

Avery Dennison Instructional Bulletin 1.17

Key Considerations for Vehicle Wrapping and Conforming Applications

Introduction

Vehicle wrapping and conforming applications are the most demanding applications for graphic films. It is most important the correct procedures are followed. Taking short cuts and avoiding the following steps, will drastically increase chances of problems occurring. Below is a summary of the most important points when performing these types of applications. Please refer to Instructional Bulletins 1.01, 1.14, 1.15, 1.16, 1.19, 1.4, 1.8, 2.09, 2.01 and 4.14 for further information relating to topics outlined below.

Film Selection

We recommend the use of cast films. Cast films are ideal for:

- conforming to convex, concave and compound curves found on vehicles.
- do not exhibit shrinkage (when processed correctly), to reduce chances of “popping” from recesses.
- Have longer durability, as well as greater heat and chemical resistance.

Film combination and suitable uses:

	Flat Sided Trucks	Passenger Vehicles (compound, concave, convex)	Van Recesses (Deep corrugations, channels)
MPI 1005 SC Easy Apply RS™ New DOL 1460 3D High Gloss	✓	✓	✓
MPI 1005 SC Easy Apply RS™ DOL 1360 3D Gloss or DOL 1380 3D Matt	✓	✓	✗
MPI 1005 SC Gloss Opaque LTR DOL 1360 3D Gloss or DOL 1380 3D Matt	✓	✓	✓
MPI 1005 SC Easy Apply RS™ DOL 1060 Gloss or DOL 1080 Matt	✓	✗	✗

Converting Methods

Digital Inkjet Printed Graphics:

- Avery recommends printing with Solvent or Latex based inkjet inks, not UV Curable inks. Graphics printed with UV Curable inkjet inks cannot be stretched without cracking which is a known limitation for this ink technology.
- 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 250%.
- Graphics printed using solvent inks must be dried and cured from all solvents before lamination and application.
- Dry immediately after printing by hanging prints vertically for at least 72 hours allowing solvents to “fall” out of the 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 and further drying will be required.
- Overlamine prints to be conformed and stretched with DOL 1360 3D Gloss, DOL 1380 3D Matte or DOL 1460 3D High Gloss cast overlaminate. This must be completed after adequate drying of prints.

Alternatively, use a qualified screen print clear overprint or clear coat/liquid laminate after application to vehicle. See relevant Avery ICS Performance Guarantee Bulletins for further information.

Screen Printed Graphics:

- Use Avery 900 Screen Series, 6900 Series or MPI 1005 Supercast.
- Must be printed with conventional Solvent inks, not UV Curable inks. Graphics printed with UV Curable inks cannot be stretched without cracking which is a known limitation for this ink technology.
- Must be coated with a qualified over print clear for longer-term applications. See relevant Avery ICS Performance Guarantee Bulletins for further information

Computer Cut Graphics:

- Use Avery 900 Series Super Cast Vinyl for plotter cut graphics and lettering.
- Do not use application tape on convex, concave and compound curves.

Paint Replacement:

- Avery Supreme Wrapping Film is ideal for full car wraps and paint replacement applications or large format cut graphics. Due to nature of the adhesive and the special backing paper not all intricate graphic designs and small lettering may be achievable. It is recommended to test the film for cutting of detailed graphics prior to production. See Avery Instructional Bulletin 1.19, 2.01 for more information.

Application and Finishing

Ensure application conditions are followed as stated in the applicable Product Data Sheet. Generally, the minimum application temperature is 5°C for cast films and between 16°C and 25°C is ideal.

Ensure application is done in a clean, dry and enclosed location free from dust and possible causes for contamination.

- Must be applied dry. Do not use water when applying.
- Be aware some new vans and commercial vehicles may have a co-polymer paint protection coating. These coatings make it very difficult to adhere pressure-sensitive adhesive products to. You should check with the manufacturer first, but it has been recommended to pre-clean with Autoglym Power Max 3. Ensure you follow the instructions as directed by the manufacturer.
- Surface Preparation. Surface of vehicle (must be OEM painted surface) must be cleaned thoroughly from all dirt, grime, oil, wax and other contaminates.
 - Remove all dirt and grime with water and detergent solution.
 - Remove grease, oil and wax by scrubbing with a rag soaked in solvent. We recommend Isopropyl Alcohol (IPA), or Avery Surface Cleaner
- Final preparation.
 - The substrate should be cleaned with Avery Surface Cleaner. Spray on the surface; allow to dwell for a minute, and then wipe off with a clean dry lint free cloth ensuring the rag is rotated to a clean side with each wipe. – or;
 - The substrate should be wiped with an IPA soaked rag, and cleaned off with a clean dry lint free cloth ensuring the rag is rotated to a clean side with each wipe before the IPA has time to evaporate. Take special care with recesses, returns of panels (e.g. inside edge of door) and any hard to reach areas
- Whenever handling the adhesive make sure your hands are clean, and the adhesive does not touch anything else besides the clean substrate.

Follow the recommended application technique and procedures. See Avery Vehicle Wrapping Instructional DVD for professional tips and tricks plus relevant how to videos on Avery Academy web site:

<http://www.academy.averygraphics.com/>

Try and keep stretching to an absolute minimum. Only stretch when necessary and distribute stretch over a greater amount of film to limit the stress and tension in any particular area.

- When applying multiple overlapping panels, start from the back and work forward or the bottom and work up. Note: Where two or more panels overlap, then each panel must be individually post heated to 90°C, prior to application of subsequent panels.
- Remove all bubbles using an Air Release Tool or a straight pin. Do not use a knife or blade. This must be done before post heating to avoid entrapped air expanding and damaging the graphic.
- Apply firm pressure all over the graphic to achieve ultimate adhesion strength. Take special care on all edges around doors and panels.
- Trim excess film. Wherever there is a join in two panels the film must be cut. Do not put film over rubber and plastic moldings. Make sure your knife's blade is constantly sharp.
- Allow 20-30 minutes for initial adhesion to build prior to post heating.
- Post heat all areas, which were stretched or conformed, to 90°C, this resets the films memory and relieves stress and tension in the film to eliminating “popping” or lifting. Edges should also be post heated. Note: Where two or more panels overlap, each panel must be individually post heated to 90°C prior to application of subsequent panels. i.e. Do not overlap two or more panels and then post heat together.
- **Post heating must be completed the same day as the application. Failure to do so, will result in Avery Dennison not guaranteeing the performance of the film.**
- Re-squeegee when cool to ensure maximum adhesion.
- Ensure you take the time to complete the job professionally. Failures occur when shortcuts are taken, and involve more work down the track. If you think you have finished, go over the job one last time to make sure you haven't missed anything. Heat from a heat gun will also show up any missed areas that can be firmly re-squeegeed, if air entrapment occurs use the Avery air release tool to pierce the film and release the air.
- When complete, provide you customer with Instructional Bulletin 1.8 Vehicle Wrap and Graphic Maintenance, this will ensure they correctly maintain and care for your hard work and their investment.

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 applying graphics in remote geographic areas, professional applicators can offer the added benefit of local service. Consider hiring a professional whenever the application requires:

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

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Avery Dennison makes no representations or warranties with respect to this product and installer assumes all risks and liabilities associated with the preparation of the surface, application of the material and removal. Avery Dennison recommends that you comply with all applicable safety standards, including the use of the proper personal protective equipment.

For further information, contact your local Avery Graphics representative.