,000

*Note: On multi-pass jobs a finish cut is recommended.*