

Avery Dennison® Instructional Bulletin 1.20

Application Instructions for Avery Dennison® Ultimate Wrapping Film

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Introduction

Application of Avery Dennison® Ultimate Wrapping Film has to be done using the best possible techniques to ensure the product will perform as designed. Successful application results from adequate adhesion between the material and the substrate.

Vehicle wrapping and conforming applications are the most demanding applications for pressure sensitive materials. It is most important the correct procedures are followed. Taking shortcuts and avoiding the following steps will drastically increase the chances of problems occurring during or after the installation. Avoid shortcuts, as they significantly increase the risk of installation and post-installation failure. Below is a summary of the most important points when performing these applications

Substrate Preparation and Cleaning

Important Information

Before application of Avery Dennison® Ultimate Wrapping Film can be attempted, there are certain important considerations that need to be addressed.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro directly on the surface of Avery Dennison® Ultimate Wrapping Film 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.

Important Note: A reduction in functional adhesion, potentially resulting in film lifting, may occur in deep recesses or corrugations that involve a high level of stretch or three or more consecutive recesses. While the application of higher heat and increased pressure during installation can assist in mitigating this challenge, successful results cannot be guaranteed.

A clean, dry application surface in good condition is absolutely necessary to ensure the proper bonding of an adhesive to the substrate.

Note: Some new vehicles, especially vans may have co-polymer paint protection coatings. These coatings make it difficult for pressure-sensitive adhesive films to achieve a functional bond. You should check with the vehicle manufacturer first, but it has been recommended to pre-clean with Autoglym Multiwash TFR, PPF Shine Clean or similar product (please test before use on full car). Ensure you follow the manufacturer's instructions: For removal of co-polymer paint protection coatings, a solution of 1 part Autoglym Multiwash TFR, to 4 parts clean water is used in a spray bottle. Spray solution evenly on all areas of the vehicle (especially deep recess and 3D sections) agitate with a sponge, allow 5 min reaction time and do not allow to dry. If it dries, re-apply and re-work with sponge, then rinse systematically with high-pressure water, preferably hot, removing all of the solution.



Substrate Preparation and Cleaning

Pre Cleaning Wash

Note: Vehicle surface must be new OEM paint/finish in good sound condition, free of oxidation and must be cleaned thoroughly to remove all dirt, grime, grease, oil, wax, polish, copolymer or ceramic coatings and other contaminants. For ceramic coatings, review with the manufacturer on the best process for removal

- Remove all dirt and grime with water and detergent solution
- Remove any co-polymer paint protection coatings with the use of Autoglym Multiwash/PPF Shine Clean, as per manufacturer instructions
- Do not use any polishes, waxes or tyre shining agents post wash
- Allow the vehicle to dry ensuring no water remains in areas such as seals and behind door handles. A compressed air gun can be used to aid in drying hard to get to areas
- For any hard to remove grease, oil and wax, use a rag soaked in solvent, such as Isopropyl Alcohol (IPA), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro

Note: The surface must be completely clean, smooth, and dry before final preparation.

Caution: Prior to cleaning with solvents or Avery Dennison surface clean, test the solvent on an inconspicuous area of the surface to check for potential damage from solvent usage.

Clay Surface

- Using either a professional clay bar or eraser pad and the recommended lubricant
- Clay the surface of the vehicle as per the clay bar or eraser pad manufacturers recommendations

Note: The surface must be completely clean, smooth, and dry before final preparation.

Caution: Prior to cleaning with solvents, test the solvent or Avery Dennison Surface Cleaner on an inconspicuous area of the surface to check for potential damage from solvent usage.

Final Surface Cleaning and Preparation

- After following the pre cleaning instructions above, the substrate should be thoroughly cleaned with Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro.
- Spray Avery Dennison Surface Cleaner/Surface Prep Pro onto the substrate and allow it to dwell, remove using a clean, soft, lint-free cloth, remembering to rotate the cloth for each new area you clean.

or alternatively

- The substrate can be cleaned with an IPA and water solution (70% IPA and 30% water), using a lint free cloth or microfiber towel soaked with the solution and then wiped off with a clean dry lint free cloth or microfiber towel, before the solution has time to evaporate, remembering to rotate the cloth for each new area you clean.
- Take special care with recesses, corners, 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

Final Check

- Check all critical areas using the 'nail test'. Feel the surface with the back of your fingernail. 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.



Important Note: There must be no dirt, grime, grease, oil, wax, polish, copolymer or ceramic coatings or solvent residue remaining on the substrate prior to application.

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. You may need to increase the room temperature for better installation result if adhesion unable to build up.
- 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 temperature 25°C, Avery Dennison® Easy Apply™ 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.

You will need to ensure a fresh blade is used when trimming the combined films, frequently snapping your blade will result in optimum trimming and quality finishing.

Note: Avery Dennison® Ultimate Wrapping Film can be applied using traditional tools and techniques.

Traditional Application Tools

- Squeegee Pro (Blue), Squeegee Pro Flexible (Red) or Squeegee Pro Rigid (White)
- Flextreme Squeegee
- 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
- IR Laser Temp
- Measuring Tape

Application and Installation

The following important points should be adhered to when applying Avery Dennison® Ultimate Wrapping Film:

- When using a heat gun to soften the film, an ideal temperature of 35-50°C is required for best results.
- Do not exceed temperatures of 70°C with the free unapplied film to avoid changing the film appearance.
- A soap and water solution could 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: Avery Dennison vehicle wrapping films, including but not limited to: Avery Dennison® Ultimate 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 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 Warranty Program.



Application and Installation

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro directly on the surface of Avery Dennison® Ultimate Wrapping Film when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. Wetting the Application glove with a simple soap and water solution will reduce friction, simplifying the application process and lowering the risk of unintentionally stretching the vinyl.

- Ensure that the application surface is clean and dry before application of any graphic film. Refer to Instructional Bulletin 1.01 Substrate Cleaning and Preparation, before application of any graphic.
- Ensure application is done in a clean, dry and enclosed location free from dust and possible causes for contamination.
- NO Application Tape is required for the application
- Must be applied dry. Do not use water when applying.
- Be sure the environment, film and substrate are within the temperature range recommended for the film (16-30°C).
- Experiment to find the correct tools and techniques that work best before applying large graphics. Easy Apply™ 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.

- Try and keep stretching to an absolute minimum.
- For most wrapping applications, stretching within 10~20% for the best result.
- 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 the stress imparted on the film. Inlays or overlays are necessary if the concave and compound curve is too complicated.

Note: To optimize material distribution and prevent "popping", bridge the film over the recess and preheat to 35–50°C before installing into the deepest corrugations first, using a soap water soaked application glove.

Post Inspection - Following a 30-minute dwell time, heat the area to 70–80°C to trigger stress relaxation and facilitate the immediate repair of any lifting. If the film keep lifting up during post inspection, change to the inlay or overlay technique for best result.

* For Satin, Matte and Metallic films, it is recommend to apply the film with same direction to prevent color variation.

***Important Note:** A reduction in functional adhesion, potentially resulting in film lifting, may occur in deep recesses or corrugations that involve a high level of stretch or three or more consecutive recesses. While the application of higher heat and increased pressure during installation can assist in mitigating this challenge, successful results cannot be guaranteed.

For these demanding areas, Avery Dennison strongly recommends the use of an inlay or overlay to prevent lifting caused by overstretching the film.

Furthermore, when installing the film into some deeper corrugated shapes and recesses, an incision or relief cut may be necessary to avoid overstretching. It is critical to ensure that any incisions or relief cuts are made with a rounded cut, not a straight one, to prevent unintentional tearing. When performed correctly, these relief cuts do not jeopardize the functionality or durability of the product.

Application and Installation

Note: To avoid marks in the film, be careful not to place magnets within area to be applied.

- When applying multiple overlapping panels, start from the back and work forward or the bottom and work up.
- Use firm, uniform strokes, and overlap all strokes by about 50%.
- Hold the squeegee at a 45-70 degree angle to the surface. A flatter angle will reduce distortion of the film during application
- If the graphic is less than 0.5m², remove the entire liner. Position the UWF on the marked points using light tacking pressure similar to other Avery Dennison materials.
- If the graphics is more than 0.5m², you may remove the liner partially; or do the installation with support of TRIPLE S solution. Shake well before spray the solution on the large flat surface (avoid those 3D area that you need good adhesion; use a cloth to wipe and coat the solution evenly (avoid the edge), then do the installation immediately (the lower adhesion effect will slowly reduce time after time). TRIPLE S helps to reduce the tack and build up of adhesion for time being, therefore it will be easier for installer to do repositioning and reduce creation of adhesive lines during installation - a similar effect as Avery Dennison re-slidability function. Therefore it allow installer mirror the film before squeegees, which allow the fastest and best installation result.
- Squeegee the film using mild pressure to push most of the air out, then using moderately firm, overlapping strokes, making sure the applicator is flat with the substrate along the entire length of the stroke.
- 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 tack will increase thus cause some difficulty on repositioning and removal of air bubble during installation.
- Whenever handling the adhesive make sure your hands are clean, and the adhesive does not touch anything else besides the clean substrate.
- Remove air bubbles and recessed area by using an air release tool and heat. Do not use a knife or blade. This must be done before post heating to avoid entrapped air expanding and damaging the graphic.
- 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.
- Avery Dennison recommend to edge wrap the film with minimum 5-8mm allowance from the edge (start from end of curve) to prevent lifting. It is necessary to relax the film with heat before forming the film to minimise lifting due to overstretching of the film.

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 for initial adhesion to build.
- 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.
- The additional use of a light heat with a heat gun will also identify any regions missed or with insufficient squeegee application pressure, enabling firm re-squeegee application to achieve a functional bond.

Finishing and Inspection

Upon completion of the application, it is recommended that all areas where the film was stretched be re-checked with heat to ensure a secure and permanent set.

- Post Inspection (heat the area to 70–80°C) should be done no sooner than 30–45 minutes after application.
- If any film lifting is observed during inspection, only re-adhere the film once the area has cooled.

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), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro directly on Avery Dennison® Ultimate Wrapping Film 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.

For the removal of adhesive residue from the surface of Avery Dennison® Ultimate Wrapping Film, we recommend Avery Dennison Adhesive Removal for the best result. If Avery Dennison Adhesive Removal is not approachable, the solvents are recommend as alternative: 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.

Removal of Avery Dennison® Ultimate Wrapping Film

It is recommended to apply moderate heat (30–40°C) on a larger area by means of a hot air gun to the edge of the applied film. Ensure to start removing the film from the edge of the panel at an angle of 30° to 60° from the substrate, reducing the chance of adhesive residue. At this elevated temperature the film is more flexible, allowing for easier removal and has less impact on the substrate. Avoid snapping the film off. This could lead to breakage of the film.

Always remove with two hands as this gives more control over the removal process.

Any leftover residue on the substrate after removal of the film may be removed with a cloth, soaked in Avery Dennison Adhesive Remover, or a mild solvent that won't damage the typical OEM Auto Application substrate.

Important Note: Removal of Avery Dennison® Ultimate Wrapping Film is only recommended within the warranted durability. Removal past the warranted durability, or after harsher exposure conditions, could well result in extended removal times with difficulty in film/adhesive removal. Please refer to the relevant ICS PG T&C's and UWF term & conditions 1.0 Asean for more information.

