

Avery Dennison[®] Instructional Bulletin 1.19

Application Instructions for Avery Dennison[®] Supreme Wrapping Film

Introduction

Application of Avery Dennison[®] Supreme Wrapping Film has to be done in the best possible manner to ensure that the product will perform as designed. Successful application, results in an adequate bond between the adhesive and the substrate.

Vehicle wrapping and conforming applications are the most demanding applications for graphics. It is most important the correct procedures are followed. Taking short cuts and avoiding the following steps, will drastically increase chances of problems occurring with the installation. Below is a summary of the most important points when performing these applications. Please refer to Instructional Bulletins 1.01, 1.14, 1.15, 1.16, 1.17, 1.4, 2.09 and 4.14 for further information relating to topics outlined below.

Note: Avery Dennison[®] Supreme Wrapping Film is ideal for full or partial car wraps, colour change applications and 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.

Important Note: If the Supreme Wrapping Film has reached the end of its intended service life (warranted period) or you notice any decline in the appearance, loss of gloss, discolouration, cracking, crazing or degradation of the film, you must contact the company that installed the material for assessment immediately.

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 surface of Supreme Wrapping Film during the application process or afterwards when cleaning. Use of these products directly on the surface may cause matting, loss of gloss and prematurely degrade the film. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction.

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 Easy Apply RS[™] films, 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. As the ambient or the application surface temperature exceeds our recommended maximum 25°C, Avery Dennison[®] Easy Apply RS[™] installation performance may be limited, especially at temperatures above 30°C.

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
- Knife – With 30° or 45° blades, for optimum cutting, ultra sharp blades are recommended
- Snitty
- Rivet Brush
- Air Release Tool
- Masking Tape
- Avery Dennison Magnets
- Lasertemp
- Measuring Tape
- Wax/Chinagraph water based Pencil (chalk like marking pencil is strongly not recommended)

Cleaning and Preparation

Note: For detailed information on cleaning and preparation please refer to Avery Dennison Instructional Bulletin 1.01

Note: some new vans and commercial vehicles may have co-polymer paint protection coatings. These coatings make it difficult for pressure-sensitive adhesive products to adhere sufficiently. 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: For removal of Copolymer paint protection coatings, a solution of 1 part Autoglym Power Max 3, to 4 parts clean water solution is to be made up for hand low pressure spray application. Spray apply evenly to all areas of van (especially deep recess and 3D sections) rub with a sponge, allow 5 min reaction time, do not allow to dry. If it dries, re-apply; re-work with sponge, then rinse systematically with high-pressure water, preferably hot, removing all of the solution.

Note: Many other commercially available cleaning/degreasing products exist. The applicator should establish the suitability of a product prior to actual use. In addition, the following factors should be considered prior to any application:

- Car wax, polish residues and paint protection coatings must be completely removed. The use of Autoglym Power Max III is highly recommended for vehicles which have a co-polymer paint protection coating; failure to remove this coating prior to application will result in graphics failing.
- Paint surfaces must be completely dry, hardened and free of scratches. On most baked paints films can be applied immediately after cooling down. Air dried and car repair paints require at least one week curing prior to films being applied, this can be longer in colder or humid conditions. Solvent residues in painted substrates may adversely affect film adhesion and might cause excessive shrinkage and or blistering.
- Painted substrates for self-adhesive films should be prepared according to the paint manufacturer's instruction. Here, too, it is important to avoid solvent retention. Paint system components which are not compatible or do not adhere properly to each other may cause paint to be lifted when films have to be removed after use.

Special attention should be given to critical areas as edges, corners, welding seams and rivets etc. One should certify that these areas are thoroughly cleaned and dried before application.

Surface Preparation

- Surface of vehicle (must be OEM painted surface) must be cleaned thoroughly from all dirt, grime, oil, wax and other contaminants.
- Remove all dirt and grime with water and detergent solution.
- Remove any paint protection coatings (i.e. Co-polymer) with the use of Autoglym Power Max 3, as per manufacturer instructions.
- 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 the surface allowing to dwell, then wipe off with a clean dry lint free cloth or microfiber towel, ensuring you rotate to a clean side with each wipe. – or;
- The substrate should be wiped with an IPA soaked cloth, and cleaned off with a clean dry lint free cloth or microfiber towel, ensuring you rotate to a clean side with each wipe before the IPA has time to evaporate. Take special care with recesses, returns of panels, behind rubbers (e.g. inside edge of door) and any hard to reach areas.
- It may be necessary to clean some areas more than once until the desired result is achieved.
- Check all critical areas that have been cleaned by using the 'nail test'. Feel the surface with the back of your finger nail. If the surface feels slippery and your nail slides easily, then it should be cleaned again. If it is difficult to slide your nail across the surface and it grips heavily, then the surface is clean.

Application and Installation

Important Note: Avery Dennison vehicle wrapping films, including but not limited to: Supreme Wrapping Film, do not require the use of adhesive promoter or primer in order to achieve suitable adhesion levels in areas such as compound curves, corrugations or deep recesses. When properly processed and applied in accordance with Avery Dennison's recommendations in this Instructional Bulletin, these products will remain adhered and free from lifting or popping for the intended life of the film.

Important Note: The use of adhesive promoters or primer will invalidate any warranty statements made in accordance with the ICS Warranty Program.

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 surface of Supreme Wrapping Film during the application process or afterwards when cleaning. Use of these products directly on the surface may cause matting, loss of gloss and prematurely degrade the film. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction.

Avery Dennison® Supreme Wrapping Film provides a similar level of conformability to the Avery Dennison® 900 Super Cast, therefore most of the instructions given in Instructional Bulletin 2.09 are applicable. Consult this instructional bulletin prior to the application of Avery Dennison® Wrapping Film.

However, two major differences exist:

- NO Application Tape is required for the application
- DO NOT apply with water (wet method)
- 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).
- Ensure application is done in a clean, dry and enclosed location free from dust and possible causes for contamination.

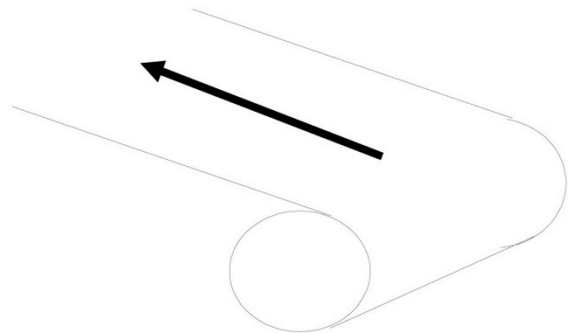
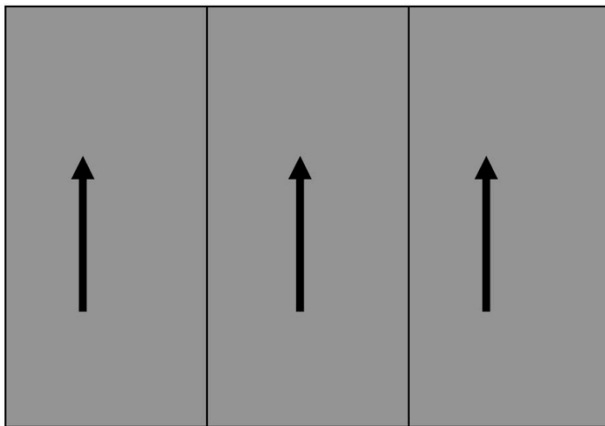
- Avery Dennison® Supreme Wrapping Film is powered by Easy Apply RS Technology, which features an easy-to-apply adhesive in combination with a conformable film. This combination allows easy positioning of the material to the application surface without the immediate bond of the film to the substrate.
- 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.
- Locate where to position graphics and mark the spot using small pieces of masking tape, water based pencil 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 avoid marks in the film, be careful not to place the magnet within area to be applied.
- Once the material has been positioned gently start to squeegee the film. Use an Avery Dennison® Squeegee Pro with felt cover and gradually increase the pressure in order to remove all the air from under the film. Overlap the squeegee strokes by about 50% to avoid remaining air entrapments.
- Re-positioning of the film is only possible at the stage of positioning and low squeegee pressure. If done at a later stage small marks or defects might remain visible in the film surface.
- In order to further facilitate the ease-of-application heat can be applied to the film. Naturally the level of applied heat will depend on the ambient temperature of the area where the application is going to be conducted. In areas with temperatures below 20°C, more heat will be required for easy application. However when ambient temperatures exceed 30°C the use of an external heating source may not be required or may be reduced to a certain extent.
- Whenever handling the adhesive make sure your hands are clean, and the adhesive does not touch anything else besides the clean substrate.
- A maximum stretch of 130% should not be exceeded, for most wrapping applications 115-120% is within the normal capability of the film.
- When stretching or conforming the material in convex, concave and compound shaped surfaces, please ensure that you distribute the stretch over a greater amount of material. This limits the stretch in any one area and reduces stress imparted on the film.
- 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 until the area reaches a measured 95-100°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.
- Using a 30° blade, ensuring your knife's blade is constantly sharp, trim excess film. Wherever there is a join between two vehicle panels the film must be cut.
- Do not put film over rubber and plastic moldings.
- Ensure all edges where the graphic finishes are applied firmly.
- The purpose of the Avery Dennison® Supreme Wrapping Film is primarily to wrap or totally cover many shapes and forms, therefore it is not possible to give individual instructions for each application. It is advised to experiment with a small piece of material on the substrate in order to feel understand the performance and handling of the film and the adhesive.
- Convex and compound shapes are usually very easy to cover with Avery Dennison® Supreme Wrapping Film, hence in some extremely deep corrugated shapes it might be necessary to make an incision in order to avoid any form of air entrapment in the deep recesses. This incision does not jeopardise the functionality or durability of the product, actually it permits the after treatment with heat to reach the maximum conformability of the product without any restrictions.
- During the wrapping process, using Avery Dennison® Supreme Wrapping Film it is recommended to use material of the same production lot from Avery Dennison. The batch number of the material is clearly identified on a label in the core of each roll.

Finishing and Post Heating

- 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 95-100°C.
- Post heating must be done the same day as the application.
- 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 follow Avery Dennison's correct maintenance and care recommendations for your hard work and their investment.

Application of Metallic, Pearlescent and ColorFlow™ Films

For application of Avery Dennison® Supreme Wrapping Film in metallic, pearlescent and ColorFlow™ colours follows the same instructions as above. However, metallic films are made by mixing small metallic flakes in the film formulation. The flakes reflect incoming light to the observer in all directions from their position. The flake distribution in the film is influenced by the process direction of the film; therefore the appearance of the film might slightly change if observed from different angles. This effect is called: 'flop'. It is important, that the unwind direction of the roll is consistently orientated in the one direction during application. It is evident also that material should be used from the same batch number for one job.



Long Term Removability (LTR)

Avery Dennison® Supreme Wrapping Film powered by Easy Apply Technology not only facilitates the application of the film it also features clean removability of the material within the warranted period of use. Of course different application substrates and conditions can cause variability with this property of Avery Dennison® Supreme Wrapping Film. The general instruction of removal of self-adhesive films is described in Instructional Bulletin 1.0.7.

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 surface of Supreme Wrapping Film during the application process or afterwards when cleaning. Use of these products directly on the surface may cause matting, loss of gloss and prematurely degrade the film. If necessary when cleaning use a damp microfiber towel, or Avery Dennison Supreme Wrap Care Cleaner to remove any light marks or contaminants.

Brief Summary

- use Avery Dennison® Surface Cleaner
- use Avery Dennison® Squeegee Pro
- no application tape needed
- no wet application
- distribute stretch over larger amounts of film
- pre-heat between 35°- 50°C
- eliminate all air from under film
- re-treat entrapped air
- allow 30-45 minutes prior to post heating, to allow adhesion build up
- post heat to between 95-100°C
- re-squeegee critical areas

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.