

PRODUCT BULLETIN

APPLICATION AND REMOVAL METHOD

HEX'PRESS Polyurethane Film: HX500WG2

REQUIRED EQUIPMENT

- › Tesa® 50110 adhesive tape
- › Masking tape
- › Liquids for the cleaning of application surfaces:
 - › SHAGREMOV
 - › SHAGCLEAN
- › ProTech® SHAMPCARV2 vehicle shampoo
- › Liquid for an easier application: MAGICSPRAY
- › Squeegees upon your choice from the catalogue
- › PC500 or PC300 Laminate
- › ROLLRIV application wheel for application over rivets
- › RIVETBRUSH application accessory for riveted surfaces
- › RSSEAL edge sealing tape
- › VR7077 sealing varnish
- › PISTHERMIQ heat gun
- › PISTLASER3 laser thermometer
- › Different HEXIS application tools
- › SHAGRELOAD cleaning agents

STORE YOUR FILMS UNDER APPROPRIATE CONDITIONS

Keep off the films from any major source of heat (radiators and heaters, direct exposure to sunlight, etc.): the best 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.

FEATURES

The 50-µm, PVC free HX500WG2 film is perfectly suitable for complex surfaces and adheres particularly well to glass, steel, aluminium, PVC and melamine.

Its high technical performance and its conformability allow to use it for full wraps and on curved and riveted surfaces or the like.

The combination of the conformable film and the advanced HEX'PRESS adhesive technology ensure you to obtain superior quality results while reducing the time required for application. This technology allows an easy repositioning of the vinyl on the substrate during application; however, the film must be firmly squeegeed to achieve optimum adhesion to the substrate.

The HX500WG2 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

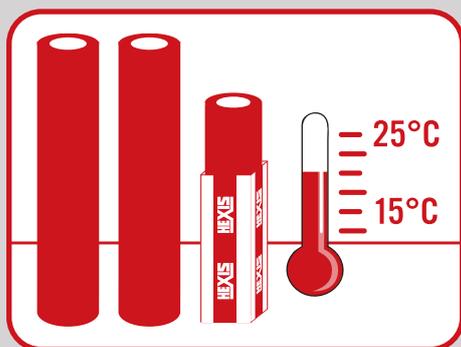
HEXIS films can be applied to a wide variety of substrates as long as the target surface is clean, dry, smooth, non-porous and free of any traces of oil, grease, wax, silicone or other polluting agents. To avoid unexpected results, always consider that every substrate is polluted and needs to be cleaned prior to any application (cf. chapter 3).

Remember to carry out a preliminary test on a small surface area to check if the substrate is compatible and remains undamaged.

For further technical information, please refer to the data sheets available on the "Professionals" pages on our website at www.hexis-graphics.com.

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

1. RECOMMENDATIONS:

- › The HX500WG2 film adheres particularly well to glass, steel, aluminium, PVC and melamine.
- › The HX500WG2 film has less adhesion on these substrates: low energy surfaces (polyethylene, polypropylene, etc.), grained or textures surfaces, acrylic paints.
- › In the case of vehicle wrap, avoid applying self-adhesive films on unpainted components such as trim or unpainted bumpers.
- › For any other substrate preliminary tests must be carried out.
- › The HX500WG2 film achieves optimum adhesion after 24 hours of application.
- › After use, the HX500WG2 film coils must be stored in their original packaging in order to preserve all their technical features.

 *HEXIS are not liable for any irreversible deterioration of HX500WG2 film coils that came into prolonged contact with each other.*

2. PRELIMINARY TEST OF THE APPLICATION SURFACES:

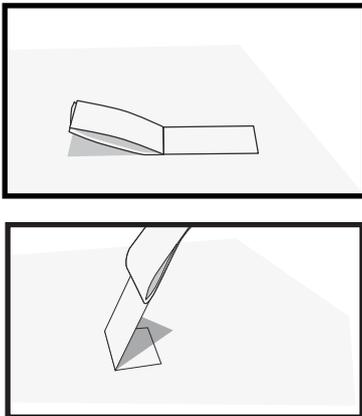
Before any application, the installer must primarily inspect the substrate and the paint to which the film will be applied.

The installer and the client are responsible for the suitability evaluation of the target surface to be covered.

2.1. Preliminary inspection of the substrate:

- › Any fresh new paint must be dried for at least 7 days at 25 °C (77 °F) to outgas completely. An outgassing 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.

2.2. Tear-off test:



Using a TESA® 50110 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 tear it off with one quick pull perpendicular to the substrate surface. The film must generate a certain resistance during its removal. 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. HEXIS cannot be held liable for any damage to the substrate following the execution of this test.

2.3. Degassing test:

(For checking) 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 insufficiently outgassed. In this case, this process should be repeated after a couple of days; or else the procedure described below should be carried out.

2.4. Outgassing 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 that treatment as this light surface treatment disappears after few minutes.

> HEXIS are not liable for any bubbles caused by outgassing.

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 SHAMPCARV2 vehicle body shampoo, then carry out a final cleaning using the SHAGCLEAN product.

SHAMPCARV2
Concentrated vehicle
shampoo



3.2. Heavily soiled surface appearance:

For vehicle wraps, it is advised to wash the vehicle with the SHAMPCARV2 vehicle body shampoo, then use the SHAGREMOV product.

! Use the SHAGREMOV product in a ventilated area. Wear protective gloves and goggles.

Prior to treatment, run a compatibility test on a small, inconspicuous area of the substrate to be treated. Certain plastic materials may be damaged by the SHAGREMOV.

- › Spray the SHAGREMOV product on the dirty surface and spread it out using a dry cloth.
- › Wait for a few minutes. Then spray the SHAGREMOV product again and wipe the surface dry with a clean cloth or squeegee.
- › When the substrate is clean and dry, carry out a final cleaning with the SHAGCLEAN product.

SHAGREMOV
Powerful cleaning
agent



SHAGCLEAN
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 the SHAGCLEAN product.

! Refer to the Product Safety Data Sheet prior to use.

- › Thoroughly wipe down the surface after the cleaning process.

4. LAMINATION OF THE FILM:

We recommend you to laminate the HX500WG2 film with one of the PC500 laminates.

Ensure that the HX500WG2 film be dry before application.

The printed HX500WG2 film is touch-dry at the latest 10 minutes following application, but it is recommended to leave a drying time of 48 hours before applying, laminating or cutting the film.

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

5. APPLICATION OF THE HX500WG2 FILM:

Due to its HEX'Press liner, the HX500WG2 film must solely be applied according to the so-called "dry" application method.

This HEX'PRESS technology allows easy repositioning of the vinyl on the substrate during application.

However, the HX500WG2 film must be firmly squeegeed to achieve optimum adhesion on the substrate.

HEXIS advice: 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 the film application.

Before any application of the HX500WG2 + PC500G2 compound or of the film alone, make sure that all surfaces are clean.

Application temperature:

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

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

5.1. First steps and application of the HX500WG2 film on flat surfaces:

› Wear cotton gloves (GANTSCOV).



Figure 01

› Position the printed film on the target surface so as to hold it in place without stretching it. (FIG. 01)

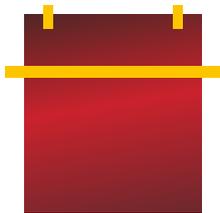


Figure 02

› Using masking tape strips or magnets, make a horizontal hinge preferably on a flat area. (FIG. 02)

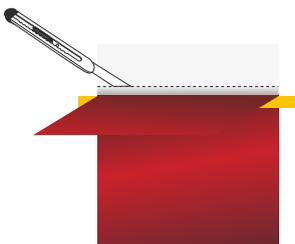


Figure 03

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

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

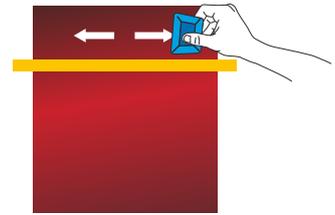


Figure 04

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

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

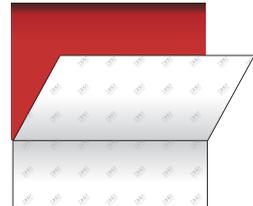


Figure 05

- › During application on flat surfaces, squeegee the entire surface by gradually removing the liner, and by pressing firmly on the edges and corners.

5.2. Undulated surfaces: Apply the “extended application method” in the case of heavy undulations:

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

- › Remove the liner gradually by tensioning it towards the lower end. (FIG. 06)
- › Apply the film horizontally with your thumb or a squeegee by progressing slowly into the hollow of the undulation.
- › Apply the hollow ①, then the peak ② and afterwards the hollow ③.
- › Go up onto the next undulation ④, then keep going ⑤ until completion of the application.
- › The application is finished.

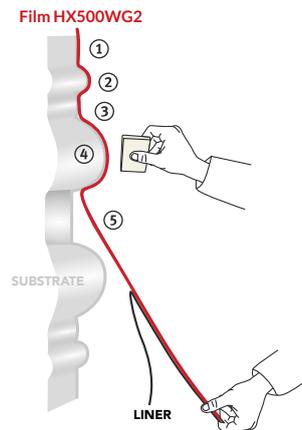


Figure 06

! In the hollow parts, the HEX'PRESS adhesive technology requires sufficient pressure in order to completely expel all air that may 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 advice: 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:

Any heating operation indicated below must be carried out with the heat gun or the blow torch by performing sweeping motions at a reasonable distance. The temperature must be checked with the laser thermometer on the film's surface, in the heated area, right after withdrawal of the heat gun's hot air flow.

! If the heat flow is maintained on a fixed spot or near the surface of the film, it may result in an irreversible deterioration of the product. Do not measure the temperature in the air flow of the heat gun. This would give a wrong measurement and could lead to an insufficient reheating temperature (risk of the film peeling off later on).

After work step 5.1 proceed as follows:

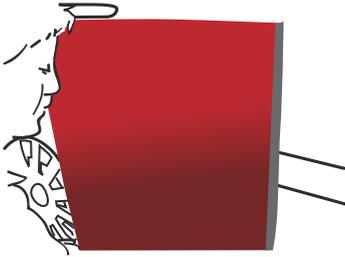


Figure 07

- › Remove all the liner. (FIG. 07)

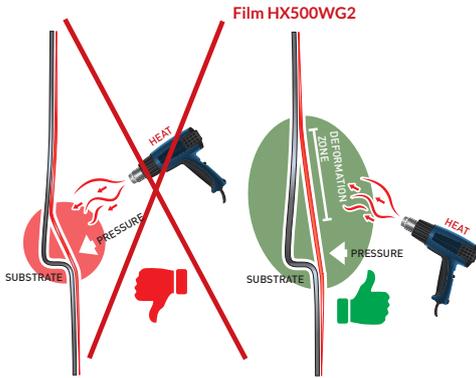


Figure 08

- › Stretch the vinyl over the substrate so that the film touches the peaks only. (FIG. 08)

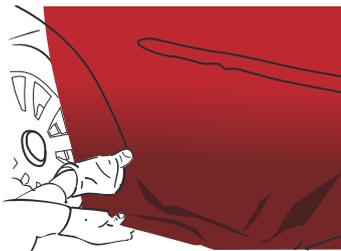


Figure 09

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

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



Figure 10

- › 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)

⚠ Caution: *HEXIS recommend you to pay particular attention to the application of HEX'PRESS films on concave areas. The HEX'PRESS adhesive technology requires sufficient pressure at the film surface in order to completely expel any air that may remain in the micro-channels. Indeed, the air which has not been evacuated from the micro-channels and which is not visible to the eye may later result in the film peeling off from its substrate.*

HEXIS advice: In order to reduce the risk of micro-folds generated 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 as soon as necessary, until completion of the film application.

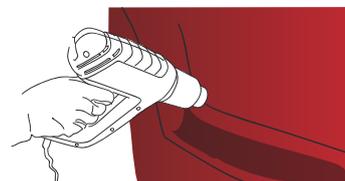


Figure 11

- › When finished, reheat all hollow areas that have undergone strong stretching to between 80 and 90 °C (176 and 194 °F) in order to definitely thermoform the product. (FIG. 11)

5.4. Convex surfaces:

Having completed step 5.1, proceed as follows:

- › 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)
- › Apply the film over the entire surface with the help of a plastic squeegee covered with a felt sheet, and carefully wipe over the convex area (FIG. 14) to eliminate any tensions.
- › If necessary, lift the film, stretch it again and completely wrap the convex surface, then apply it. (FIG. 15)
- › Following this, heat to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F) (FIG. 16) and squeegee the surface.
- › Leave it to cool down.
- › The application is completed. (FIG. 17)

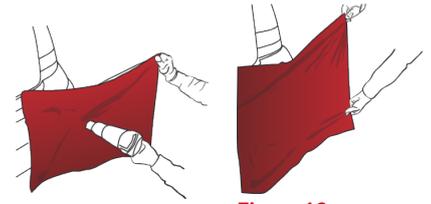


Figure 12

Figure 13

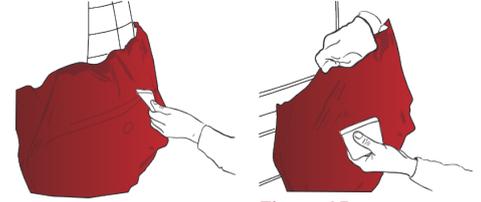


Figure 14

Figure 15

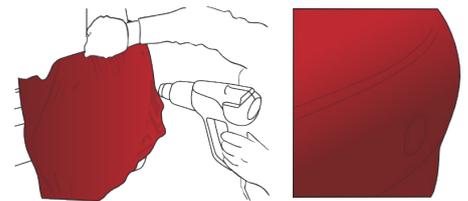


Figure 16

Figure 17

5.5. Riveted surfaces:

Having completed step 5.1, proceed as follows:

- › When you come across a rivet, the film is stretched. Gently heat at 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 on them.

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

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

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

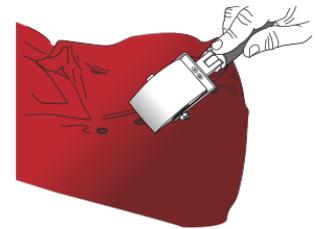


Figure 18



Figure 19

5.6. Additional information for a vehicle full wrap:

- › On vehicles, the film application on window and body panel seals must by all means be avoided.
- › Whenever application to a horizontal surface is necessary, such as on engine hoods or roofs, a slight fading of colour and gloss may develop over time compared to vertically oriented areas. As these areas suffer maximum exposure to sunlight and climatic influences, they are not covered by the HEXIS warranty regarding durability.

› If an overlap of widths becomes necessary, HEXIS recommend 1 cm (0.4 in.), carried out in the following way:

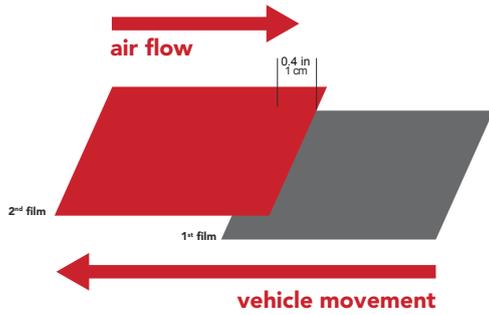


Figure 20

- Horizontal overlap: always apply from the vehicle bottom towards the top so that the upper part of the film overlaps the lower part (tiling).
- Vertical overlap on moving surfaces: always apply from the rear towards the front of the vehicle, the second width will overlap the first one, etc. (FIG. 20)

› Avoid applying the HX500WG2 film on unpainted components such as trims or unpainted bumpers.

› The first step is the most important and here is some essential advice:

› Make a hinge as indicated above (chapter 5.1. First step and application of the HX500WG2 film on flat surfaces: page 4) just above the door handles.

› Cut and remove the liner from the upper part.

› Tension the film and apply it using a squeegee.

› Once the upper part is applied, remove the remaining liner from the lower part.



Figure 21

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

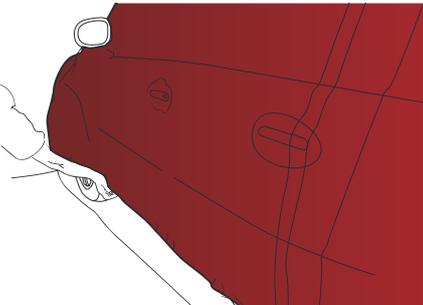


Figure 22

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

› If necessary, lift and stretch the film again, then heat it to a temperature ranging from 40 °C to 50 °C (from 104 °F to 122 °F) so as to remove any folds.

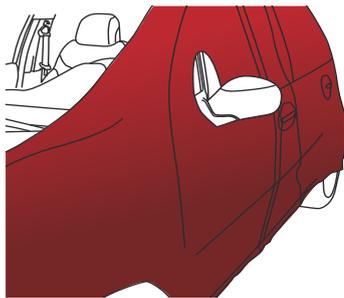


Figure 23

› The film is now 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 onto complex surfaces (concave, convex and riveted).

When the application is finished, reheat all areas that underwent heavy deformation with the heat gun (FIG. 24). The temperature should be between 80 °C and 90 °C (176 °F and 194 °F); check with the laser thermometer (PISTLASER3).

The heat accelerates the bonding process of the pressure sensitive adhesive. Thus the vinyl is definitely thermoformed.

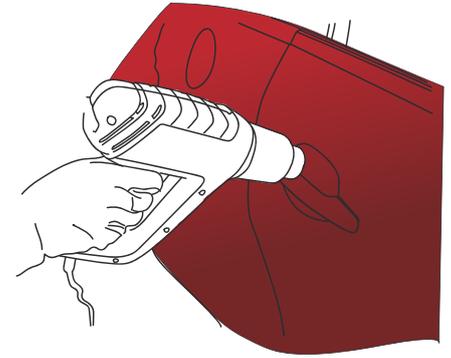


Figure 24

7. EDGE SEALING TAPE OR EDGE SEALING VARNISH:

HEXIS recommend the use of RSSEAL sealing strips rather than the use of sealing varnish in combination with the HX500WG2 film applied to vehicles (to avoid any risk of damage to the vehicle paint during removal).

However, in certain cases such as HX500WG2 film applied to trains (excluding high-speed trains) or heavy machinery, etc., the VR7077 sealing varnish will be required to reinforce the edges of the film.

7.1. Edge sealing tape:

› To enhance the adhesion of the HX500WG2 film on areas exposed to heavy wear such as door sills, wheel cages, etc. you can use RSSEAL film strips for slightly curved surfaces.

› Apply the strip with an overlap of approximately 7 mm (¼ in.) over the body work and 7 mm (¼ in.) over the HX500WG2 film. (FIG. 25)

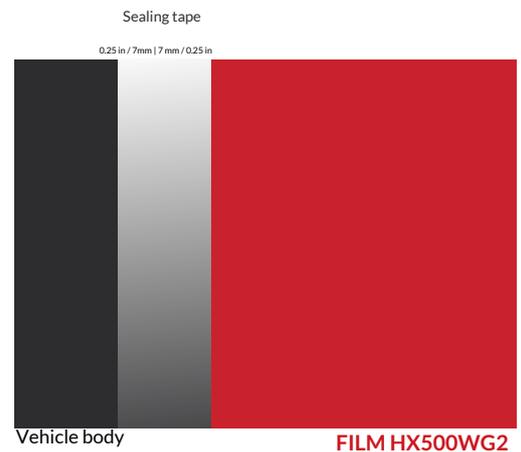


Figure 25

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

7.2. Sealing varnish:

The VR7077 sealing varnish must only be applied to reinforce the sealing and the adhesion of the HX500WG2 film undergoing heavy stress without modifying the adhesion properties of the films.

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

The use of the VR7077 varnish is at the installer's own discretion.

› Ensure that the surfaces be completely dry.

› Apply 2 strips of masking tape:
 1 on the substrate at 5 mm (0.2 in.) from the edge of the HX500WG2 film.
 1 on the HX500WG2 film at 5 mm (0.2 in.) from its edge. (FIG. 26)



Figure 26

- › Apply the varnish with a brush in one single layer; wear gloves and protective goggles.
- › Remove the masking tape 15 minutes after application.
- › The drying time is variable depending on the thickness of the varnish coat and the ambient temperature: for a film with an average coat, the optimum drying time is 24 hours. Any physical aggression (cleaning, abrasion, etc.) must be avoided by all means during this time.

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

8. CLEANING AND MAINTENANCE OF THE HX500WG2 FILM:

For a complementary cleaning of the compound HX500WG2 + laminate, use the SHAGRELOAD product with a clean microfibre cloth.

- › Spray directly onto the surface to be cleaned (\pm 40 cm x 40 cm / 15 in. x 15 in.).
- › Wipe with a microfibre cloth before the product dries.

The HX500WG2 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, clean carefully: apply medium water pressure at a minimum distance of 50 cm (20 in.) and a maximum water temperature of 35 °C (95 °F).

Nevertheless, for the use of high-pressure cleaners, respect the following procedure: apply medium water pressure at a minimum distance of 50 cm (20 in.) and a maximum water temperature of 35 °C (95 °F).

 *Caution: However, do not clean the film within the 48 hours following its application as this can affect the adhesion that may result in the film peeling off.*

 *Caution: Solvents and corrosive detergents must not be used.*

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

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

HEXIS advice: Always test cleaning on a small area before cleaning the entire surface to be covered.

9. REMOVAL PROCEDURE:

The HX500WG2 film features a permanent adhesive and therefore its removal needs some attention. Nevertheless, if you follow 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).
- › Lift the corner gently with the cutter - available in the tool case -, without damaging the substrate, and gradually remove the film; the film should form an angle of 70° to 80° relative to 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 off 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 brought, on the pulling angle of the film, and the pulling speed.

► If any adhesive remains on the substrate, take a cloth soaked with our SHAGREMOV product and rub the surface until all traces disappear.

⚠ *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 SHAGREMOV product.*

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

⚠ *Always check the compatibility and non-aggression of the liquids with the substrate by carrying out a test on a small, non-conspicuous area of the substrate. HEXIS are not liable for damages and degradations caused to the substrate by using incompatible products.*

⚠ *Before handling any of our liquid products, refer to the technical data sheets 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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