Installing Raster® Spheres in Acrylic

Acrylic is a denser, harder material than most engraving plastics and is not as ﬂexible as Gravo-tac, Rowmark, or other common engraving substrates. Depending on the brand and composition of Acrylic you are using you may ﬁnd that you will require diﬀerent machine settings to avoid melting Acrylic on the cutter blade.

1. Set slow spindle speed near 10,000 RPM.
2. Set "Z" speed to approx 1 inch per second.
3. Use minimal dwell time (approx. .07 sec).
4. Set spring compression on spindle to minimal (approx. 1/32 inch).
5. Use a .0615 carbide Raster® Braille cutter for Acrylics. ﬃis cutter is sized slightly larger than our cutter for other plastic materials.
6. Use cast Acrylic, not extruded Acrylic, for best results.
7. Do not use alcohol or alcohol based cleaners with Acrylics. Alcohol can produce hazing and cracking to other plastic materials.

Installing Raster® Spheres in Aluminum

Raster® cutters made for plastics will wear out quickly in Aluminum and other metal materials. For placing Raster® Braille in Aluminum we recommend that you use our special carbide drill bit for metals. ﬃis drill bit requires a collet drill assembly on your engraver or router. ﬃe settings listed below are suggested for most engravers when installing Raster® spheres in Aluminum, but you should consult your machine owner's manual as well, for settings speciﬁc to your engraver.

1. Set "Z" speed to 0.2 inch per second (most important setting for Aluminum).
2. Use dwell time (approx. 0.5 sec).
3. Set spring compression on spindle to maximum of 1/16th inch gap.
4. "XY" speed has no special setting required.
5. Use a special carbide drill bit made for metals. Our B50 and B52 drill bit for metal will last longer than our regular carbide Raster® cutters on Aluminum. (Use of a drill bit for metals requires a collet drill adapter-assembly, which can be purchased from Accent).
6. Use the "Adhesive Assist" method for metals as outlined below:

"Adhesive Assist" Method for Metal, Stone, and Solid Surface Materials

a. Determine the placement of the Braille on the sign.

b. Apply a piece of low-tack tape to the sign that is a little larger than the Braille message on all sides

c. Set up and drill the holes for the Braille. Drill directly through the tape to a depth of about 0.051 inch.
   NOTE: Slow down the "Z" speed of your engraver when working with metal. Your drill bits will last longer and drill cleaner holes.

d. Apply a piece of pure adhesive tape over the holes. Before removing the tape's backing, lighly "burnish" it down with your ﬁngernail. Remove the backing to expose the adhesive.

e. Using a Raster® pen, insert the Raster® spheres through the adhesive. Don't use too much force; press only hard enough to seat the Raster® sphere ﬁrmly in the sign.

f. Once all the Raster® spheres are installed, carefully peel oﬀ the low-tack tape. Avoid pulling it at a sharp angle. ﬃe excess adhesive should come with it, requiring no further clean up.

g. Check the height of the installed Raster® spheres with calipers. Measure the thickness of the material next to the Braille, then measure the thickness including the Braille and subtract the two. When using the "Adhesive Assist" method, it is recommended that the Raster® sphere height does not exceed 0.025 inch (0.6mm). If the Raster® spheres sit too low, try drilling the holes a little shallower.

Installing Raster® Spheres in Stainless Steel

˜e settings listed below are suggested for most engravers when installing Raster® spheres in S tainless Steel, but you should consult your machine owner's manual as well, for settings speciÿc to your engraver.

Machine Settings

1. ˜e "XY" speed: no special setting required.

2. Set "Z" speed to 0.02 inch per second ˜is is the most important setting.

3. Use dwell time of 0.5 seconds.

4. It may be necessary to make multiple passes.

5. Set spring compression on spindle to maximum of 1/16 inch gap.

6. Use a 1/16 inch 4 ˝ute square end carbide end mill with a 1/8 inch shank (Accent part no. 36001002). ˜is end mill requires a collet spindle with a 1/8 inch collet.

7. Use a slow spindle speed (10,000 rpm) to save wear on cutter, or 20,000 rpm for quicker production.

8. Use our "Adhesive Assist" method only if you are not using cutter lubricant. If using lubricant such as Enco BOE-Lube solid-70200 you will need to use a mechanical liquid adhesive applicator (such as EFD) with syringe nozzle and a liquid adhesive to install the Raster® spheres.

9. Use a machining grade of Stainless Steel.

Stainless Steel is a di˙cult material to work with. It requires precision and patience. Drill at a very low RPM and very slow speed . Drill gradually down to the proper depth a little at a time. Drilling a couple thousandths, back o˛, and drill again. Repeat this procedure until you reach the proper depth. We recommend that you get comfortable working with Aluminum, Brass, and other soˆer metals before tackling S tainless Steel.

Installing Raster® Spheres in Brass

You will need to use the "Adhesive Assist" method outlined in your Interior Signage Manual which requires two di˛erent kinds of adhesive tapes for installation of Raster® spheres into Brass. (˜is method is the same as that for Aluminum installation). You wi ll need to use a collet drill assembly and square end carbide end mill for metals.
NOTE: Repeated passes will be required to drill Braille holes in Brass.

Engraver Settings Recommended for Brass:

XY = Full Speed	Dwell = 0.5
"Z" = 0.2	Spindle Spring Compression = 1/16

Cutter depth should be set about 50 thousandths aˆer applying the pre-mask tape to the Brass sign surface prior to drilling.