Avery Dennison Instructional Bulletin 1.16

Application of MPI 1105 Easy Apply RS™ and DOL 6460 High Gloss for Vehicle Wrapping

General Information

Avery Dennison® MPI 1105 Easy Apply RS™ cast digital print film and DOL 6460 High Gloss overlaminate is a highly capable vehicle wrapping solution which will allow you to complete some of the most demanding vehicle and fleet applications including, but not limited to bumpers, mirrors and deep concave recesses.

This Instructional Bulletin outlines the parameters to be used when printing, laminating, during application, and for care and maintenance after application.

General Considerations

Before application of Avery Dennison® MPI 1105 Easy Apply RS™ Film can be attempted, there are certain important considerations that need to be addressed.

Important Note: MPI 1105 Easy Apply RS™ is only recommended for use with DOL 6460 High Gloss overlaminate. It is not compatible with the following cast laminates; DOL 1060, DOL 1080, DOL 1360, DOL 1380, DOL 1460 and DOL 1480.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol) or Avery Dennison Surface Cleaner) directly on the surface of DOL 6460 High Gloss when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction. For solvent and chemical compatibility, please review **Table 1.1**

Printing of MPI 1105 Easy Apply RS™

- Limit the total amount of ink as much as possible when printing using the correct ICC colour profile and RIP colour settings to avoid excessive solvent build up and retention in the film, we recommend a maximum of 270%.
- You can download the MPI 1105 ICC Profile from avery-ap.color-base.com, providing your printer and RIP combination has been ICC profiled and created. If not the MPI 1005 SC EA RS profile is suitable and should provide an excellent result. You can further enhance the colour reproduction by linearising the provided profile using a spectrophotometer.

Drying and Curing

When printing MPI 1105 Easy Apply RS™, the following proper drying and curing times need to be observed to preserve the performance of the film and adhesive:

- For conversion using solvent and eco-solvent inks, a minimum curing time of 24-48 hours for flat applications and 72 hours for conforming and fleet applications is required, before overlaminting.
- Dry immediately after printing by hanging prints vertically to allow solvents to “fall” out of film.
- Drying/curing time will vary depending on location and environmental conditions. If a strong solvent scent is present, or the film is softer than usual the drying process is not complete.
- For conversion using Latex inks, ensure the correct curing settings are used, by checking the printed image for signs of ink rewetting. If there are signs of ink rewetting shortly after printing, try increasing the curing temperature until no longer present. Once the correct drying and curing setting are used, no further curing after printing is required before laminating.

NOTE: Please read Instructional Bulletin 4.14 in conjunction with this bulletin for proper processing of Solvent Inkjet printed graphics.

Preparation of the Application Surface

- A clean, dry application surface on good condition is absolutely necessary to ensure the proper bonding of an adhesive to the application surface. Refer to Avery Instructional Bulletins 1.01 Substrate Cleaning and Preparation, and 1.4 Application Methods for specific technical recommendations.

Application Temperature & Environment

- Application temperature is one of the most critical factors in film application.
- Lower temperatures restrict good adhesion properties, which increase the risk of a graphic failure due to low levels of adhesion.
- For MPI 1105 Easy Apply RS™ the substrate and ambient temperature must be above 10°C minimum application temperature. For optimal application performance and ease-of-use characteristics, a minimum temperature of 16°C is recommended.
- Easy Apply RS™ films have a broad application temperature range (refer to the appropriate product data bulletin). While the film can be applied at the lower end of the temperature range, more pressure will be needed and it will take longer for a functional bond to be achieved during application. Until a functional bond is achieved, it is risky to remove premask or allow a vehicle to be transported.
- Higher heat and humidity conditions may also make a graphic more difficult to reposition once it has made contact with the application surface. If the air temperature or the application surface temperature exceeds 40°C, Avery Dennison™ Easy Apply RS™ performance may be limited.

NOTE: For all products be sure to read the appropriate product data sheet for details about minimum and maximum application temperatures, recommended substrates, and immediate service conditions before and after application.

Traditional Application Tools

Avery Dennison™ Easy Apply RS™ Films can be applied using traditional tools and techniques, no special tools are required (refer to Instructional Bulletin 1.4).

- Squeegee Pro (Blue), Squeegee Pro Flexible (Red) or Squeegee Pro Rigid (White)
- Flextreme Squeegee's
- Application Glove
- Heat gun
- 30° Knife
- Snitty
- Rivet Brush
- Air Release Tool
- Masking Tape
- Avery Magnets
- Lasertemp
- Marking Pencil (chalk like marking pencil is strongly not recommended).

Application and Installation

The following important points should be adhered to when applying MPI 1105 Easy Apply RS™ and DOL 6460 High Gloss:

- When using heat gun to soften the film, an ideal temperature of 35-45°C is required for best results.
- A soap and water solution should be used in conjunction with an application glove for application into deep recesses in order to reduce friction and unwanted wrinkles or creases.

Important Note: As with all graphics films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol) or Avery Dennison Surface Cleaner) directly on the DOL 6460 High Gloss when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction. For solvent and chemical compatibility, please review **Table 1.1**

- Ensure that the application surface is clean and dry before application of any graphic film. Refer to Instructional Bulletin 1.01 before application of any graphic.
- Be sure the environment, film and substrate are within the temperature range recommended for the film (16-25°C).
- Experiment to find the correct tools and techniques that work best before applying large graphics. Easy Apply RS™ Series films are designed to work with a variety of tools and techniques. Regardless of the tools or technique, it is important to use enough pressure to make sure the graphic firmly adheres to the substrate, approx 5-7kg.
  NOTE: Pre-masked graphic requires additional pressure.

- Use firm, uniform strokes, and overlap all strokes by about 50%.
- Hold the squeegee at a 50-70 degree angle to the surface. A flatter angle will reduce distortion of the film during application.
- Locate where to position graphics and mark the spot using small pieces of masking tape or magnets.
- If the graphic is large, tape or magnet it into position securely and use the hinge method illustrated in Instruction Bulletin 1.4.
  NOTE: To avoids marks in the film, be careful not to place the magnet within area to be applied.
- If the graphic is less than $1m^2$, remove the entire liner. Position the graphic on the marked points using light tacking pressure similar to other Avery Dennison materials.
- Squeegee the film using moderately firm, overlapping strokes, making sure the applicator is flat with the substrate along the entire length of the stroke.
- Remove air bubbles and tenting around rivets by using an air release tool and heat.
- Trim all excess material using a 30° knife blade taking care not to cut the substrate.
- Ensure all edges where the graphic finishes are applied firmly.

Final Squeegee Pass

NOTE: This is a key final step and will help prevent premature graphic failure due to edge lifting.

- Wait at least 15–20 minutes after the application to allow the adhesion to build to the functional bond level.
- Re-squeegee all graphic edges, overlaps and seams using firm pressure. Use a squeegee with a new felt buffer to prevent scratching or damage to the decal.
- Re-squeegee is a must on ALL edges of the decal.

Finishing and Post Heating

Important Note: MPI 1105 Easy Apply RS™ and DOL 6460 High Gloss requires less heat when post heating. A **post heating temperature of 70°C is recommended**. Please note an absolute maximum temperature of 90°C should not be exceeded.

- Once application has been completed, all areas where the film has been stretched require post-heating.
- Post heating should be done no sooner than 30-45 minutes after application.
- With the use of a heat gun on a high setting and a digital thermometer (Lasertemp), apply heat until the conformed area of the graphic reaches a measured 70° C.
- Post heating must be done the same day as the application.

NOTE: For further key considerations for vehicle wrapping and conforming applications please refer to Avery Dennison Instructional Bulletin 1.17.

Cleaning and Maintenance

For detailed information on cleaning and maintenance please refer to Avery Dennison Instructional Bulletin 1.8 Vehicle Wrap and Graphics Maintenance.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol) or Avery Dennison Surface Cleaner) directly on the DOL 6460 High Gloss when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary when cleaning use a damp microfiber towel, or Avery Dennison Supreme Wrap Care Cleaner to remove any light marks or contaminants.

Avery Dennison has tested a broad range of commercially available truck and car wash products for compatibility with the DOL 6460 High Gloss. All tests were conducted at 100% concentration and immersed for up to 24 hours, as opposed to the recommended rage of 0.005 - 20% concentration, using recommended washing techniques and times.

For truck and car wash compatibility, please review **Table 1.2**

For the removal of adhesive residue from the surface of DOL 6460 High Gloss, we recommend using the following solvents for the best result: Wax and Grease Remover (Diggers / Septone), White Spirits or Shellite. To remove adhesive residue, simply apply a small amount of the recommended solvent to a microfiber towel and wipe until the adhesive become loose and can easily be removed, avoid using high pressure and abrading the film.

For solvent and chemical compatibility, please review **Table 1.1**

Table 1.1 – Solvent and Chemical Compatibility for DOL 6460 High Gloss PU

Cleaning Product - Solvents	Compatible
De-Solv-it - RCR	✓
IPA - 25% Dilution with water	✓
Mineral Turpentine	✓
Shellite	✓
Supreme Wrap Care Cleaner - Avery Dennnison	✓
Supreme Wrap Care Power Cleaner - Avery Dennnison	✓
Supreme Wrap Care Sealant - Avery Dennnison	✓
Wax & Grease Remover - Diggers / Septone	✓
White Spirits	✓
The below products are not compatible with DOL 6460 PU	
Acetone	✕
Adhesive Remover - Avery Dennison	✕
IPA - 100%	✕
IPA - 50% Dilution with water	✕
Methylated Spirits	✕
Oomph - Pasco's	✕
Prep-Vinyl - Viponds	✕
Prep-sol	✕
Surface Cleaner - Avery Dennison	✕

Table 1.2 – Truck and Car Wash Compatibility for DOL 6460 High Gloss PU

Cleaning Product - Truck & Car Wash	Compatible
Aquawax - Hot Wax Rinse Aid (100%) - Autosmart	✓
Brushwash - Concentrated Foam Shampoo (100%) - Autosmart	✓
CT18 - Superwash (100%) - Chemtech	✓
CT20 - Wash 'N' Wax (100%) - Chemtech	✓
G101 - Multi Purpose Non Caustic Cleaner (100%) - Autosmart	✓
Heavy Duty Super Wash (100%) - SCA / Koala Auto Kare	✓
Heavy Duty Truck Wash (100%) - SCA / Koala Auto Kare	✓
JET MPC - Multi Purpose Non Caustic Cleaner (100%) - Autosmart	✓
Reaction - Truck, Bus & Car Wash (100%) - Batch	✓
Tiger Plus - Heavy Duty Vehicle Wash (100%) - Autosmart	✓
Tigerwash - Truck Wash Concentrate (100%) - Autosmart	✓
Truck wash (100%) - Firefly	✓
Wash 'N' Glow - Concentreated Car wash with wax (100%) - Batch	✓

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 Specialist Installers who have been specially trained and certified in accordance with our recommended techniques.

You can review the Specialist Installer list here: http://carwrapsanz.com/specialist-installers/

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.