

PRODUCT BULLETIN

APPLICATION AND REMOVAL METHOD
Cast TAKE HEAT EASY Vinyl Film



THE190EVO FILM

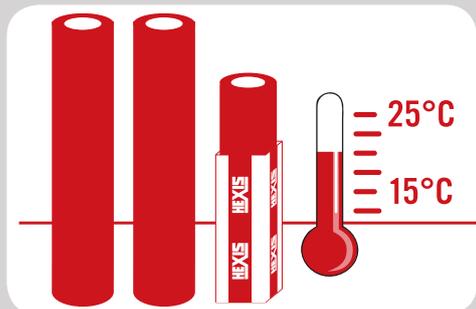
REQUIRED ACCESSORIES

- › Adhesive tape Tesa® 7476
- › Masking tape
- › Liquids for the cleaning of application surfaces:
 - › ADHESIVE REMOVER
 - › FINAL CLEANER
- › ProTech® SHAMPCAR car body shampoo
- › Liquid for an easier application: MAGICSPRAY
- › Squeegees upon your choice from the catalogue
- › Laminate compatible with cast films
- › VR7077 sealing varnish
- › ROLLRIV application wheel for application over rivets
- › RIVETBRUSH application accessory for riveted surfaces
- › PISTHERMIQ heat gun
- › PISTLASER3 laser thermometer
- › Different HEXIS application tools
- › ProTech® cleaning agents

STORE YOUR FILMS UNDER APPROPRIATE CONDITIONS

Keep the films away from any major sources of heat (radiators and heaters, direct exposure to sunlight, etc.): the ideal temperature ranges from 15 °C to 25 °C (from 59 °F to 77 °F). Store them in an atmosphere with low humidity (with relative humidity between 30 % and 70 %).

Keep your films in their original packaging. Each opened roll must be stored vertically or suspended in order to avoid pressure marks on the contact surface.



Application methods are based upon HEXIS' experience and are non-restrictive. Comply with instructions to ease application of HEXIS films. HEXIS also offer training sessions for beginners and professionals to achieve optimum results.

FEATURES

THE190EVO film consists of a 50-µm PVC, perfectly suitable for complex surfaces, and adheres particularly well to glass, steel, aluminium, PVC and melamine. Due to its high technical performance and flexibility, it may be used for full wrap applications as well as on curved and riveted surfaces, etc.

The combination of ultra-flexible cast vinyl and advanced TAKE HEAT EASY™ technology allows you to obtain high quality results while reducing the time required for application. Due to its extra low tack, the TAKE HEAT EASY™ technology allows for a very easy repositioning of the vinyl on the substrate during application, while not excluding the squeegeeing step for optimal adhesion of the film to the substrate.

THE190EVO film features an adhesive, which provides enhanced ease of application and optimum installation comfort at low temperature conditions (10 °C to 15 °C (50 °F to 59 °F).

PREPARING YOUR APPLICATION SURFACE

HEXIS films can be applied to a wide variety of substrates as long as the target surface is clean, dry, smooth, non-porous and free from any traces of oil, grease, wax, silicone or other contaminants. To avoid unexpected outcomes, always assume that every substrate is dirty and needs to be cleaned (see chapter, 3. CLEANING; page 3).

Do not forget to carry out a preliminary trial on a small surface to check if the substrate is compatible.

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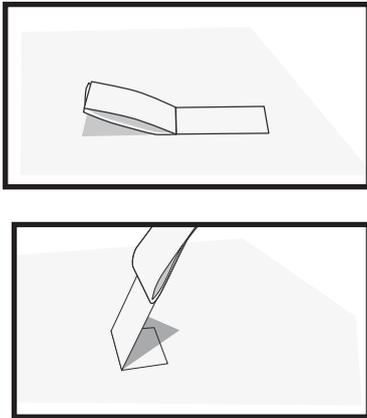
1. RECOMMENDATIONS:

- › THE190EVO film adheres particularly well to glass, steel, aluminium, PVC and melamine.
- › THE190EVO film has less adherence to the following substrates: low energy (polyethylene, polypropylene, etc.), grained or textured substrates or those coated with acrylic paint.
- › In the case of a vehicle wrap, avoid applying THE190EVO film to unpainted components such as trims or unpainted bumpers.
- › For any other substrate, preliminary tests must be carried out.
- › The best adhesion of the THE190EVO film is achieved after 24 hours of contact.

2. PRELIMINARY TEST OF THE APPLICATION SURFACES:

- › Any fresh new paint must be dried for at least 7 days at 25 °C (77 °F) in order to degas completely. A degassing test must be carried out before applying the film.
- › Any old, powdery or flaky paint must be sanded and renewed before application and must undergo a tear-off test.

2.1. Tear-off test:



Using a TESA® 7476 adhesive tape, or similar, apply it to a surface of 2.5 cm x 5 cm (1 in. x 2 in.) plus some overhang material for easier removal. Fold and promptly tear it off perpendicularly to the substrate surface. No traces should remain on the ripped off adhesive tape. Repeat this process in several places.

> *On request, HEXIS can provide you with a Tesa® adhesive tape in 2.5 cm x 5 cm (1 in x 2 in) size.*

2.2. Degassing test:

(For verification) Use a square of around 15 cm x 15 cm (6 in. x 6 in.) of self-adhesive polyester or of the film to be applied. Wait for 24 hours or 2 hours at 65 °C (149 °F). The appearance of bubbles indicates that the substrate has not sufficiently degassed. Therefore, this process should be repeated after a couple of days; or the procedure described below should be carried out.

2.3. Degassing procedure with flame treatment:

(Polycarbonate, translucent or diffusing methacrylate, expanded PVC, etc.)

This method consists of changing the surface tension of a substrate by swiping it with the flame of a gas burner. Using the flame's blue tip, proceed evenly with fast sweeps horizontally and vertically along the whole substrate surface.

⚠ MOVE THE FLAME IN SWIPING MOTIONS ON THE SUBSTRATE (RISK OF DESTROYING THE SUBSTRATE IF A FIXED POINT IS HEATED MORE THAN A SECOND).

The film must be applied right after this treatment as this light surface treatment disappears after a few minutes.

> *HEXIS are not liable for any bubbles caused by degassing.*

3. CLEANING:

Cleaning of the substrate is required before performing the application. It should always be assumed that the substrate is contaminated with dirt. Some residues or contaminants may not be visible; however, they may impact the adhesion of the film.

 Before using any cleaning liquids or chemicals, please refer to the Technical Data Sheets and Safety Data Sheets available for download on our website: www.hexis-graphics.com.

3.1. Clean and soiled surface appearance:

For vehicle wraps, it is advised to wash the vehicle with the SHAMPCAR vehicle body shampoo, then carry out a final cleaning using the FINAL CLEANER.

Shampcar
Concentrated vehicle
shampoo



3.2. Heavily soiled surface appearance:

For vehicle wraps, it is advised to wash the vehicle with the SHAMPCAR vehicle body shampoo, then use the ADHESIVE REMOVER.

Adhesive Remover
Powerful cleaning
agent



 The cleaning with the ADHESIVE REMOVER must be carried out in a ventilated area. Wear protective goggles and gloves.

Prior to treatment, run a compatibility test on a small, inconspicuous area of the substrate to be treated. Indeed, certain plastic materials might be damaged by the ADHESIVE REMOVER.

- › Spray the ADHESIVE REMOVER onto the dirty surface and spread out using a dry cloth.
- › Then wait for a few minutes. Spray the ADHESIVE REMOVER again, then wipe it dry with a clean cloth or squeegee.
- › When the substrate is clean and dry, carry out a final cleaning using the FINAL CLEANER.

Final Cleaner
Cleaning and
degreasing finishing
agent



3.3. Special case:

Remember to adapt the preparation methods to the substrate type and its condition. Thus, painted surfaces must be dry and hard, baked paints must be cooled down. Air-dried paints or car paints need to be dried for a minimum of one month before applying the film.

- › For bare metallic surfaces in the case of a full wrap:
 - › Clean the substrate with soapy water and then with a cloth soaked with FINAL CLEANER.

 Before using any cleaning liquids, refer to the Product Safety Data Sheet.

- › Thoroughly wipe the surface after the cleaning process.

4. LAMINATING THE FILM:

We recommend you laminate THE190EVP film with one of these laminating films compatible with cast films (PC190, PC500, structured laminates, etc.).

Ensure that the film is dry before application.

The printed THE190EVO film is touch-dry at 10 minutes maximum following application, but it is recommended to leave a drying time of at least 48 hours before laminating, cutting or applying it.

- › To ensure that the solvents evaporate completely, leave the printed films stacked in sheet racks in a ventilated room to dry.

5. APPLICATING THE190EVO FILM:

Due to its liner, it is mandatory to apply it using the so-called «dry» application method with THE190EVO film, laminated or not.

The TAKE HEAT EASY™ technology of THE190EVO film allows easy repositioning of the vinyl on the substrate during application.

However, THE190EVO film must be firmly squeegeed to achieve optimum adhesion on the substrate.

HEXIS tip: To enhance the surface sliding of the squeegee on the film while limiting the risk of micro-folds during this phase, the MAGICSPRAY product can be sprayed on the squeegee surface as soon as necessary, until completion of film application.

Before any application of THE190EVO complex, laminated or not, make sure that all surfaces are clean.

Application temperature:

The recommended minimum application temperature is +10 °C (+50 °F).

The application temperature must be respected for both the ambient and substrate temperature. Hygrometry may also influence the adhesion of the film to the substrate.

5.1. First steps and application of THE190EVO film to flat surfaces:

- › Wear gloves (GANTSCOV).



Figure 01

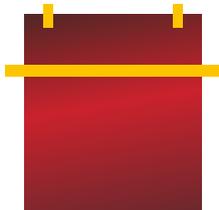


Figure 02

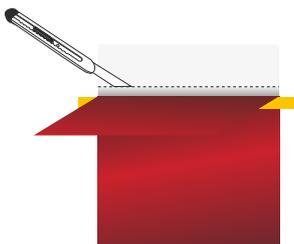


Figure 03

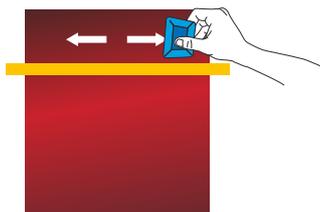


Figure 04

- › Position the printed film on the target surface and tape it into place without stretching it. (FIG. 01)

- › Apply a strip of masking tape or magnets across the upper section of the graphic in order to create a horizontal hinge; preferably on a flat part of the surface. (FIG. 02)

- › Peel off 10 cm (4 in.) of the liner. (FIG. 03)

- › Start applying the vinyl with a squeegee (previously covered with felt), by forming a 45-degree angle with the substrate, and by working from the centre towards the edges. (FIG. 04)

HEXIS tip: To enhance the surface sliding of the squeegee on the film, the MAGICSPRAY product can be sprayed on the surface of the latter as soon as necessary, until completion of film application.

› Remove the top hinge and continue removing the liner, depending on the surface pattern (cf. paragraphs below). (FIG. 05)

› During application to flat surfaces, squeegee the entire surface and at the same time remove the liner steadily, firmly pressing on the edges and corners.

5.2. Undulated surfaces:

After having completed step 5.1, you may come across slight or heavy undulations for which the application process will be different.

5.2.1. Slight undulations: "stretched application":

- › Remove the whole liner.
- › Apply the stretched vinyl over the substrate so as to have it stick only to the peaks of the undulation. (FIG. 06)
- › Apply the peaks with a finger or a squeegee.
- › Then heat the stretched areas to a temperature ranging from 40 °C to 50 °C (104 °F to 122 °F) with the heat gun.
- › While continuing to heat the film, press it into the hollow of the undulation with your thumb from both sides so as to properly stick the adhesive.
- › Without heating, apply the area between the two undulations from the centre to the rims using the squeegee.
- › Now cut the contours if your undulated substrate is composed of several parts.
- › Once the application is finished, heat all areas which have undergone heavy deformation to a temperature ranging from 80 °C to 90 °C (from 176 °F to 194 °F) to kill the shape memory of the film.

5.2.2. Heavy undulations: "extended application":

- › Gradually remove the liner while pulling it downward. (FIG. 07)
- › Apply the film with the thumb or a squeegee horizontally by progressing slowly into the hollow of the undulation.
- › Start by applying the hollow ①, then the peak ② and finally the hollow ③
- › Continue onto the next undulation ④, then keep going ⑤ until completion of the application
- › The application is completed.

⚠ In the hollow parts, THE190EVO film requires sufficient pressure in order to completely expel any air that could remain in the micro-channels. This is because the air that has not been evacuated and that is not visible to the eye may later result in the film peeling off from its substrate.

HEXIS tip: To enhance the surface sliding of the squeegee on the film, it is highly recommended to spray the application liquid MAGICSPRAY on the surface of the latter as soon as necessary, until completion of the film application.

5.3. Concave surfaces:

After having completed step 5.1, proceed as follows:

› Remove the whole liner. (FIG. 08)

› Stretch the vinyl over the substrate so that it touches the peaks only.

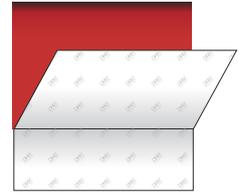


Figure 05

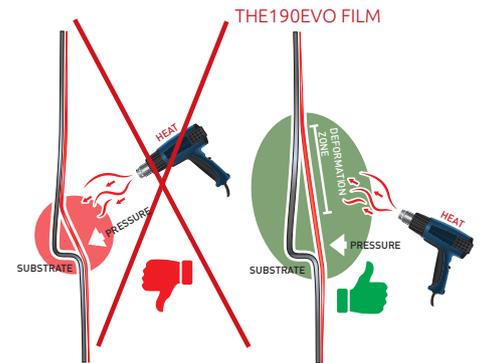


Figure 06

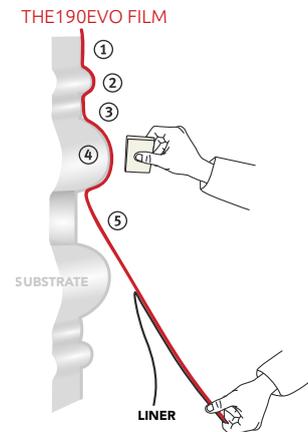


Figure 07



Figure 08

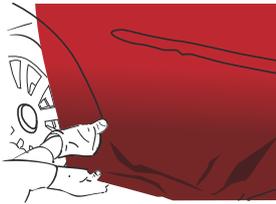


Figure 09

- › Apply the peak with your finger or a felt-covered plastic squeegee. (FIG. 09)

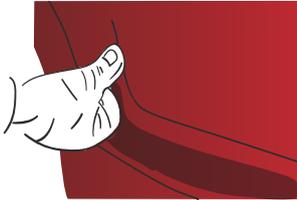


Figure 10

- › If necessary, lift and stretch the film again; then apply it.

- › Heat to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F) and press the film with your thumb into the hollow area so as to properly apply the adhesive. (FIG. 10)

! *The TAKE HEAT EASY™ technology allows very easy repositioning of the film during its application to the substrate and air evacuation. However, particularly in concave areas, the TAKE HEAT EASY™ technology requires sufficient pressure in order to completely expel any air that could remain in the micro-channels. The air that has not been evacuated and that is not visible to the human eye may later result in the film peeling off from its substrate. HEXIS recommend you pay particular attention to the application of THE190EVO film to concave areas.*

HEXIS tip: In order to reduce the risk of micro-folds generating during the air evacuation phase, it can be necessary to increase the surface sliding of the squeegee on the film. For this purpose, MAGICSPRAY can be sprayed on the squeegee surface whenever needed, until completion of the film application.

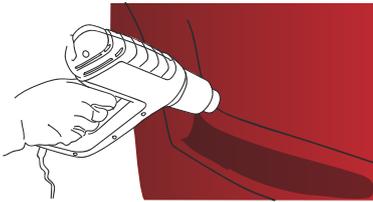


Figure 11

- › Once this step is completed, heat all the hollow parts which have undergone heavy deformation to a temperature ranging from 80 °C to 90 °C (from 176 °F to 194 °F) to kill the shape memory of the film. (FIG. 11)

5.4. Convex surfaces:

After having completed step 5.1, proceed as follows:

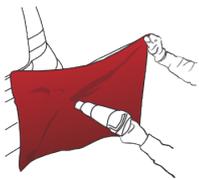


Figure 12

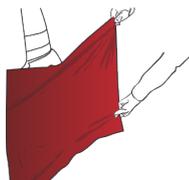


Figure 13

- › Remove the liner.
- › Heat the vinyl to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F), (FIG. 12) then stretch the film so as to completely wrap the convex surface. (FIG. 13)

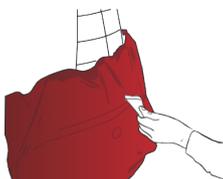


Figure 14



Figure 15

- › Apply the vinyl over the whole surface using a felt-covered plastic squeegee, and carefully wipe over the convex area (FIG. 14) to eliminate any tensions and folds.
- › If necessary, lift the film, stretch it again, completely wrap the convex surface and apply it. (FIG. 15)

- › After this operation, heat to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F) (FIG. 16) and stretch the film.

- › Leave it to cool down.

- › Apply the film.

- › Cut, if necessary, and heat all the edges again to a temperature ranging from 80 °C to 90 °C (from 176 °F to 194 °F) to ensure optimum adhesion of the film.

- › The application is complete. (FIG. 17)

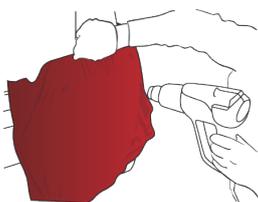


Figure 16



Figure 17

5.5. Riveted surfaces:

After having completed step 5.1, proceed as follows:

- › When you encounter a rivet, the film is stretched. Gently heat to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F). Then dab the rivets with the RIVETBRUSH to apply the film to them.

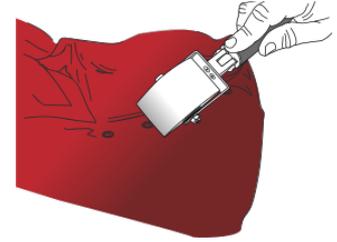


Figure 18

- › Then slide the ROLLRIV (FIG. 18) over the film to adhere it to the entire rivet surface. Press it around the entire rivet using a squeegee or your thumb.

- › To finish, use the RIVETBRUSH and firmly apply it to the rivets (still by dabbing).

- › Then heat each rivet again to 80 °C - 90 °C (176 °F - 194 °F). (FIG. 19)

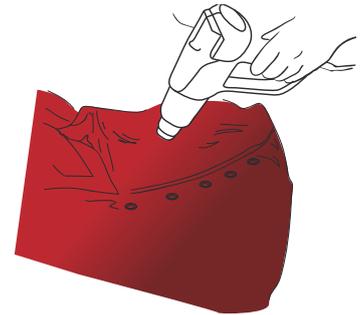


Figure 19

5.6. Additional information for a vehicle full wrap:

- › For vehicles, the application of film to window and body panel seals must be avoided by all means.

- › Whenever a horizontal application becomes necessary, such as on engine hoods or roofs, this may lead over time to a slight fading of colour and gloss compared to vertically exposed areas. As these areas suffer maximum exposure to sunlight and climatic influences, they are not covered by the HEXIS warranty regarding durability.

- › If a seam becomes necessary between two widths, HEXIS recommend you overlap the film by 1 cm (0.4 in.), as follows:

- Horizontal overlapping: application is always carried out from the bottom up; the upper film will overlap the lower film (tiling principle).
- Vertical overlapping on a mobile surface: application is always carried out from back to front of the vehicle; the second film will overlap the first one, etc. (FIG. 20)

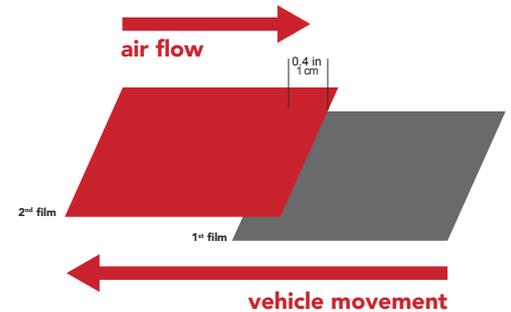


Figure 20

- › Avoid applying THE190EVO film to unpainted components such as trims or unpainted bumpers.

- › The first step is very important and here are some essential tips:

- › Make a hinge as indicated above (see chapter, 5.1. First steps and application of THE190EVO film to flat surfaces; page 4) just above the door handles.
- › Cut and remove the liner from the upper part.
- › Stretch the film and apply it using a squeegee.
- › Once the upper part is applied, remove the remaining liner from the lower part.



Figure 21

- › Stretch the film over the door handles and, using a squeegee, apply the film all around the door handles. (FIG. 21)

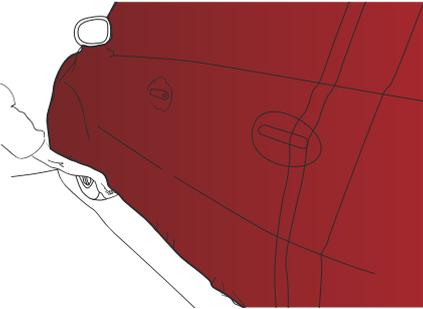


Figure 22

- › Once the door handles are done, stretch the film down to the bottom of the vehicle body. (FIG. 22)

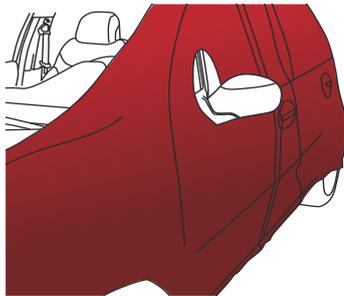


Figure 23

- › If necessary, lift and stretch the film again, by heating it to a temperature ranging from 40 °C to 50 °C (from 86 °F to 104 °F) in order to remove any folds.

- › The film is stretched over the entire surface area to be wrapped. Now you can apply the film (FIG. 23) according to the type of surface.

6. USE OF THE HEAT GUN:

You have used the heat gun for dry application to complex surfaces (concave, convex, riveted).

Once the application is finished, heat all the parts that have undergone severe deformation using the heat gun (FIG. 24). The heating temperature must range from 80 °C to 90 °C (from 176 °F to 194 °F). Check it using the PISTLASER3 laser thermometer.

Heat accelerates the bonding process of the pressure-sensitive adhesive. Thus, the vinyl will be definitively conformed to its new shape.

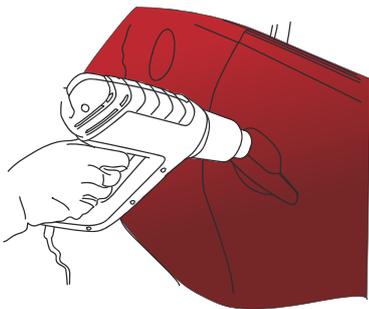


Figure 24

7. EDGE SEALING TAPE OR VARNISH:

HEXIS recommend using PC190G2 sealing strips rather than sealing varnish when applying THE190EVO film to a vehicle (to avoid any risk of damaging the vehicle paint during removal). However, in certain cases, such as THE190EVO film applied to trains, heavy machinery or boats, the VR7077 sealing varnish will be required to reinforce the film edges.

7.1. Edge sealing tape:

To enhance the adhesion of THE190EVO film to areas exposed to heavy wear such as door sills, wheel cages, etc. you can use strips of the PC190G2 laminate for slightly curved surfaces.

- › Cut the laminate into a strip of 14 mm (½ in.) wide.
- › Apply the strip by overlapping it by approximately 7 mm (¼ in.) over the body work and 7 mm (¼ in.) over THE190EVO film. (FIG. 25)

HEXIS tip: Preferably use sealing strips rather than the VR7077 sealing varnish for most applications.



Figure 25

7.2. Edge sealing varnish:

The VR7077 sealing varnish must be applied only to reinforce sealing and adhesion of the edges of THE190EVO film undergoing heavy external stress without modifying the adhesion properties of the films.

HEXIS tip: Preferably use sealing strips rather than the VR7077 sealing varnish for most applications.

Using VR7077 varnish is at the installer’s own discretion.

- › Ensure that all surfaces are completely dry.
- › Apply 2 strips of masking tape:
 - 1 to the substrate at 5 mm (0.2 in.) from THE190EVO.
 - 1 to THE190EVO at 5 mm (0.2 in.) from its edge. (FIG. 26)
- › Apply the varnish with a brush in one single layer; wear gloves and protective goggles.
- › Remove the masking tape 15 minutes after application.
- › Drying time is variable depending on the varnish coat’s thickness and surrounding temperature: For a film with an average coat, optimal drying time is 24 hours. Any physical aggression (cleaning, abrasion, etc.) must be avoided by all means during that period of time.

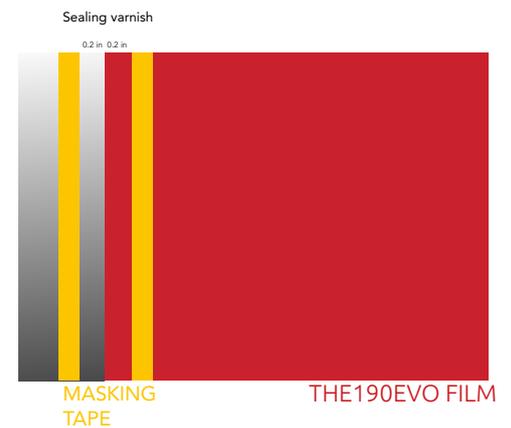


Figure 26

! *By all means avoid any contact between varnish and window seals.*

8. CLEANING AND MAINTENANCE OF THE190EVO FILM:

For optimum maintenance of the complex THE190EVO + laminate, HEXIS suggest to use their range of ProTech® cleaning agents specially designed for total wraps.

THE190EVO film can be cleaned in any conventional automatic car wash, using cleaning products and detergents used for professional maintenance of vehicles and advertising equipment.

Nevertheless exercise care when cleaning with high-pressure cleaners: Apply medium water pressure at a minimum distance of 50 cm (20 in.) and a maximum water temperature of 35 °C (95 °F).

! *However, the film should not be cleaned within the first 48 hours following its application as this can affect the adhesive strength that may result in the film peeling off.*

! *Solvents and corrosive detergents must not be used.*



 *HEXIS are not liable for any adhesive films cleaned with unspecified additives from cleaning stations.*

 *Car washes: The additive products and the condition of the rotating brushes may impair the adhesion of the graphics or films. It is commonly admitted that after 10 car washes, the polyurethane paint becomes streaked; therefore, we are not accountable for these mechanical effects that may affect the film appearance.*

HEXIS tip: Always carry out a test on a small area before cleaning the entire covered surface.

9. REMOVAL PROCEDURE:

THE190EVO film features a permanent adhesive and therefore its removal needs some attention. Nevertheless, by following the instructions below, the removal will be relatively easy.

› Using a heat gun, start from a corner and heat the film to a temperature of around 60 °C (140 °F) (use the laser thermometer).

› Gently lift the corner with the cutter without damaging the substrate, and gradually remove the previously heated film; the film should form a 70- to 80-degree angle with the substrate.

 *An angle more or less wide or acute will cause the film to break more easily.*

› Always proceed gradually by heating small areas while carefully removing the film so as to limit the risk of leaving any adhesive on the substrate or tearing the film.

› Continue to carefully heat and peel off the film gently until it is completely removed while keeping a watchful eye on the heat applied, on the pulling angle of the film, and the pulling speed.

› If any adhesive remains on the substrate, take a cloth soaked with our ADHESIVE REMOVER and rub the surface until all traces disappear.

› Acetone may be used to ease the removal of the VR7077 sealing varnish.

 *Liquids may damage seals; therefore take the necessary precautions before performing clean-up.*

 *Before using any of our liquids, please refer to the technical data sheets available on our website at www.hexis-graphics.com.*

For further technical information, please refer to the Technical Data Sheets available for free download from our website www.hexis-graphics.com, on the "Professionals" pages.

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