



GRAVOGRAPH NEW HERMES

Inlay Letters

You can also create inlaid raised letters and graphics, which are a little more vandal-proof and have a slightly different finished appearance than the normal applied method. This method is more time-consuming, but if it is done correctly, the finished results are worth the effort. You will need your 0.040 inlay cutter (green label) and the materials indicated below.

1. To inlay letters on a sign face, first you need to create a sandwich of two pieces of Gravo-Tac for the back plate. Use two pieces of 1/32" of the same color, laminate them together, and cut to size.
2. For the letters, you'll need a piece of 1/16" Gravo-Tac in a contrasting color. Apply low-tack transfer tape to the back of this material to hold the letters in place after they're cut out. Since you'll be cutting completely through this material, you will need to use a cutting bed on the table when cutting the letters.
3. To make inlay letters successfully, you need to understand the concept of a "tool path." You need to cut out the letter itself, and the hole it fits into, so that the edge of the letter exactly matches the edge of the hole. To do this, you need to cut around the OUTSIDE edge of the letter, and around the INSIDE edge of the hole. Take the capital letter "R", for example. To cut the hole for the letter, you would



cut along the green line: which would make the hole's dimensions match the edge of the red letter. To cut out the letter itself, you have to cut around



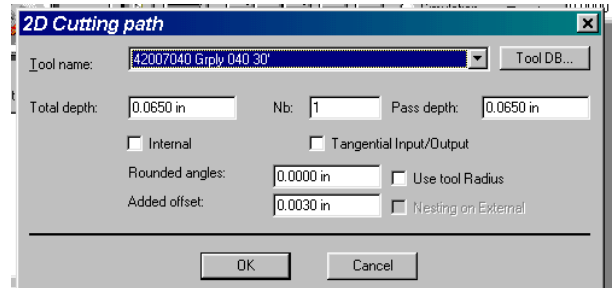
the outside: to make the letter's dimensions match the edge of the hole. Since the center of the cutter will follow the green lines, this cut line's

distance from the edge is always half the width of the cutter, which in the case of our green-labeled 0.040" inlay cutters is 0.020".

4. To create the tool path to cut along these lines, you need to be familiar with your software's machining operation. In GravoStyle 98, select the text or graphics, then



hold down the Control key and click on the icon. A dialog box will appear. In this box, choose Selection, Closed Contours, and Send. You are now in the Machining Module.



- a. To create the INSIDE cut for the back plate, choose Tool Path, then Cutting 2D. In the box that says "Tool Name," scroll down until you find the .040 Inlay cutter. In "Total Depth," enter 0.035". In "Additional Offset," enter 0.003". Click "Internal", then OK. A yellow line will appear around the inside of the design. This is the tool path.
 - b. Attach the back plate material to the engraving table. Set the micrometer depth to 0.035", set the Z, and install the .040 Inlay cutter. (You want to cut through the top layer of material, weed out the letter, and leave a recess in the face of the sign. Think of it as the "negative" of cutting the tactile letters.) Click Machining, then Run. Once the machine is done, weed out the letters from the sign face and make sure the cutout areas are clean. Be careful not to remove the centers of "O's," "R's," and similar letters! Set this piece aside for a moment.
 - c. To cut out the letters, click "Delete" to clear the internal tool path, and choose Cutting 2D again. Uncheck the "Internal" box, reset the "Total Depth" to 0.065", and click OK. You will now see a tool path around the outside of the design.
 - d. Attach a cutting bed to the table, and place the 1/16" material, with the transfer tape on the back, in place. You want to cut through the material, but not through the tape. The transfer tape will hold the letters in place after they are cut. Set the depth at 0.065", reset the Z, and click Machining, then Run. Once the machine is done, peel the transfer tape off the back of the material, and remove the letters.
5. Test the fit of the letters in their recesses. They should drop in place easily with no free play. If you are not satisfied with the fit, cut the letters out again, and make adjustments in the "Additional Offset" box to slightly alter the size of the letters.

6. Attach the letters using New Hermes Gravo-Bond adhesive. Use the adhesive sparingly; a little goes a long way, and it can ruin the surface of the Gravo-Tac. A small syringe may be helpful to dispense very small amounts of adhesive. If you press down on the letters and adhesive oozes out around them, you used too much. Set the sign aside to dry before adding Braille to it.

