

# Avery Dennison Instructional Bulletin 4.07

## Tips for Creating Digitally Printed Banners

Revision 1

### Introduction

There are many factors that must be considered when determining the most suitable substrate for a banner application. Environment, desired life expectancy, size and installation method are commonly the most important factors to consider. It is very important to understand the impact that these factors have on each other and how they are affected by the characteristics of the substrates.

### Avery Dennison Banner Options

- MPI 4130 - Gloss Frontlit
- MPI 4210 - Matt Economy
- MPI 4230 - Matt Frontlit
- MPI 4310 - Double Sided
- MPI 4330 - Heavy Duty Double Sided
- MPI 4350 - Scrimless Double Sided

### Environment

These factors can impact the life of a banner and must be taken into account when deciding the correct banner product for the application.

- **Wind** - High wind areas require a Heavy Duty Banner product.
- **Location** - Extreme UV, temperatures and airborne pollutants can impact the life of a banner and also the print on it. A liquid laminate for extra protection might be a good idea.

### Viewing Distance

- **Close Range** - If the banner is intended for viewing at close range and will require the highest level of detail then the MPI 4350 banner material is ideal because of its smooth surface.
- **From Afar** - If the banner is intended for viewing from a distance (e.g. roadside billboard) it will typically be quite large and can be exposed to harsh environmental conditions, the MPI 4330 Heavy Duty banner is recommended for this application.

## Durability

For a cost effective option the MPI 4210 Matt Economy banner media has up to a 1 year durability outdoors. All other films are up to 3 years outdoor durability.

Liquid laminates and similar can have the added advantage of protecting the print and helping it last longer in strong UV environments but are unlikely to extend the overall lifespan of the banner which will still be up to 3 years.

## Scrim and Denier Strength

The Denier (thickness of the Scrim threads ) and Scrim Count (how many denier threads there are per square inch) is a great indicator of strength in most banners. The higher the Denier number (bigger stronger bands) and Scrim count (more of them to create a stronger web) the stronger the banner.

- A 1000x1000 Denier banner with 12x12 Scrim construction is a very strong Heavy Duty Banner.
- A 1000x1000 Denier banner with 9x9 Scrim construction is a strong Standard Banner.
- A 500x500 Denier or less banner no matter the Scrim count is a cost effective banner for promotional work.

The higher the Denier and Scrim count the thicker the overall banner GSM (grams per square metre) will usually be, for example.

- 500x250 denier MPI 4210 Economy Frontlit is 340gsm
- 1000x1000 denier MPI 4130 Frontlit with a 9x9 Scrim construction is 440gsm.
- 1000x1000 denier MPI 4330 Heavy Duty with a 12x12 Scrim construction is 680gsm.

Scrimless banners are not made the same way, they do not have a woven construction so there is no Denier thickness or Scrim threads to count. Scrimless banners should not be made into large banners as they can stretch and sag over time and can't be tensioned tightly like a heavy scrimmed banner can. Scrimless banners are usually made with a very smooth print surface and are great for jobs that require a close range viewing distance like roll up banners or similar.

## Tensile Strength and Tear Strength

Tensile strength is the measurement of the force required to deform a banner so that it will not return to its original shape. Depending on the banner too much force may break the material, or permanently distort it. Avery Dennison Banners have the Tensile Strength for each banner listed on our data sheets.

Tear strength is the measurement of a banner's resistance to tearing under force. Technically it is the amount of force required to tear a banner or the amount of force the material is capable of handling before it rips. Avery Dennison Banners have the Tear Strength for each banner listed on our data sheets.

## Wind Slits

Wind slits are not recommended for Avery Dennison Banner material. Wind slits have unfinished edges that create weak spots in the banner. As a result, constant flexing as wind passes through the slit, as well as cold temperatures, may cause the material to tear and fray prematurely.

The right banner should be picked for the job to include enough strength in the construction (denier and scrim) and supporting fixtures to withstand higher wind speeds without the need for wind slits.

## Graphic Size & Installation Method

When choosing a banner material it is important to consider both the size of the finished banner and the method of installation. These factors should be considered simultaneously because the method of installation may improve or even detract from the strength of the banner.

- The larger the banner, the stronger it needs to be. The tension required to hold a 1.5m wide x 6m long banner in place could tear a low denier banner media.
- The longer the banner is required to last, especially outdoors, the more attention must be paid to the method of installation. A scrimless banner may not withstand extreme installation methods such as excessive tensioning or over long distances.

## Printing Recommendations

Always use a Banner print mode on your printer, do not "Flood" ink onto the banner media to increase colour as too much ink may affect media characteristics, drying and overall graphic performance.

- Do not exceed total ink coverage of 300% on Solvent based machines.
- Do not exceed 100% ink limit and 100 degrees curing temp on an HP Latex Printer.

## Finishing

When finishing your banner it's install environment and expected durability must be taken into account. Smaller temporary banners can be made without hemming and only a few grommets, banners that are going to be installed for prolonged periods or in high wind environments will require more grommets and strong hems.

## Grommets

Grommets can be used with all banner products and can provide two functions – they provide a method for hanging and can add strength to unfinished or hemmed edges.

Always use quality grommets for your banners, cheap grommets often don't hold the banner with enough strength and can pull out in strong winds as they are just held in by an overlapping tab. Spur Grommets that wedge spikes into the banner as they are pressed are the strongest and recommended grommet for heavy duty banners.

## Hems

Hemming the edges of a banner by stitching, welding or double-sided tape increases the strength and overall durability of the banner.

Different types of hems include.

- **Stitched** - This is one of the most common types of hems due to its cost effectiveness and high strength.
- **Stitched with Webbing** - The strong fabric webbing sewn into the hem increases the strength of the banner edge a lot but also increases the costs. The webbing is a lot like seat belt material.
- **Stitched with Rope** - Having rope stitched into the hem increases the strength and allows it to be tensioned at the mounting points easily. Rope has the added benefit of easily affixing to trees or poles for events and being removed just as easily.
- **Taped - Double Sided Tape** that is specifically designed for hemming must be used. This is also popular as it can be done inhouse at a cheap rate. This type of hemming is also very strong.
- **Welded** - Companies that do a lot of banners tend to have a plastic welder setup for hemming. This is one of the fastest ways to hem bulk banners very quickly.

When designing a banner, the overall size should include a margin of material that can be used to create a hem on all four sides. A typical hem size is around 50mm but can be smaller if required due to limited banner width or larger to include room for rope or webbing. A 50mm hem will require 100mm of material that can be folded in half, always fold the hem material to the back of the banner.

### Hemming a Banner Using Double-Sided Tape

**NOTE** - If a pole pocket is being created this side of the banner must be completed last. If a pole pocket is not needed, follow the procedure as described below:

1. Select a tape width equal to the width of the hem (50mm)
2. Make necessary cuts in corners to reduce the bulk caused by overlapping of adjacent hems.
3. To ensure proper adhesion, make sure the back side of the banner is clean. Use isopropyl alcohol to remove dirt and other contaminants.
4. Apply the double-sided tape along the outer edges of the banner material. Make sure the edge of the tape is flush with the edge of the banner material as this will be used to make your hem straight.
5. Remove the liner paper from the double-sided tape.
6. Fold over the hem just to the width of the tape.
7. Use a squeegee or rubber roller to apply pressure to the taped area. Be sure to press very hard to get a good bond and also squeeze out all of the air bubbles.
8. Check the manufacturers specifications to confirm when the tape will be at full adhesion and ready to use. It could take an hour or it could take a few days.

### Creating a Pole Pocket

1. Apply the double-sided tape flush with the outer edge of the material. If necessary, use multiple layers of tape to hold the pocket securely in place.
2. Lay the pole on the banner and fold over material to check how much excess you will require for the pole. Take a measurement, unfold and remove the pole.
3. Using an Omnichrom Pencil mark out where the overlap will need to go to include sufficient space for the pole. A light mark every 500mm is all that should be required.
4. Remove the liner from the tape and fold over to your markings.
5. Use a squeegee or rubber roller to apply pressure to the taped area. Be sure to press very hard to get a good bond and also squeeze out all of the air bubbles.
6. Check the manufacturers specifications to confirm when the tape will be at full adhesion and ready to use. It could take an hour or it could take a few days.

## Cleaning & Maintenance

For cleaning the banner, use a cleaning solution with a pH range of 3 to 11 (within mild acid or mild alkaline limits). The cleaning solution should also be non-abrasive and free of strong solvents. Reference Technical Bulletin #1.01 for recommended cleaning solutions.

## Storage and Shelf Life

Banner materials need to be stored in a controlled environment  $22^{\circ} \pm 3^{\circ}$  C and  $50 \pm 5\%$  R.H. free from excessive airborne dust and direct sunlight.

Avoid folding banners when storing them as this can cause damage to appear on the fold points. It is best to roll them loosely.

## Warranty and Limited Remedy

This instructional bulletin describes a technique. The information contained herein is believed to be reliable, but Avery Dennison makes no warranties, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. To the extent allowed by law, Avery Dennison shall not be liable for any loss or damages, whether direct, indirect, special, incidental or consequential, in any way related to the technique of making a graphic regardless of the legal theory asserted.

The above information provides basic information on how to apply pressure-sensitive graphics. The instructions are designed to help ensure success across a broad range of applications. Depending on the size and complexity of applications, a certain amount of expertise is needed.

Professional applicators can be hired to ensure proper application of finished graphics. When mounting graphics in remote geographic areas, professional applicators can offer the added benefit of local service.

Avery Dennison has a vast network of Certified Installers who have been specially trained and certified in accordance with our recommended techniques.

You can review the Certified Installer list here: [Find a Graphics Installer](#)

Consider hiring a professional whenever the application requires:

- Multiple panels to be registered
- Complex surfaces, such as rivet and corrugated trucks
- Harsh environmental conditions (i.e. outdoor applications in high heat climates)
- Remote geographic locations

For further information, contact your local Avery Dennison representative.

