

Engraving Lead in Brass

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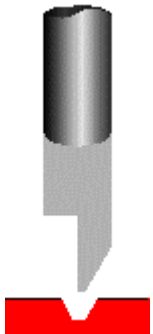
This is a tutorial to help you cut leaded brass. Leaded Brass has more of a yellow finish than premium brass. It is specially formulated for ease in rotary engraving.

Note: There are Vision Windows software settings at the end, but this procedure can be used with most engravers.

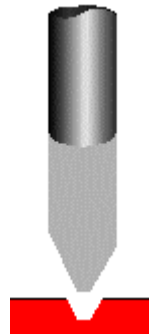
Cutter

1/4 round or 1/2 round, sharpened for metal (.BAL). Usually .015 tip size, but .005 or .010 if you need smaller stroke. Max cutter width recommended is .020. If you need a wider cut, use a multi-line letter. Quarter round seems to cut smoother, but I've used both

1/4" x 6 1/2" Micrograin Carbide Tipped – Quarter Round Cutter



Quarter Round Cutters



Standard Cutters

A Quarter Round Cutter has secondary split perpendicular to that of a standard half round tool, to provide greater chip clearance. It is more effective for many applications such as engraving stainless steel and acrylic; and profiling soft materials.

Spindle

While the nose cone will not be touching the material, I recommend that you use it to protect your spindle from engraving debris.

Material

Leaded Brass From I.D. Plates - .020 guage, part# 8020-1

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Vision Control Unit Setup



PROXIMITY OFF

This is where you get your feelings hurt if you don't turn the Proximity OFF. The cutter will drill into your table as it passes through the soft brass.

SPINDLE ON

rotates the cutter. Usually at $\frac{3}{4}$ to full speed

X-Y SPEED

how fast the cutter moves making your letters. Always start at the slowest speed and adjust according to the job. Engraving speed is determined by several factors:

- the depth you are engraving into the material in one pass
- the width of your cutter
- the hardness of your material

Z SPEED

how fast the spindle moves toward the surface. With leaded brass, the cutter needs to initial enter the material at a slower speed to avoid breaking a cutter tip.

Z DWELL

the amount of time when you cutter enters the material, until it starts. Dwell need to be increased to the $\frac{1}{4}$ or $\frac{1}{2}$ position. Too little dwell and the x-y axis starts moving before the cutter has reached the bottom of its stroke. Symptom of not enough dwell is the starting depth is usually less than the rest of the letter. Too much dwell and you will see excessive 'spinning' where the letter stroke begins.

AUX

Don't use a vacuum as it will ruin it, especially if you decided to use lubricants.

Setting the Cutter Depth

Normally, the nose cone should not normally be used when engraving metal. However, it may be required if the material comes off large rolls and cannot be mounted on the engraving table perfectly flat.

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When cutting leaded brass, make sure the material is mounted flat on the engraving table (now bowing upwards).

Make sure the cutter is well above nose cone, then move the spindle over the table. Using the Z down arrow, lower the spindle where the nose cone is about ¼” about the engraving material. With your cutter wrench, loosen your cutter at the cutter knob and lower the cutter to the surface. Press the SET SURFACE/LIFT button on the control unit one time. The cutter should rise approximately 1/8 inch (factory default). If it doesn't rise, or it rises too much, use the Z arrows to adjust the cutter tip approximately 1/8 inch above the surface. Press the SET SURFACE/LIFT for the second time.



¼ Round cutter shown

Note: vacuum nose cone shown in picture, but not used

Lubricants

I recommend using Tap Magic or other engraving lubricants to increase cutter life.

Software-Vision Windows.

Go to Options -> Pass Depths

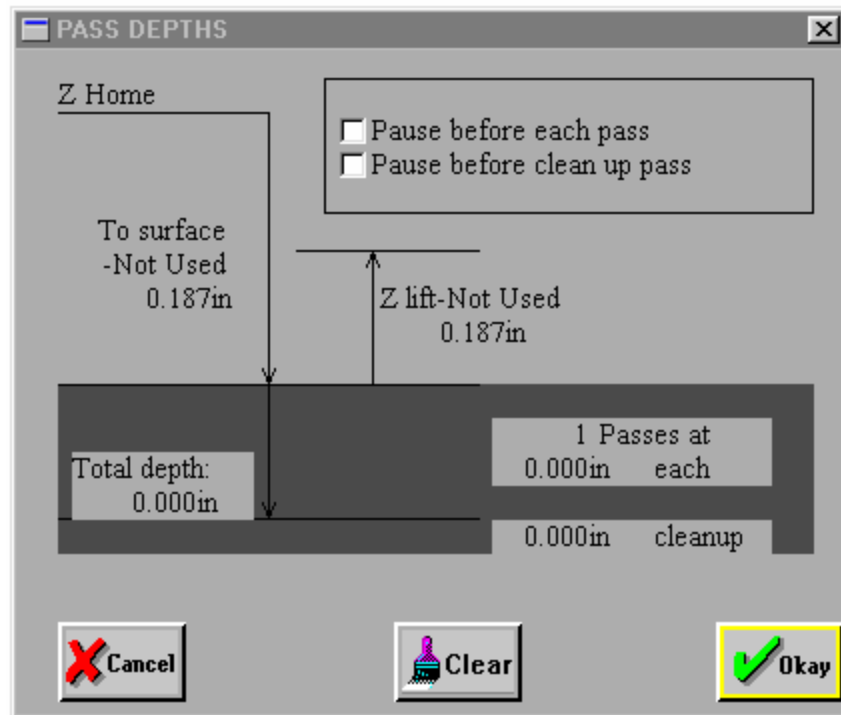
Determine the Total Depth; for leaded brass, .005 to .010 depth. When cutting leaded brass, you can remove .003- .005 material at a pass. For .007 to .010 you would need to make two passes. Sometimes you can run your cutting speed (x-y) faster by using less cutter depth per pass, and using more passes. Try .003 then .005 and notice the resistance you have with the cutter in the material. When cutting .010, try 2, 3, and 4 passes and notice the resistance when the cutter is passing through the brass.

Pass depths - this feature will allow you to enter the depth you wish to engrave either in one pass or multiple passes.

Note: by pressing F1 while in the Pass Depths feature, you will see the following help screen:

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To surface: This value is ignored when using the Vision Serial Controller or the VE-810 Engraver. The surface is set on the controller and in the VE-810.

Total depth: This is the total depth that you would like to engrave. This value is only needed when you are engraving without a nose cone. If you are using a nose cone, the value should be left at 0.000 because the depth is controlled by the nose cone.

Z Lift: This value is ignored when using the Vision Serial Controller or the VE-810 engraver. The Z lift between characters is controlled from the Vision Serial Controller and from the front panel on the VE-810

Passes: This is how many passes you would like to make to get to the total depth.

Note: Vision will show you how deep every pass will be.

Cleanup: This is how deep you would like the final pass to be.

Pause before each pass: If this is selected, the engraving table will stop before it goes to a different depth pass. This would be used if you would like to change the cutter between passes.

Pause before clean up pass: If this is selected, the engraving table will stop before it goes to the cleanup pass. This would be used if you would like to change the cutter before the cleanup pass.

Clear: This will reset all of the parameters in the Pass Depths window to zero.