

# Raster™ Method of Braille



## Raster™ Pen Getting Started Guide



**ACCENT**

SIGNAGE SYSTEMS, INC.

## Grade 2 Braille

If you just type in text using a Braille font, you are creating Grade 1 Braille, a direct letter-for-letter translation. Grade 2 Braille, on the other hand, is condensed, with over 200 contractions where a single character can stand for a group of letters or even a whole word. Grade 2 Braille is required by the ADA Accessibility Guidelines.

Congratulations on your purchase of the Raster™ Method of Braille. Raster™ Braille is the fastest, easiest way to create fully compliant Braille signage.

To use the Raster™ Method you need a rotary engraving machine and software capable of a single-point drill function. You should also use Braille translation software to ensure that your Braille is accurate Grade 2.

When properly produced, Raster™ Braille is durable, impervious to environmental conditions, easy for Braille readers to use, and fully compliant with all regulations.

**We strongly recommend that you read all the instructions in this booklet before you begin.**

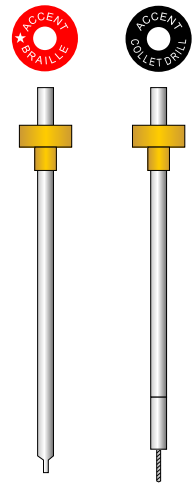
## What's Included

The Raster™ Method consists of three main components: the cutter, used to drill holes in the sign; the Rasters™ themselves, precision-machined spheres of acrylic, stainless steel, or brass, and the Raster™ Pen, a simple-to-use mechanical device for inserting the Rasters™ into the sign.

## How It Works

It's simple: Translate text to Braille, drill the corresponding holes, and insert Rasters™. The top portion of each spherical Raster™ stands above the surrounding surface, creating a perfect dome-shaped Braille dot.

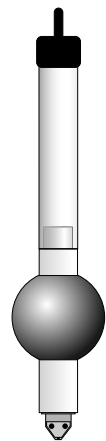
The substrate material you choose will determine the installation method you use. For most engraving plastic, wood, and other soft materials, use the friction-fit method. For metals, stone, and harder plastics like phenolic, use the adhesive-assist method.



Raster™ Braille cutter (red label)  
-or-  
Collet drill assembly (black label)



Jar of Rasters™



Raster™ Pen

## Tip

Raster™ Braille cutters are made from solid carbide for precision and long life. Solid carbide cutters are heavy and one-sided, so balance is important. If your cutter seems to be making the wrong size holes, see Page 7 for instructions on how to find a cutter's "sweet spot."

## Cutter Setup

1. Install the cutter in the spindle. Use the red-label Raster™ Braille cutter for plastic and wood, and the black-label collet and drill bit assembly for metal, stone, or solid-surface materials.

2. Turn the spindle micrometer all the way up, then down to the first "0." From this setting, turn the micrometer 0.075" down (exactly three turns), stopping at "0."

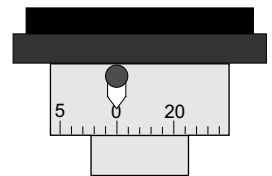
3. Loosen the setscrew in the cutter's brass knob and pull the cutter up inside the nose. Hold a flat piece of plastic flush against the nose of the spindle, and lower the cutter until it touches the piece of plastic. Re-tighten the setscrew while holding the plastic in place. Don't over-tighten the setscrew! It only needs to be "snug."

4. The nominal depth setting for plastic and acrylic substrates is 0.042". Turn the spindle micrometer up one full turn, plus 17 tick marks.

5. For metal substrates, or any time the adhesive-assist method is used, the depth should be 0.002-0.003" deeper to allow for the thickness of the adhesive.

Note: Set all your cutters to the same zero point, so the micrometer settings are the same for all of them.

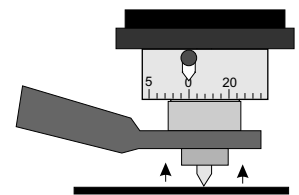
1 full turn = 0.025"



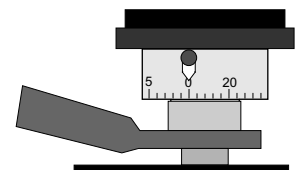
Up until it stops

Down to "0"

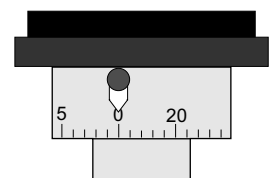
Down three full turns to "0"



Loosen the setscrew, hold the plastic against the bottom of the nose...



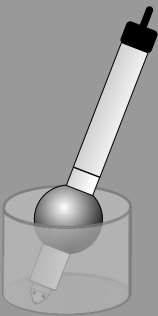
...and re-tighten the setscrew while holding it in place.



Past the first "0" and up to "17"

## Storage Tip

Save an empty Raster™ jar to use as a stand for the Raster™ Pen. The jar will keep the Pen upright, which keeps the mechanism full of Rasters™, so it's always "primed" and ready to use. The jar also keeps Raster™ Pen from rolling off the edge of a table.



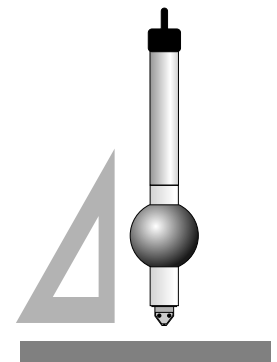
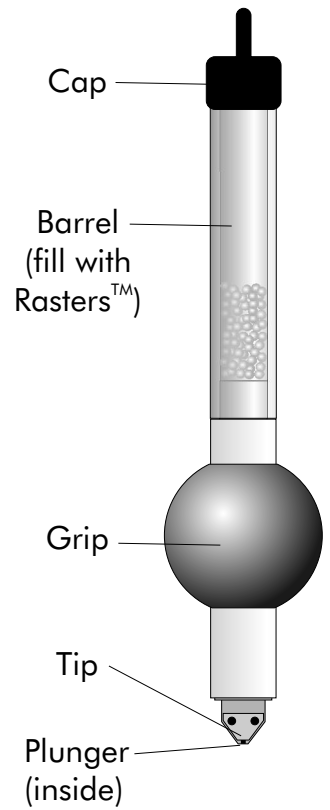
## Raster™ Pen

The Raster™ Pen is the tool used to place the Rasters™ in the holes. The Pen is a simple device; it has only one moving part. The spring-loaded tip holds one Raster™ at a time below a plunger. As you press down, the plunger presses the Raster™ into the hole.

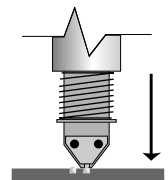
1. Remove the rubber cap and fill the Pen's barrel with Rasters™ using a small funnel. Fill the barrel as full as possible, but be careful not to spill any Rasters™. Replace the cap.
2. Shake the Pen and click the mechanism a couple times by hand to make sure the Rasters™ are dropping into the tip.
3. Hold the Pen vertically over the Braille holes with the tip's flat side facing you. Align the tip with the hole and press down. You should feel the Raster™ "pop" into place. Don't use any more force than necessary; excess force can crack the Rasters™, damage the sign, or cause a jam in the Pen's mechanism.

NOTE: Proper grip and hand position is very important when using the Raster™ Pen. Don't try to operate the Pen using only your fingertips. Experiment until you find a comfortable grip, but remember to keep the Pen vertical.

We recommend that you practice with the Raster™ Pen before using it on a live job. Use the included test piece, and make a couple practice pieces of your own. Once you get used to the feel, you should be able to use the Raster™ Pen quickly and easily.



Hold Pen VERTICAL when using!



Press down to insert Rasters™

## Working with Acrylic

Here are a couple tips to make working with acrylic a little easier:

1. Slow down the RPM of your spindle. Acrylic has a low melting point and the cutter can get hot enough to melt the edges of the holes if the RPM is too high.

2. Don't use alcohol or petroleum-based cleaners on an acrylic sign. These products will attack the acrylic and cause tiny cracks to appear around the Braille holes. Use soap and water or a mild detergent.

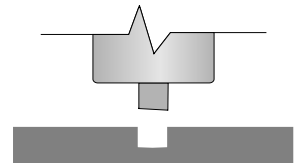
## Friction-Fit Method

Use this method when installing Rasters™ in plastic or acrylic substrates. The Rasters™ are held in place by the friction fit between the Raster™ (which is 0.0625" in diameter) and the hole (which is 0.060"). This method is not recommended for use with ABS plastics. For ABS, use the adhesive-assist method.

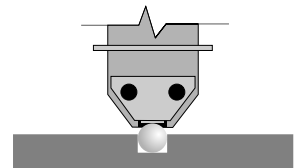
1. Set up the red-labeled Raster™ Braille cutter in your machine.
2. Use your engraving software to create the Braille message and run the machine. Make sure your software uses a single-point drilling function to drill the holes. Use the same speed settings you use when engraving plastic. Drill to a depth of 0.042".
3. Move the sign to a clean area and make sure the holes are free of debris. If you are using clear Rasters™, any leftover plastic chips in the hole will be visible through and magnified by the Raster™, so keep your work area clean.
4. Use the Raster™ Pen to insert Rasters™ into the holes. The Rasters™ should "pop" into place without much force. If too much force is needed, or if the Rasters™ won't stay in the holes, drill the holes a little deeper and try again.
5. Check the height of the installed Rasters™ with calipers. Measure the thickness of the material next to the Braille, then measure the thickness including the Braille, then subtract. The height should be 0.025" to 0.031" (0.6-0.8 mm). If the Rasters™ sit too low, try drilling the holes a little shallower.



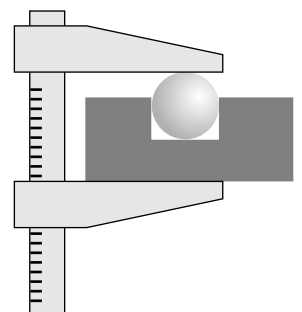
Use Raster™ Braille cutter (red label)



Drill holes in substrate



Press Raster™ into place



Overall height – material thickness = Raster™ height

## Working with Stainless Steel

Stainless steel is a difficult material to work with. It requires precision and patience. Drill at very low RPM and very slow speed. Work gradually down to the proper depth; don't try to do it all at once. Drill down a couple thousandths, back off, and drill again, until you reach the correct depth.

We recommend that you get comfortable working with aluminum, brass, and other softer metals before tackling stainless steel.

## Adhesive-Assist Method

Use this method with metal substrates or other materials that do not possess a “memory,” such as solid-surface materials or phenolic. It is also recommended for exterior applications or materials that are to be plated or anodized.

This method requires the collet assembly and a carbide drill bit (black label), low-tack tape, and double-sided adhesive tape. For best results, use brass or stainless steel Rasters™ with the adhesive-assist method.

1. Apply a piece of low-tack tape to the sign where the Braille message will be.

2. Set up and drill the holes for the Braille. Drill directly through the tape to a depth of about 0.045".

NOTE: Slow down the Z speed of your engraver when working with metal. Your drill bits will last longer drill cleaner holes.

3. Apply a piece of adhesive tape over the holes. Before removing the tape's backing, lightly “burnish” it down with your fingernail. Remove the backing to expose the adhesive.

4. Using the Raster™ Pen, insert the Rasters™ through the adhesive. Don't use too much force; press only hard enough to seat the Raster™ firmly in the sign.

5. Once all the Rasters™ are installed, slowly peel off the low-tack tape. The excess adhesive should come with it, requiring no further clean-up. Peel the tape off carefully, and avoid pulling it at a sharp angle.

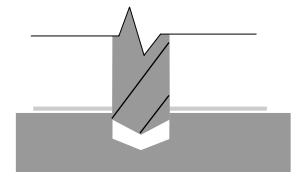
6. Measure the height of the Rasters™ as described on the previous page and adjust the hole depth as needed.



Use collet assembly & drill bit (black label)



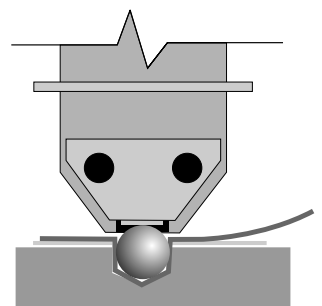
Apply low-tack tape



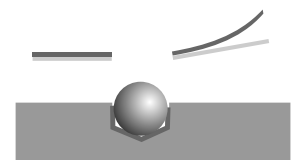
Drill holes THROUGH the low-tack tape



Apply adhesive tape



Insert Rasters™ through tape



Peel off low-tack tape and excess adhesive together

## Working with Other Materials

Plastic and metal are not the only choices for sign substrates using the Raster™ method. We have experimented extensively with different materials. Use the information here as a starting point, but always test an unknown material before using it for a job.

Also bear in mind that any time you use clear Rasters™, the material underneath will be visible through the Braille dots. If the material under the surface is a different color, you may want to consider using one of the opaque colors of Rasters™.

**Wood:** Most woods can use the friction-fit Raster™ method, but avoid softer woods. Any wood softer than pine isn't likely to be dense or strong enough to support the Rasters™. Plywood and manufactured wood products like MDF will work well.

**High-pressure laminates:** Laminated materials such as Formica® generally should use the adhesive-assist method. In some cases, a hybrid of the two methods will work best; drill the holes using the collet assembly, but insert the Rasters™ dry (no adhesive).

**Phenolic or fiber-reinforced plastic:** Use the adhesive-assist method with these materials. Be aware that these materials are abrasive and will wear out tools faster than other plastics.

**Expanded PVC plastic:** Lightweight sign materials like Sintra® are not strong or dense enough to support Rasters™ and are not recommended.

**Solid-surface materials:** Materials such as Corian® are essentially dense hard plastic and will work best with the collet assembly. Like laminated materials, adhesive sometimes isn't necessary with these materials.

**Hard stone (marble/granite):** It is difficult to work with these materials without the proper tools. You can use the carbide drill bit, but it will wear out quickly. If you have access to proper stoneworking tools, and can drill 1/16" holes to a precise depth, you can insert Rasters™ using adhesive-assist.

**Soft stone (sandstone, etc):** Softer stone is easier to drill into, but use caution when inserting the Rasters™. Use adhesive-assist, and test the adhesive to make sure it sticks to the stone.

**Glass:** It is possible to drill holes for Rasters™ into glass, but it is not practical. The process is very difficult and time-consuming. Working with glass requires special tools, training, and equipment. We don't recommend you try drilling into glass unless you have experience. Substitute clear acrylic or polycarbonate for real glass.

## Cutter Balance: "Dialing in" your cutter

Raster™ Braille cutters are precision-machined to very close tolerances and are tested for accuracy before leaving the factory. But sometimes a little fine-tuning is needed to make a cutter work as it should.

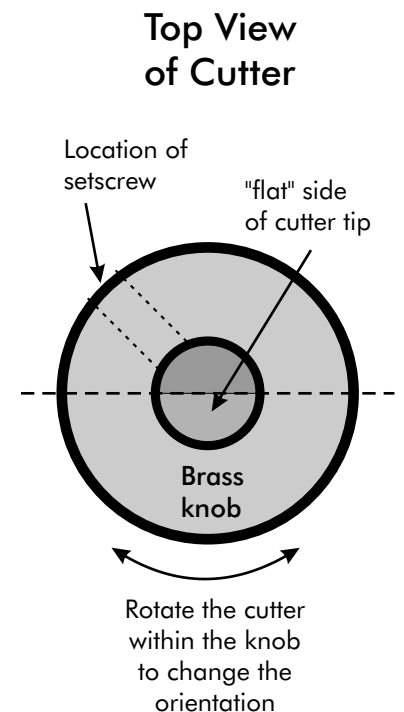
Balance is very important to a cutter's performance. If the balance is off, a cutter can drill holes that are much too large. You can change the balance of a cutter by changing its orientation in the spindle.

Loosen the setscrew and turn the cutter 180 degrees, then retighten the screw. This will change the orientation of the cutter's "flat" side in relation to the brass knob and the spindle itself. Now try drilling again and check the holes. If it still isn't right, rotate it 90 degrees and try again.

Be careful not to lose track of your "0" point on the micrometer during this procedure.

**There is no one correct position**, so try a few different positions until the cutter drills the proper size holes. You can tell by the sound it makes: as the cutter gets closer to being in balance, it runs quieter.

You can also try adjusting the spindle speed, on materials where the speed isn't critical (most engraving plastics fall into this category). A particular cutter may run smoother and work better at a lower or higher speed than normal.



## Raster™ Pen maintenance

In normal use the Raster™ Pen is maintenance-free. The Pen's mechanism is lubricated and sealed at the factory and does not require any attention.

Occasionally, debris from signs or gummy residue from the adhesive may find its way inside the Pen's tip. If this happens, empty the Pen and blow out the passages with compressed air. You can also feed a few brass or stainless-steel Rasters™ through the Pen to dislodge any debris. Don't use any liquids to try to clean out the Raster™ Pen, don't immerse it in any liquid, and don't try to disassemble it.

**Disassembling the Raster™ Pen will void your warranty.**

## Care and Storage of Rasters™

Store unused Rasters™ in their original glass jar with the lid tightly closed to keep them clean. Dust, fuzz, plastic chips, oil, and other debris can jam up the Raster™ Pen's mechanism. Use a funnel when filling the Raster™ Pen to avoid contaminating the Rasters™ with oil from your hands.

Don't use static-reducing agents with acrylic Rasters™; some of these products can cause discoloration of the Rasters™.

## Accept No Substitutes

The Raster™ Method of Braille consists of a matched set of tools, supplies, and procedures that are designed to work together to produce domed Braille. The key words are **matched set**. Raster™ Braille cutters, Rasters™, and insertion tools (Raster™ Pen and Auto-Raster™) have all been engineered and manufactured to precise tolerances, with the expectation that they will be used together.

While there are other possible sources for some of these materials, they are not designed or intended for use with the Raster™ Method, and cannot be expected to perform as well as official certified Raster™ components. We control the design and manufacture of Raster™ Braille tools and supplies very carefully, and we cannot guarantee compatibility of any third-party supplies with the Raster™ system. Remember, just because something looks the same does not mean that it works the same. Some third-party supplies may be cheaper, but you get what you pay for.

## Troubleshooting

### If you have difficulty drilling holes or inserting Rasters™:

1. Re-read the instructions, paying special attention to any specific notes for specific types of material. Double-check all your settings, both on the machine and in the engraving software.
2. If the Rasters™ are difficult to insert, or do not stay in the holes, the fault usually lies with the dimensions of the holes. Try drilling the holes deeper; if that doesn't work, see page 6 for information on balancing the cutter.
3. Make sure you are using the proper technique with the Raster™ Pen. Hold the Pen **vertical** and push **straight down**. If you hold it at an angle it will not work.
3. Raster™ Braille cutters and carbide drill bits are designed to last a long time, but they don't last forever. If you have been using a cutter for a long time, especially on hard or abrasive substrates, it may be worn out.

### If your Raster™ Pen stops dispensing Rasters™:

1. Acrylic Rasters™ are prone to static cling in dry or cold climates. To break up the static charge, shake the Pen. If you keep the barrel full or nearly full, static will be less of a problem. Don't use dryer sheets or anti-static spray on Rasters™ because these products can make the Rasters™ turn cloudy.
3. Check the tip of the Raster™ Pen to make sure no debris is obstructing the passage. Any foreign matter inside the barrel will be carried along the passage and may cause a jam. If you accidentally break a Raster™ while inserting it, shards of acrylic may lodge inside the Pen, keeping Rasters™ from dropping into the tip or causing them to all run out at once. Empty the barrel and blow out the Pen's internal passages with compressed air. You can also try feeding a few metal Rasters™ through the Pen; the heavier metal Rasters™ should dislodge anything blocking the passage.
3. If you use the adhesive-assist method, check the tip to make sure no adhesive has built up on or inside the Pen's tip. Clear away the adhesive and the Rasters™ should start dispensing again.
4. Push on the tip with your finger. Make sure the tip moves smoothly and returns to the "down" position on its own. Examine the tip and the plunger inside for wear or damage. If there is mechanical damage, you may need to return the Raster™ Pen for repair.

If none of these answers solves your problem, please call Angie Francis or Shevy Parasivam at (800) 215-9437 or (612) 377-9156 for further assistance.

## Warranty Information

Accent Signage Systems, Inc. (ASSI)

### Warranty Policy: Raster™ Pen

Accent Signage Systems, Inc. offers a full One-Year Manufacturer's Warranty from the date of delivery on the Raster™ Pen. In case of a warranty issue: Accent Signage Systems, Inc. will inspect and test your Raster™ Pen to determine the cause of the problem. (A nominal repair charge may be applied, depending on the cause of the malfunction, if not covered under the warranty).

#### WARRANTIES AND LIMITATION OF LIABILITY:

ASSI warrants, for a period of one (1) year from date of delivery to the customer, that the Product shall be

- (i) free from defects in any material respect (including but not limited to materials and workmanship) and
- (ii) fit for the purpose and application as described in ASSI's product documentation.

Under no circumstances shall this warranty apply to any Products that have been misused or tampered with by any customer.

ASSI, AS FAR AS IS POSSIBLE UNDER APPLICABLE LAW, EXPRESSLY DISCLAIMS ALL OTHER REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, WHETHER AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER.

No distributor is authorized to change or amend this warranty, and ASSI disclaims any responsibility for such misrepresentations.

Please consult the supplied pen instruction manual on troubleshooting tips for the Raster™ Pen before contacting us for return or repair of any items. For all warranty issues please contact us at the address and phone below:

Attn: Customer Service  
Accent Signage Systems, Inc.  
2322 Chestnut Avenue West  
Minneapolis, MN 55405  
Phone: 1-800-215-9437