

Avery Dennison®

Instructional Bulletin 6.5

Application Instructions for Spectrix Colour Paint Protection Films (PPF)

Revision 0

Introduction

Avery Dennison® Spectrix™ Colour Paint Protection Film (PPF) is a new generation conformable, top-coated aliphatic thermoplastic polyurethane (TPU) engineered for wet application. Avery Dennison® Spectrix™ delivering a deep, high-gloss, paint-like finish that also helps protect the vehicle surface from daily wear, road grime, water stains, and minor scratches. Its high level of conformability and adhesion performance allows it to adapt to complex vehicle shapes and allows for full vehicle colour coverage.

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 Avery Dennison Spectrix PPF 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. For cleaning and maintenance consult [Avery Dennison Instructional Bulletin 1.8 - Vehicle Wrap and Graphics Maintenance](#) for further information.

1.0 Consult Product Data Sheet

Before applying the product, consult the appropriate product data sheet and instructional bulletins for information regarding suitable substrates, application and product performance.

2.0 Handling and Storage Conditions

Avery Dennison Spectrix Paint Protection Film (PPF) requires special handling when converting to smaller lengths from larger rolls when compared to traditional PVC graphic films.

Avery Dennison Spectrix PPF is supplied with a protective cap sheet, this cap sheet should be removed after first opening the roll. It is recommended to use a laminator or similar to remove the entire cap sheet from the whole roll before conversion or installation.

Avery Dennison Spectrix PPF should be stored at a temperature of 20°C (± 2°C) with 50 %RH (± 5%), vertically in the original packaging, ensuring the material is tightly wound around the core and fastened with tape. If stored loosely on the roll without the leading edge taped down the material can separate from liner and cause imperfections in the adhesive. Proper storage allows the film to keep its maximum performance and also enables a hassle-free application. The user assumes all risk and liability for the loss of performance when the film is stored improperly. Improper shall mean that the user did not store the Avery Dennison PPF in accordance with the aforementioned instructions.

3.0 Application Tools

- Tool belt – to hold all application tools
- Avery Dennison PPF Squeegee Pro Rigid (Blue) and/or Pro Flexible (Red)
- Avery Dennison 30 degree Application Knife
- 30 Degree stainless steel replacement blades and blade disposal box
- Avery Dennison Magnets
- Avery Dennison Surface Cleaner or Surface Prep Pro
- Steamer with on demand steam - For conforming the film.
- Slip solution: Avery Dennison Application Solution Pro - A 5-20L pump spray bottle or pressurised tank (with spray handle) containing water. Mix ratio of 4 ml of Avery Dennison Application Solution Pro per 1 litre of water.
- Avery Dennison Application Gel. Used straight from bottle, do not dilute.
- Tack solution: Hot water in a heat resistant spray bottle
- Hot water urn (or access to hot water tap) for continuous use as your Tack Solution.
- Lint-free microfiber cloths for surface preparation and cleaning
- Clay bar or eraser pad and recommended lubricant for removing hard bonded contaminants

Important Information

To avoid damaging the film, always ensure the application tools are in good condition and test the suitability prior to commencing the application.

It is the responsibility of the end-user/applicator to ensure all painted substrates have been processed and cured per the paint manufacturer's requirements. Failure to follow paint manufacturer requirements can lead to adhesion failure and/or removal problems.

The use of any chemicals recommended in this bulletin should be done with caution, and ALL manufacturer's safety guidelines and warnings should be followed, including use of the appropriate personal protection equipment. When using Avery Dennison Surface Cleaner or Adhesive Remover, the use of chemical resistant Nitrile Gloves and Safety Glasses in a well ventilated area is required. Always read the instructions on the container, MSDS, or contact the manufacturer for usage guidelines.

4.0 Substrate Preparation and Cleaning

Note: Some new vehicles 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 (previously Power Max 3). Ensure you follow the manufacturer's instructions: For removal of co-polymer paint protection coatings, a solution of 1 part Autoglym Multiwash, 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 a sponge, then rinse systematically with high-pressure water, preferably hot, removing all of the solution.

Note: Vehicle surface must be OEM paint in good condition and must be cleaned thoroughly to remove all dirt, grime, grease, oil, wax, polish, co-polymer or ceramic coatings and other contaminants. For ceramic coatings, review with the manufacturer on the best process for removal.

4.1 Pre Cleaning Wash

- Remove all dirt and grime with water and detergent solution
- Remove any co-polymer paint protection coatings with the use of Autoglym Multiwash, as per manufacturer instructions
- Do not use any polishes, waxes, tyre shining or plastic reviver 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 reach areas
- For any hard to remove grease, oil and wax, use a rag soaked in a solvent such as Avery Dennison Surface Cleaner or Isopropyl Alcohol (IPA).

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

4.2 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.

4.3 Final Surface Cleaning and Preparation

- After following the pre-cleaning instructions above, the substrate should be thoroughly cleaned with Avery Dennison Surface Cleaner.
- Spray Avery Dennison Surface Cleaner 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 (e.g. headlight gaps)
- It may be necessary to clean some areas more than once until the desired result is achieved

4.4 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.

5.0 Installation Requirements and Preparation

- Avery Dennison Spectrix PPF has been designed to protect the surface of the car's painted body and can be applied to bonnets, bumpers, guards, rocker panels, door edges, pillars and most OEM painted substrates. It is not recommended to apply to unpainted surfaces (e.g. Unpainted black trim pieces)
- Avery Dennison Spectrix PPF can be hand cut on the substrate after installation or plotter cut in advance using signage plotters, specialised software and templates are required. Full panel coverage is required with Colour PPF, it is most common to install the film manually by hand (bulk fit) and trim afterwards rather than using templates.
- Ensure the Avery Dennison Spectrix PPF is applied in a clean, dust-free and well lit environment.
- Before starting the application, it is recommended to wash your hands to prevent transferring any contaminants or fingerprints onto the adhesive.
- Avery Dennison Spectrix PPF needs to be applied using the wet application method, by combining water and Avery Dennison Application Solution Pro. This is your "Slip" solution.
- For optimal application performance, the recommended slip solution is a mixture of 1 litre of water per 4 ml of Avery Dennison Application Solution Pro. Eg. For 5L of water add 20 ml of Avery Dennison Application Solution Pro. You can adjust this ratio slightly up or down to accommodate applications in warmer or cooler temperatures.

Important Note: Do not add any alcohol (e.g. Isopropyl Alcohol) to the slip solution.

- It is ideal to prepare and mix the Avery Dennison Application Solution Pro in a large pump bottle or pressurised tank with trigger spray. Higher flow bottles are preferred for faster applications.
- The use of Avery Dennison Application Gel is also acceptable on vertical surfaces, the Application Gel has a thicker consistency and will not easily run off the surface. The Avery Dennison Application Gel comes ready to use and should not be diluted or adjusted in any way.
- Avery Dennison Application Gel can also be an alternative to tack solution when needed.

5.1 Starting Installation

- Measure and cut the material from the roll ensuring it is at least 100 mm larger than the panel it is being applied to, make sure to remove the transparent protective cap sheet from the face of the film before beginning application if you have not done so already.
- If plotter cutting the film, ensure the transparent protective cap sheet is removed prior to cutting.
- Spray slip solution or Avery Dennison Application Gel onto the substrate before applying the film, ensuring the surface has an even and generous covering. Spray fingertips with the slip solution to prevent transferring any contaminants onto the adhesive.
- Spray the film and backing liner with slip solution prior to removal, this will help minimise static electricity and airborne contamination being attracted to the PPF.
- Remove the backing liner and spray the exposed adhesive side as you remove it, with a generous covering of the slip solution or Avery Dennison Application Gel.
- Position the material on the substrate, if necessary, slide the film until you have reached the correct positioning.
- The surface of the film should also be sprayed with slip solution throughout application to allow the squeegee to slide easily across the film and to avoid scratching or damaging the surface.
- If the film starts to prematurely tack to the substrate, additional slip solution can be introduced underneath the film to keep it from tacking.





(1) Make sure the panel is thoroughly cleaned using Avery Dennison Surface Cleaner or Surface Prep Pro.

(2) Spray the panel with a generous amount of slip solution to rinse off any remaining dust or contaminants. Once rinsed, spray the panel again to leave a layer of slip solution across the substrate.



(3) Peel away the liner of the PPF and spray the adhesive side with slip solution, making sure to get even coverage and not leave any areas of the adhesive dry.

(4) Once the substrate and film are both covered in slip solution position the PPF onto the panel making sure you have adequate coverage on all sides. Spray the face of the PPF with more slip solution, this will act as a lubricant once you begin to apply the film.



(1) Starting in an area where the PPF is already conforming to the shape of the panel and sitting flat, use a PPF Squeegee Pro Rigid (Blue) or PPF Squeegee Pro Flex (Red) and start to apply the film. Often it is best to work from the middle of the panel outwards towards the edges so the water can escape. Use adequate pressure to remove all slip solution and air from underneath the film.



(2) Overlap the squeegee strokes by about 50% to ensure you don't miss any areas.



(3) In areas that require some additional work, use some tension to conform the PPF to the shape of the panel, making sure to get enough coverage around the edges of panels. Squeegee firmly towards the panel edges and allow some time for the PPF to adhere to the panel before releasing the tension. Use tack solution to help hold the film in place.

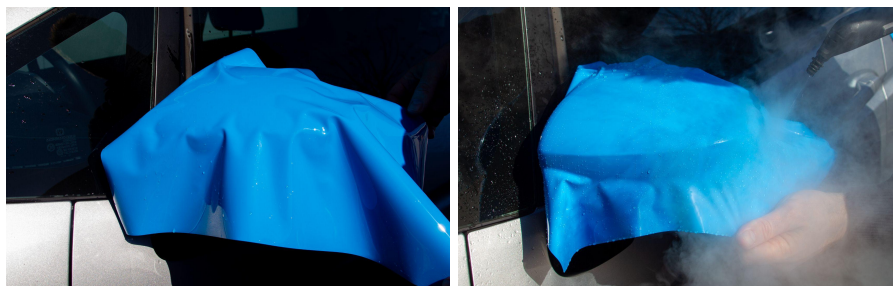


(4) Once the PPF has tacked thoroughly into its position you can trim away any excess material. Flush the edges with tack solution and press/fold the edges of the PPF around the panel. Allow time for the film to dry before checking all edges and reapplying pressure where required. Make your final panel trim (if required) once the material is completely dry, this stops the film from moving while trimming and potentially resulting in an inaccurate cut.

Important Note: Re-positioning of the film is only possible during the initial few minutes of install, after this the adhesive will activate and if you try to reposition then small marks or lines might remain visible in the film surface.

5.2 Conforming

- For curved areas, it is necessary to apply tension and firmly pull the film in order to conform it to the surface.
- It is recommended where possible to tack a section of the film to an adjacent panel, which will provide an anchor point while you tension the film.
- Use tack solution (hot water) to assist with adhesion at the anchor point.
- You can then pull on the film and create tension against that anchor point, the film should be free to slide and will begin to conform to the curvature of the surface.
- Whilst the film is under tension and held firmly in place, spray the surface with slip solution and then squeegee the area.
- A small amount of heat from a steamer (30-50°C) can aid in the films conformability.
Note: Using a heat gun is not recommended when installing Spectrix PPF.

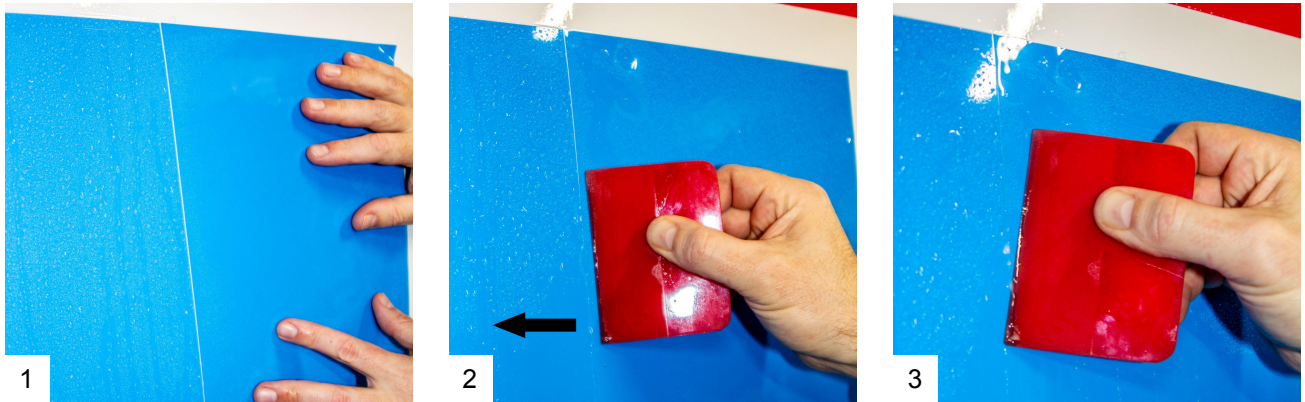


Note: Although Avery Dennison Spectrix PPF is highly conformable, you should avoid overstretching or applying too much tension when using heat. Heat will allow you to easily stretch the film beyond its designed stretch point so care should be taken. It is recommended to experiment with the film prior to installation to find the elongation limit of the film when cold and aim to only slightly go further when applying heat.

Note: Conventional convex, concave and compound curves are mostly suitable to be covered with Avery Dennison Spectrix PPF, but in some deeper corrugated shapes and recesses it may be necessary to use multiple pieces or inlays to achieve full coverage. Inlays and joins do not jeopardize the functionality of the product.

5.3 Joining

- When wrapping vehicles with PPF it is likely that in some instances you may need to use more than one piece of film to wrap a panel, which will require having a join.
- Where possible, the preferred method for joining between separate pieces of Spectrix PPF is butt-joining.
- This involves having a clean, smooth edge on a piece of film which gets applied first, and then applying the next piece of film and gently sliding it and working it towards the joining edge, to create a seamless butt-join.
- Assessing where to put joins is an important part of the process, and it is recommended to consider the placement of joins prior to starting.
- It is recommended to try to aim for areas that allow the join to be as short as possible, and also either as straight or as smooth a curve as possible.



The pictures above shows two pieces of Spectrix PPF being butt-joined together, in 3 stages.

- 1) The piece on the left was applied first, then the second piece was floated into position and aligned just shy of the edge of the first piece.
- 2) The second piece was then squeegeed gently towards the join, which helps slide the film towards the edge of the first piece.
- 3) This process is continued along the full length of the join until a uniform and seamless join is achieved.

5.4 Inlays

- In areas that require what we would traditionally call an "inlay", it can be useful to template or trace the shape of the piece that is required.
- To do this, first wrap the main area of the panel and get the film applied as far as it can go (without overstretching it), and then allow it time to properly adhere.
- Then carefully trim away the excess film, ideally along bodylines of the vehicle, which will leave an area that is "missing" film.
- Using app-tape, masking tape or a scrap of wrap vinyl, cover the required area. Then using a pen trace the shape of the missing section, utilising the step created by the edge of the film to rest the pen tip against for a very accurate trace. You will now have a template of the piece required for the inlay.
- Then remove this template/trace and transfer it to a new piece of Spectrix PPF, and trim the film to the traced pen lines.
- Finally you can apply the inlay piece into it's position, (in the same way as mentioned above for butt-joining) and if trimmed accurately it should fit perfectly in place like a jigsaw piece, and allow for a near invisible butt-join.

5.5 Overlaps



An alternative to the butt-join method is to use overlaps to join the film, which are very similar to the overlaps you might use on a traditional vinyl wrap, the PPF must be prepared correctly for this to work.

Spectrix PPF's Top Coat is designed for low surface energy and easy cleaning. This means an unprepared overlap will not adhere correctly, lift up and cause a failure.

The best way to work around this is to use a small butane blowtorch to "flame" the small area of the film that is going to have another piece of film overlapped onto it. This step essentially removes the hydrophobic top coat and creates a much better surface for the overlapping piece to adhere to.

It is recommended to pre-mask the area to be flamed, so that all other areas of the film and the substrate are protected, and will not be exposed to the flame. Use extreme caution when doing this and make sure to only use the flame in quick bursts and to keep it moving at all times so as not to overheat or burn any areas. Practice first on some waste material as this can take some time to get the technique correct.

Once the film has been flamed, give the film a quick wipe a microfibre with some surface cleaner (or IPA and water mix) before removing the masked areas. That section of film is now primed and ready for the overlapping piece to be applied. As with any type of join, we recommend assessing where it will be positioned on the vehicle prior to commencing the install.

Careful consideration should be taken to ensure the pieces are applied in the correct order, which will then dictate the direction of the overlap. In certain instances this can be purely for visual aesthetics, in other cases it can be to ensure that water flows cleanly over the join, rather than sitting against the films edge where it can potentially leave dirt deposits after it has dried.

5.6 Finishing Edges

Where the film wraps around an edge of a panel such as a bonnet or door, use your hot water tack and spray underneath the edge of the film to remove any residual soap solution, in order to achieve suitable adhesion.

Once the edges have been washed with water, use firm squeegee pressure to ensure the edges adhere. It may be necessary to repeat the edge wash a second time due to residual soap solution re-entering underneath the edges of the film.

Once the film has been applied, and all edges are firmly adhered, allow the film to settle and build a very strong bond, around 30 minutes if possible before proceeding to the finishing steps and trimming.

5.7 Trimming

Important Note: It is highly recommended to practice trimming using an offcut of Avery Dennison Spectrix PPF on a test panel of ACM (or similar product), prior to trimming on a vehicle. The aim with trimming PPF is to score only the top layer of the film, but not cut all the way through. This requires a certain level of skill and practicing is always recommended.

In cooler climates (below 16°C) some additional drying time may be required before commencing trimming of the film. If you start trimming the film without sufficient drying, it may not have achieved suitable levels of adhesion. If the film shows any signs of movement during trimming then longer drying time is required.

- For optimal cutting of the film, make sure to use a new and very sharp blade: dull blades will result in rough cuts or insufficient cutting depth.
- Use light blade pressure and only score the top half of the film, an audible squeak may be heard during trimming.
- Do not apply too much pressure as you may cut through the entire film and damage the vehicle paint.
- Once you have finished scoring the film, start to split the film by pulling the excess side away from the panel side, if required start with a small nick on one side of the trim to help start the splitting process. Move slowly and watch for signs that the cut might not be deep enough, if you see the separation line move from your cut line stop straight away, recut and restart.
- If the film does not split easily from the start, check your blade is new and sharp then re-trim being care not to cut too deep on the second pass.

Important Note: As a final application step, re-squeegee the most critical areas (e.g. corrugations and edges) to ensure optimal adhesion to the substrate.

6.0 Care and Maintenance

Avery Dennison Spectrix PPF provides long-term protection of the car body during the lifetime of the product. Avery Dennison only recommends hand washing of the film. Additionally for periodic maintenance and cleaning of the film, it is recommended to use Avery Dennison Wrap Care products. Other commercially available cleaning products may be suitable but need to be tested prior to use on an inconspicuous area of the film. For further information on cleaning and maintenance of the film, please refer to [Avery Dennison Instructional Bulletin 1.8 - Vehicle Wrap and Graphics Maintenance](#)

Important Note: After initial installation, allow 24-48 hours before washing the film.

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 Avery Dennison PPF Material 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.

Within the limit of its expected lifetime and if applied on properly cured OEM automotive paint, Avery Dennison PPF can be removed cleanly. For further information on removal of pressure sensitive adhesive films, please refer to [Avery Dennison Instructional Bulletin 1.07 - Removal of Decals](#).

Avery Dennison Spectrix PPF can resist light scratches to the specially designed topcoat, these scratches will disappear at normal ambient temperature, the application of heat can aid in scratch removal. Scratches that penetrate deeper than the topcoat cannot be removed, this is a normal characteristic of a PPF film and not deemed a failure of the material.

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 installers can be hired to ensure proper application of finished graphics. When mounting graphics in remote geographic areas, professional installers can offer the added benefit of local service.

Avery Dennison has a vast network of Certified Installers who have been specially trained and certified in accordance with our recommended techniques.

You can review the Certified Installer list here: [Find a Graphics Installer](#)

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.

