

# Avery Dennison®

## Plotter Cutting Retroreflective Films

Instructional Bulletin #8.25  
Revised: October 2013

### Introduction

To assist you in the successful processing of Avery Dennison films on computer sign cutting equipment, the following processing guidance is provided. This applies to the following Traffic and Work Zone Avery Dennison reflective products: HV-1100, HV-1200, T-1500, T-5500, T-6500, T-7500, T-9500, and OmniCube™ T-11500 series. This also includes the non-reflective products such as: Supercast™, A9 series Cast Vinyl Films, and OL-2000 Series Transparent Overlay film.

Hole punched material is available from Avery Dennison in both standard and Gerber formats to assist you in pin-fed computer sign cutting. If you decide to make your own hole punched material from Avery Dennison reflective sheeting, make sure the blades you use are sharp.

### Equipment

There are multiple different plotter manufacturers and models available in the market. Most plotters will be able to cut Vinyls (Supercast™ and A9 Series Cast Vinyl), Overlays (OL-2000), and most Beaded products (HV-1100, HV-1200, and T-1500), but a heavier duty plotter is required to cut any of the Prismatic or air celled Beaded products (T-5500, T-6500, T-7500, T-9500, and T-11500 OmniCube™). For applications requiring a heavier duty plotter, Avery Dennison recommends the use of the Graphtec FC-8600 plotter with the factory upgrade to enable it to cut thicker films. The upgrade kit includes an additional 2 push rollers (Graphtec part # OPH-A22-GA), to allow the unit to keep the sheeting from buckling during cutting, along with an upgraded blade (Graphtec # CB15UA-K30) and bladeholder (Graphtec # PHP33-CB15N-HS).

A very sharp blade is essential. If you are experiencing cutting problems with Avery Dennison films, try a new blade. Our market research indicates that most blades are made from carbide (carbide stays sharper longer than plain steel).

Two low angle blade types that work for most products are: a 30° blade and a 45° blade. However, for prismatic sheeting (T-6500, T-7500, T-9500, T-11500) it is best to use a high angle 60° blade. Always test prior to production.

### Cutting

There are two main factors to take into account when setting up a plotter to cut, Blade Pressure and Blade Depth.

Determining the correct amount of weight or pressure to place on your knife depends on several factors, which only you can determine. A general rule of thumb is that more is not necessarily better. The lightest weight or the least amount of pressure that will cut through the facestock and adhesive is the best to use. If too much weight or pressure is used it may score or punch through the liner, fracturing the silicone release coating and exposing uncoated paper to the adhesive. This may inhibit the graphic releasing from the liner with the premask.

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When set correctly, proper blade depth should result in the liner being lightly scored. Always make a test cut prior to cutting the desired legend.

Avery Dennison films can be run on both pin-fed and friction-fed computer sign cutting equipment.

Due to the nature of retroreflective material, cutting and application of a multiple panel job (such as a fleet application) and graphics which are comprised of more than one panel, different color perceptions could result for the different panels from certain angles of viewing. This is not considered a defect in the material and is not covered in the material warranty. To minimize the risk of this occurring, cut large letters from a continuous piece of material or use material as closely adjacent as possible.

In case static occurs between Reflective films and sign cutting equipment, a static string can be purchased from Alpha Innovation LLC in Boston, MA. Phone number 781-639-9796.

### Weeding

Weeding is defined as removing of the unwanted material in plotter cut material. Weeding should be done prior to lamination to a sign.

Since the "open side" of most letters is on the right side, it is recommended that the matrix be weeded using a rocking motion from right to left.

When weeding large letters/graphics (larger than 5 in. or 13 cm height), there may be a large, hard-to-handle matrix area. It helps to cut the matrix into sections, before weeding.

If you are making your own hole punched material, it is important to strip away 3/8" – 1/2" of material on each edge of the roll after the holes are punched prior to use on your computer cutting equipment.

The next step after weeding is the application of Premask tape.

### Handling Premask (Application Tape)

Using the proper premask is paramount in the successful conversion of the Avery Dennison films. A premask incorporating enough adhesion to lift the legend from the liner is needed. At the same time, the premask adhesion cannot be so high as to lift the legend back off the ultimate application surface. Always test the premask for adequate tack to lift the legend from the liner.

The following premasks have the characteristics necessary for the successful conversion of both large and small letters using Avery Dennison films. This is not an exhaustive list of premasks.

<b>Manufacturer</b>	<b>Premask Tape</b>
American Biltrite	6600, 6700, 6760, 6782
Main Tape	GXP-600, GXP-625, GXP-650, GXP-675
R-Tape	4700, 4750, 4760, 4700, 4750, 4775, 4760, 4761, 4885, AT60n, AT75

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Pressure must be used when applying premask. The use of either a squeegee or a roll laminator is recommended.

### Application

After applying the premask, turn the piece over so the liner is face up. Squeegee on the liner side to apply even pressure to the film. This even pressure facilitates removal of the film from the liner.

The recommended method of removing graphics from the release liner is as follows:

1. Place the premask on the material as recommended.
2. Turn the piece over so the material is face down (liner side up).
3. Grasp the edge of the release liner, holding the premask down with one hand.
4. Pull the liner off at 180° angle with the other hand.
5. Now apply the Overlay film or Reflective film system (Premask and reflective/vinyl film without liner) using a roller laminator as described in Instructional Bulletin 8.10 to the substrate material. The substrate material can be either a laminated sign panel or reflective sheeting.
6. Remove the application or premask tape after such time there is adhesion build up in the reflective sheeting or overlay film to the sign or reflective sheeting substrate. It is important **not** to remove the application or premask immediately.

The durable print surface of Avery Dennison Reflective sheeting can also be used as a substrate for pressure sensitive or heat activated adhesives. Thus, computer cut graphics or letters, even from competitive retroreflective sheeting products, can be successfully applied to the surface of both Reflective sheeting. Avery Dennison will extend its full warranty when computer cut graphics from Avery Dennison products are applied to Avery Dennison Reflective sheeting.

The above Avery Dennison literature provides information to the user for proper application, storage, and other requirements. Please refer to Product Data Bulletins or your local Avery Dennison Representative for warranty information. Find the latest information on the Avery Dennison website, [www.reflectives.averydennison.com](http://www.reflectives.averydennison.com). We encourage you to check our website periodically for updates.

All statements, technical information and recommendations about Avery Dennison products are based upon tests and information believed to be reliable but do not constitute a guarantee or warranty of any kind. All Avery Dennison products are sold with the understanding that Purchaser has independently determined the suitability of such products for its intended and other purposes.

