Technical Bulletin 7.0

Application Bulletin of Avery Dennison® ColourWrap™ Films

The present Technical Bulletin provides detailed information on how to apply the Avery Dennison® ColourWrap™ Films . For specific information on products' properties please consult the corresponding technical datasheet.

REQUIRED TOOLS

To ensure proper application of the material, you will be needing the following tools:

- Avery Dennison Surface Cleaner Wrapping Cleaner (Product Code CA3750001)) to clean the surfaces prior to application.
- Professional heat gun to heat the material.
- Infrared thermometer to verify surface temperature when heating the material.
- Avery Dennison plastic squeegees Europe (Product Codes CA9080002, AP8270002, CA8120002, CA3480002) depending on personal preference for hardness and size of squeegee
- Squeegee Strips (Product Code CA8120002)
- Cutter with new blades for a clean cut.
- Lint-free cloth for cleaning

SURFACE PREPARATION

Application of the product is recommended only on painted metal surfaces. Painted metal surfaces selected for application need to be properly cured and completely dried according to paint manufacturer's instructions.

Even if they appear clean, all surfaces should be cleaned prior to application following the instructions below:

1. Wash with soapy water, then rinse with clean water (do not leave any traces of soap on the surface).
2. Clean away grease and any other residues with Avery Dennison Surface Cleaner, especially in the more critical shaped surfaces such as corrugations, complex curves or more demanding substrates.
3. Dry the surface using a dry cloth or a clean paper towel
4. Rivets and seams may need longer time to dry due to trapped moisture in the complex areas.
5. Before starting application, ensure all the surfaces have been cleaned correctly and completely dried.

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APPLICATION METHOD

Avery Dennison® ColourWrap™ Films have a high degree of conformability and are designed for full wrapping even of 3D shapes (e.g. curves and recesses) on painted metal substrates.
Use only the dry method application technique. The product should never be applied outside the application temperature range indicated in the technical datasheet.
To ensure application suitability, always test the selected product under actual application and end-use conditions before going into full production.

APPLICATION ON FLAT OR SEMI-FLAT SURFACE

1. Prior to application, verify that the surface is properly prepared and cleaned.
2. Cut the material to approximate needed size and position the material (with liner) on the part to be covered.
3. Remove the liner, making sure to keep the film flat and close to the application surface to minimize the risk of dust entrapment.
4. Reposition the material and fit it on the application surface. Laying it flat and removing wrinkles.
5. Squeegee the film on the surface, using overlapping strokes with firm and uniform pressure. Ensure to cover the entire surface area to activateAvery Dennison® ColourWrap™ pressure sensitive adhesive.
6. If any bubble is created during application, remove it by strongly pressing with the flat side of the squeegee or your fingertip, thanks toAvery Dennison® ColourWrap™ Easy Apply application. .

APPLICATION ON CURVED SURFACES

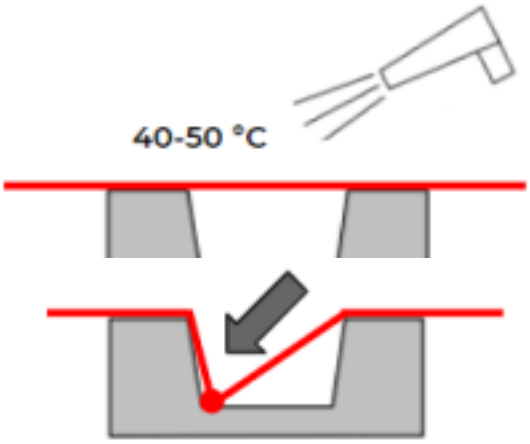
Concave surfaces

This hollow or bowl-shaped form implies that the material will be laid into a rounded or curved-in surface. Prior to application, make sure that the profile is thoroughly clean as indicated in the previous section.

1) Apply the material with the squeegee over the corrugation or recess, following the irregular shaped
surface. Do NOT stretch the film or push into the corrugation yet.



2) Heat the film to a temperature of 40-50 °C and use an IR thermometer to ensure that the surface of the vinyl has reached the requested temperature. Apply Heat on all the corrugation areas uniformly and avoid (local) overheating.



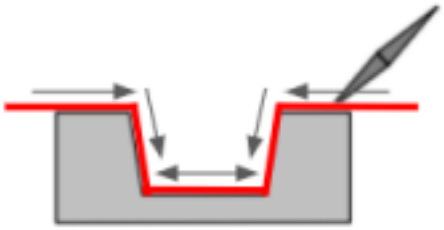
3) When temperature is confirmed, press the film into the deepest part of the corrugation/recess, using your finger. Start always from the deepest part of the corrugation where the maximum stretch is required for the material. To facilitate sliding of the finger, wear gloves and wet your finger with soapy water. Ensure 100% contact between the surface and the vinyl.



4) Repeat the same procedure on the other deep side of the corrugation, always ensuring the film is at the required temperature (40-50 °C).



5) Press firmly the central part of the corrugation using a squeegee, fingertip or the palm of the hand. Ensure to apply uniform on all the film surface pressure.



6) Once all the film is in contact with the profile, press firmly again with the squeegee. Check the complete application and prick any air bubbles using the appropriate tool.

Note: To achieve the best surface finish, ensure that the temperature of the film is below 35°C before squeegeeing. This will reduce the risk of squeegee marks.

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In order to avoid any lifting after application, it's mandatory to proceed with the post-heating technique:

1. Before starting the procedure of post-heating in curved areas to lock the film in the new position it's a good practice to reheat and re-squeegee the film at 30-35°C to make sure there are no air bubbles left behind. Then, continue increasing the temperature to do the post-heating step.
2. Re-heat all the areas where the material has been stretched with a heat gun to a temperature of 90-95°C.
3. Keep the heat gun at a distance of 4-5 cm from the material.
4. Move the heat gun very slowly to stabilize ±50 cm of material. Be careful to avoid local overheating
5. Use an IR thermometer to ensure the surface of vinyl reaches the required temperature.
6. Let the material and the surface cool down prior to any cutting of edges or overlays or any potential further correction with the squeegee.

The same application instructions should be followed when applying Avery Dennison® ColourWrap™ on different concave surfaces such as recesses of car bumpers, door handles, etc.

Convex surfaces

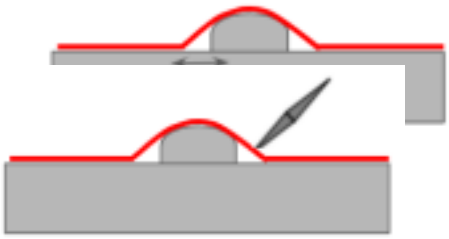
When applyingAvery Dennison® ColourWrap™ on a convex surface, heat the material to 40-50 °C using a heat-gun. Apply stretch uniformly in different directions and ensure to use large pieces of material. Avoid stretching small portions of material. In case you need to correct mistakes prior to squeegeeing, reposition the material and re-apply heat (40-50 °C).

Once the material is correctly positioned, squeegee it on the surface using the same technique as for flat surfaces. To achieve the best surface finish, ensure that the temperature of the film is below 35°C before squeegeeing. This will reduce the risk of squeegee marks. Post-heating is mandatory as a final step.

Riveted surfaces

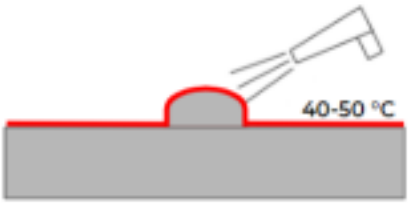
This small convex shaped form implies that the material will be stretched and laid onto a rounded or curved-out surface.

1) Position the film over the entire riveted surface of application, leaving a ±3 cm gap between the flat surface and the substrate around the rivets.



2) Collect the bubbles around the rivet without putting the film out of shape. Prick a hole in the vinyl around the rivet

and squeeze out any air trapped between the vinyl and the rivet using your fingertip.



3) Press the vinyl down hard around the rivet using the squeegee and a hot air gun. For the best results, the film
should be conformed at temperatures between 45 and 50°C. Be careful to avoid local overheating. Wait for a few seconds to start (re-)squeegeeing to lower the temperature (<35 °C) and thus, reduce the risk of squeegee marks. Post-heating is mandatory as a final step.

Note: When stretching Gloss metallic films for application on 3D curves and deep corrugations, a limited loss of gloss can be expected in the part subjected to the highest stress and heat.

MAINTENANCE AND CLEANING

The graphics have to be maintained and cleaned in the best possible manner in order to ensure that the product will perform as intended and designed. These indications represent general guidelines and therefore do not guarantee the complete removal of stains or dirt. Avoid cleaning the graphics within the first 48 hours after applications. After this initial period it is recommended to clean the graphics at least once a month, or more frequently depending on the end-use conditions or user preference.

Applied graphics may be cleaned with commercially available detergents, which are common to the professional maintenance of vehicles.

1. Avoid the use of solvents and/or abrasive cleaning agents that may damage the graphics. - The recommended cleaning solution should have a pH of 3-11.
2. Dilution ratios of the cleaning solutions, as recommended by the manufacturer, should be closely followed to reduce/minimize film degradation.
3. For the cleaning and maintenance of the films with matt finish, test an inconspicuous area prior to using any cleaners, wax, and polish to ensure no color shift or change in finish is caused to the film. - Cleaning products must be grit free to avoid scratching and it is recommended to always use a soft chamois or microfiber cloth.
4. Do not use brushes.
5. During cleaning, water temperatures should not exceed 50°C.
6. Final clean water rinse is necessary.
7. Dry with a soft non-scratching absorbent cloth to avoid spots.

When using a high pressure cleaning equipment, the following conditions must be respected:

- Maximum pressure : 80 bars (1200 psi)
- Maximum water temperature : 50 °C
- Minimum nozzle distance : 75 cm (between graphics and dispenser nozzle)

The dispenser nozzle should preferably be aimed perpendicular to the graphics to be cleaned, certainly not angled.

Note: Sharp angled power cleaner jets of water may damage the edges of the graphics and cause delamination. High pressure steam cleaning should not be used as the extreme heat can interfere with the adhesion of the film to the substrate.

REMOVAL

Avery Dennison® ColourWrap™ Films can be removed using heat.
Here below the steps on how to proceed:

1. Heat the vinyl to a temperature of 50-60°C using a heat gun.
2. Peel off the permanent material in small pieces at a time. Pull the material firmly keeping an angle of 60 to 90° between the substrate and the film.
3. Any residue of adhesive can be removed by using Avery Dennison Adhesive Remover (Product Code CA6970001) and a lint-free towel or the hard part of a squeegee.

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