

Avery Dennison® VisiFlex™ V-8000 Application & Care Guidelines

Instructional Bulletin #6.90 (Revision 2)

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1.0 Introduction

Avery Dennison® VisiFlex™ V-8000 Series High Visibility Reflective Film is engineered to improve the day- and night-time visibility of emergency response, utility, and construction fleets.

2.0 Safety and Handling

The use of any chemicals for cleaning should be done with caution. Refer to the manufacturer's Material Safety Data Sheet and follow all the instructions and guidelines. Cleaning products used should have a pH range within 5-9 and avoid use of direct petroleum distillates.

3.0 Tools

It is recommended to use only Avery Dennison's approved tools for use in Reflective material application.

- Tape measure – for positioning
- Air release tool – for removing air bubbles
- Masking tape or magnets – for positioning
- Marking Pencil (chalk lines should not be used) – for positioning
- Squeegee – for applying the graphic
- Low Friction Sleeve or felt strip to cover squeegee edge to protect film during installation
- Sharp Razor Knife (preferably with break-off blades) – for trimming away excess vinyl
- Heat Source (heat gun is recommended)
- Rivet Punch– for cutting film around rivets
- Surface Temperature Thermometer/ IR Thermometer – for checking surface and ambient temperature
- Application gloves
- Isopropyl Alcohol (IPA) - for cleaning the surface
- Clean towels - for cleaning the surface

4.0 Storage Conditions

Avery Dennison® VisiFlex™ V-8000 reflective prismatic vinyl can be stored for one year from date of purchase at a temperature between 64-75°F (18-24°C) and a relative humidity between 45-55%. The reflective prismatic vinyl must be applied within this one year time frame. Rolls

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should be stored in their original packaging or suspended from a pole through the core of the material. Sheeted material should not be stored with the face to face sheets without slip sheeting in between.

5.0 Converting: Digital Printing

Avery Dennison has tested multiple print platforms to determine suitability of V-8000 white for digital printing including our own Trafficjet Print System, along with other Eco Solvent, Latex, and UV digital printers.

For the appropriate Trafficjet print profiles, please contact Reflective.Tech@averydennison.com. For some of the most common printers like Mimaki, Epson, Roland and HP the ICC profiles are available.

Please visit the Avery Dennison Graphics ICC Profile page:

EU - <https://averydennison-eu.color-base.com>

NA - <https://avery-us.color-base.com>

The digitally printed films are recommended to be protected using DOL1060z, 1360z or 1460z laminates.

6.0 Converting: Screen Printing

Avery Dennison® VisiFlex™ V-8000 Series can be screen printed with conventional and UV curing inks. Consult your printing ink supplier about suitable printing inks. All printing inks should be tested for suitability prior to use.

7.0 Converting: Vehicle Templating

Avery Dennison® VisiFlex™ V-8000 Series is a single layer metallised highly reflective film with a pressure sensitive adhesive. It is constructed from a highly flexible cast PVC face film which allows for greater conformability on vehicle curves, though heavy complex curves are not recommended. Where complex curves are present, avoid over stressing the material by templating smaller pieces.

Recommendations:

- Round off corners where possible – this not only improves the appearance of the kit, but can also help reduce the risk of lifting when jet washing.
- Ensure panels are designed to be a minimum of 3mm from edges, hinges, door handles.
- It is not recommended to overlap material

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8.0 Converting: Cutting

Hand cutting of Avery Dennison® VisiFlex™ V-8000 Series does not require edge sealing so can be cut by hand on site if necessary

Avery Dennison® VisiFlex™ V-8000 Series is cuttable on Drum/Vinyl and flatbed plotters with up to 600g (1.3 pound) cutting force when using a high angle 60 degree blade. The ability to print and cut using registration marks will be dependent on the ability of the optical sensor on your plotter. The prismatic tiling on the sheeting can make it difficult for the optical sensor to correctly pick up the registration marks. If you are printing on reflective, put a strip of premask overtop the length of the printed marks, ensuring the marks are covered around all sides. Then use a new black Sharpie marker to trace over the registration marks showing through the premask. These changes will allow the detection of a dark mark against a matte background

Due to the nature of retroreflective material, graphics comprised of multiple pieces of film may show the perception of a color shift depending on the viewing angle and light source. This is not considered a defect in the material. To minimize this effect, cut large letters from a continuous piece of material or use material from adjacent portions of the roll. Also, no overlap of the reflective film is recommended to maintain a consistent viewing angle.

Avery Dennison® VisiFlex™ V-8000 Series is non-orientation sensitive – this allows nesting software to rotate nesting in any direction and can increase nesting yields by up to 10%.

9.0 Kit Packaging

Avery Dennison® VisiFlex™ V-8000 Series is very flexible and is not brittle – this means packaging is easier and carriage safer. If packing in kit form, make sure panels are folded liner to liner, not face to face and use slip sheets if unable to pack liner to liner.

10.0 Application Conditions

Avery Dennison® VisiFlex™ V-8000 Series should be applied between 60°F and 100°F (15°C and 38°C) to ensure adhesion. Both the air and vehicle surface temperature should be within this range during application. It is recommended that applied V-8000 Reflective Prismatic Vinyl remain within this temperature range for at least 2 hours after application.

Watch out for condensation build up when bringing cold surfaces into a warm environment. To avoid condensation consider substrate/vehicle warm up to the room temp conditions before application of



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the film. If there is a matte line observed on the roll, this can easily be removed by using a hot air gun on the surface of the material.

11.0 Surface Preparation / Vehicle Preparation

Any surface can be considered contaminated and must be cleaned and then dried prior to application.

Avery Dennison® VisiFlex™ V-8000 Series should be applied soon after cleaning in order to prevent dust accumulation on the application surface. Newly painted surfaces should be dried and cured according to the manufacturer's instructions prior to Reflective Tape application.

11.1 Remove Debris

Use a wire brush and/or paint scraper to remove any peeling paint, rust, burrs, debris, etc

11.2 First Wash

Wash the surface with a mild detergent solution to remove dirt and/or grease. Rinse thoroughly with water and dried with a lint free cloth.



11.3 Second Wash

Re-wash surface with isopropyl alcohol (IPA) using a lint free cloth. Saturate the cloth in solvent and wipe the entire application area. Immediately dry with a clean cloth before the solvent dries. Repeat this process until no dirt transfers to the cloth. Change cloth frequently to prevent cross contamination.

11.4 Final Prep

Make sure the entire application area is dry prior to application. Watch out for areas around rivets, seams and hinges as these areas often trap water or moisture. The use of Isopropyl Alcohol (IPA) is recommended to clean the surface before fitting. Many commercially available cleaning/degreasing products exist: you should establish the suitability of a product prior to actual use. No matter what cleaner is used Isopropyl Alcohol (IPA) should be the final wipe. In addition, the following factors should be considered prior to livery/fleet application:



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- Bare metals can best be prepared for decal application by cleaning with a detergent solution, followed by solvent cleaning with a (solvent) saturated cloth.
- Car wax and polish residues must be completely removed.
- Paint surfaces must be completely dry and hardened. On most baked paints, livery/fleet film can be applied immediately after cooling down.
- Air dried paints and car repair paints require at least one week to ten days to dry out before decals can be applied.
- Solvent residues in painted substrates which are not completely dry may adversely affect decal adhesion, and can cause excessive shrinkage or blistering.
- Painted substrates which will act as a substrate for self-adhesive decals should be prepared according to the paint manufacturer's instruction.
- Paint system components (primer, filler, top layer) that are not compatible or that do not adhere properly to each other may cause paint to be lifted when decals are removed.
- Weathered paints or films may have to be treated with a (fine) abrasive pad to remove loose surface particles.
- After cleaning an irregular substrate surface (rivets, corrugations), any retained liquid may be removed by means of a heat gun.
- Damaged surfaces may result in different adhesion levels: serious consideration should be given to repair a damaged surface prior to decal application.

12.0 Application Steps

If applying in a continuous piece, Avery Dennison recommends leaving at least 1" sticking to an angled/curved surface to ensure there is enough surface area to allow the sheeting to hold its shape. For further information follow Avery Dennison Graphics Solution [Instructional Bulletin #2.10 Converting Tips for Sign Films](#) for application instructions.

Put your first panel in place:

*Suggestions:

- Start with the handles.
- Use magnets as they allow you to line the material up before taping a hinge into place.
- Use Avery Dennison Squeegees Pro Blue (Medium rigidity) from the felt side to avoid scratches .

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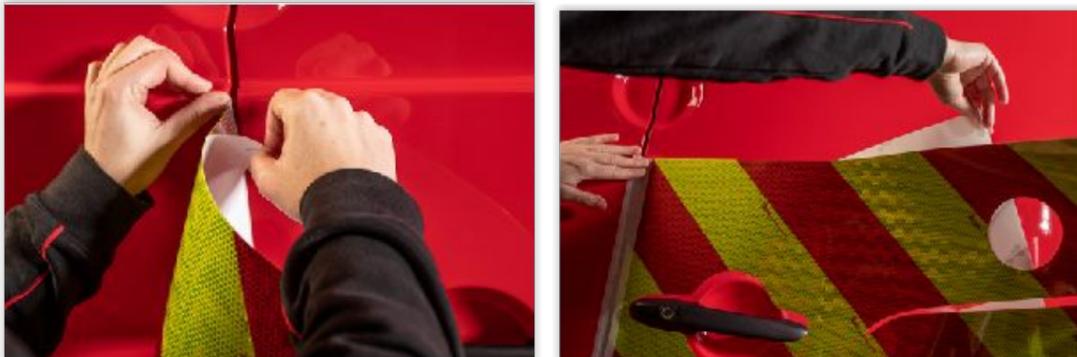
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1. Hinge the material using an application tape.
 - a. Remove backing linear and run your thumb over the hinged piece of material
2. firmly to adhere the edge of the material to the vehicle.
3. Once happy with overall positioning Squeegee the material onto the vehicle – work from side to side applying pressure to remove air bubbles.



4. If unhappy with alignment carefully peel the panel back and re-position.
5. If a panel is attached to the previously fitted panel start this one from where the panels join.
6. Push/manipulate/work the material into the curves using the squeegee. This helps to minimize the stress you put on the film and reduces the risk of lifting.



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13. Tooling Lines

Tooling lines are visible in all Reflective Prismatic films. These lines are an artifact of the tooling used to create the prisms that make the film retroreflective. V-8000 Series has lines that repeat every 5.75" across web and every 28.5" down web.



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14.0 Cleaning: Hand Washing

Note: Regular cleaning is recommended in order to remove dirt and ensure maximum performance for vehicle identification. The cleaning solution should be a mix of clean water and a mild detergent wash that has a pH range of 5-9. Always test the cleaning solution on a small section of the graphic before using. Always read & follow the warning labels and safety precautions provided by the cleaner manufacturer before using.

Mix your mild detergent and clean water to a soapy blend in a cleaning bucket. Make sure your cleaning bucket is clean and free of small debris that could get onto your cleaning rag and scratch your graphic. Rinse the graphic first with clean water from a garden hose sprayer to remove any loose dirt or debris from the graphic face.

Begin washing the graphic from the top down to allow dirt and debris to run downward. Once the graphic has been washed, rinse the graphic with clean water using a garden hose with spray nozzle attachment.

The graphic can then be let to air dry or can be dried off by hand with the use of a microfiber cloth. Once dry, the use of a silicone or Teflon based polish designed specifically for vinyl graphics may be used for added protection. (Be sure to read & follow product manufactures directions and suggestions for frequency of use). Please stay away from cleaners and polishes with petroleum distillates.

15.0 Cleaning: Jet or Power Washing

The use of a pressure or Jet washer to clean vinyl graphics should only be used when all other cleaning methods have been used or tested and did not properly work. Keep in mind that pressure washing could have negative effects on the vinyl graphic including (edge lifting, face degrading over time). Here are some tips to use for this cleaning method: Use a pressure washer that is no greater than 1200 psi (75 bar) with a water temperature no greater than 122°F (50°C). Spray nozzle opening should have a 40° angle. Spraying angle should be maximum 15° and minimum nozzle distance 1.2m (4 ft). Avoid steam cleaning. Mild solvents can be used for tar removal.

16.0 Removal Procedure

Due to its single layer construction, Avery Dennison® VisiFlex™ V-8000 Series is generally far easier to remove in comparison to traditional air gap products.

Heat the Avery Dennison V-8000 VisiFlex® with a heat gun and gently work the material from one edge and pull away from the substrate. The film should pull away in one piece with minimal adhesive residue.

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17.0 Warranty

Avery Dennison® VisiFlex™ V-8000 Series carries up to 7 years zone 1 vertical application for standard colors and up to 5 years zone 1 for fluorescent colors. The warranty is only valid if correct conversion procedures have been followed. Digital graphics are durable up to 5 years zone 1 vertical, please refer to the ICS PG of your printer for specific durability info.

This Avery Dennison instructional bulletin provides information to the user for proper application, storage and other requirements. Please refer to Product Data Bulletins or your local Avery Dennison Representative for warranty information. Find the latest information on the Avery Dennison website. We encourage you to check our website periodically for updates.

All statements, technical information and recommendations about Avery Dennison products are based upon tests and information believed to be reliable, but do not constitute a guarantee or warranty of any kind. All Avery Dennison products are sold with the understanding that Purchaser has independently determined the suitability of such products for its intended and other purposes.

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