

PRODUCT BULLETIN

INSTALLATION AND REMOVAL METHOD

Solar protection film

AUTOMOTIVE FILMS

REQUIRED ACCESSORIES

- > An 11-litre PULVITRE vaporiser
- > Three one-litre PULVERISAT vaporisers
- > PORTECOV protection film for the interior
- > A GRATTOIR sponge
- > A MARBLEU squeegee
- > A MARNNOIR squeegee for the finish
- > A PIADZNOIR squeegee
- > A set of LAME100 blades
- > A POIGNVITRE with a BLUEMAX squeegee
- > A CUTVITRE snap-off blade knife
- > CUTLAME replacement blades
- > A CAROPM triangle trim guide
- > A PISTHERMIQ heat gun
- > A Nylon brush (kitchen utensil type) with long handle
- > A stainless steel wool pad
- > Clear vinegar
- > A detergent (washing-up liquid)
- > Paper towels
- > A dust pad
- > A portable spotlight

STORE YOUR FILMS UNDER GOOD CONDITIONS

Keep films away from all sources of heat (radiators, direct exposure to sunlight...): the ideal temperature is between 15 and 25°C (59 and 77°F).

Store films in a dry place and in their original packaging – the rolls are packaged in waterproof polyethylene bags and held in place in their cardboard boxes by means of square plastic end pieces to prevent the wound turns from being crushed by the weight.

- A roll that is stored correctly can be kept for 1 year.
- STORE ROLLS FLAT ONLY.



CHARACTERISTICS

HEXIS solar protection films for vehicles are high performance multi-layered and fully thermoformable films. They have wide-ranging characteristics, making it possible to either reduce glare and visual fatigue for the people in the vehicle or prevent viewing of objects inside the vehicle, or prevent carjacking.

PREPARING THE APPLICATION SUBSTRATES

HEXIS solar films can be applied to all types of vehicle windows, on the condition that these windows have a clean, smooth, non-porous surface with no traces of oil, grease, wax, silicone or other polluting agents. To avoid any nasty surprises, work on the principle that all substrates are polluted and must be cleaned (see chapter 2. CLEANING, page 2).

Refer to the data sheets for the films used available on our website www.hexis-graphics.com.

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These application methods are based on HEXIS' experience and are not restrictive. For easier application of HEXIS films, please respect these recommendations. HEXIS also offers training courses, which are necessary for optimal application of our products.

1. RECOMMENDATIONS:

- › Clean the windows only with the products listed in chapter 2. CLEANING, page 2.
- › The cleaning process must only use tools without strong abrasive strength (particularly on the defrosting heating wires), nor with scrapers.
- › Ensure the vehicle is clean on the outside.
- › Solar films may only be applied on the side and rear windows.
- › To comply with local legislation in your country and with safety regulations, certain solar films may not be installed on side windows.
- › Cut and thermoform the film compound (solar film/adhesive/liner) on the outside of the windows. Position and apply the solar film on the inside of the windows.
- › All HEXIS automotive solar films are installed on the inside
 - Refer to the data sheets on **www.hexis-graphics.com**.
- › When thermoforming the film the tunnels should always form vertically.

2. CLEANING:


- › Prepare the application liquid in the 11-litre vaporiser (PULVITRE) with roughly 20 bottle tops of detergent and with water (A).
- › Prepare 3 1-litre vaporisers (PULVERISAT):
 - one with clear vinegar (handle with care)
 - one with a mix from the PULVITRE (A) (to make handling easier)
 - one with the thermoforming liquid: 70% of detergent and 30% water (B)

 *Clean the inner side of the windows.*

- › Protect doors, trimmings, back shelf with PORTECOV film against projections of soapy water.

2.1. Cleaning of the side windows:

- › Wind the windows completely down.
- › Clean the seals with a Nylon brush (kitchen utensil type) with a long handle.

 *Pay particular attention to the cleaning of the seals as they may trap abrasive substances (sand, soil...) that may damage the windows during installation.*

- › Rinse.
- › Wind the windows half-way up.
- › Clean the upper part of the window with the GRATTOIR sponge.

 *Check the rims*

- › Rinse the edge.
- › Wind the window up.
- › Moisten and then scrape the inside of the window with a blade (LAME100).
- › Rinse.

2.2. Inside cleaning of the rear window:

- › Moisten the rear windows with the PULVITRE (Liquid (A)) or PULVERISAT (clear vinegar).
- › Scrape the window with the stainless steel wool pad or the GRATTOIR sponge.
- › Dry with a paper towel.

2.3. Cleaning of the rear quarter windows:

- › Moisten the window with the PULVERISAT (Liquid (A)).
- › Scrape with a blade (LAME100) to remove any adhesive residues.

⚠ Caution: For the rear quarter windows with integrated aerials refer to chapter 2.2. Inside cleaning of the rear window page 2.

- › Rinse.

3. APPLICATION OF THE FILM:

The automotive films supplied by HEXIS should be applied to the inside of the vehicle (see Technical data sheets); the preparation process nevertheless takes place on the outside of the windows..

3.1. Sliding side windows:

The window must be cleaned on the outside and the window then closed. The doors and trimmings are protected against projections of soapy water by the PORTECOV film.

3.1.1. Cuts on the side widows :

- › Generously moisten the outside of the window with PULVITRE (liquid (A)).
- › Put the compound in place in the following manner:
 - The roll is vertical and the film is unrolled horizontally from the front towards the rear of the vehicle. (FIG. 01)
 - Le film should cover the door from one side to the other.
 - The bottom end of the film should be against the upper edge of the lip of the seal.

Reminder: the liner part should be facing you and the solar part facing the window.

- › Cut the compound at 1cm (½in) beyond the door.
- › Cut the entire film from the bottom to the top, on the glass, right next to the wing mirror base or the window guide.(FIG. 02)
- › Move the film horizontally by about 5mm (¼in) towards the front of the vehicle. (approximately the width of the seal).
- › Cut the entire film from the bottom towards the top, on the glass, right next to the rear window guide (FIG. 02).

⚠ To protect the window against scratches, the cut must be made with 5 blades of the CUTVITRE out with the first being a fresh one.

- › Move the film horizontally by 2cm (1in) towards the front of the vehicle and vertically by 4 cm (2in) towards the top.

⚠ This movement is essential to prevent, at the next stage, the window from being scratched by any contamination trapped under the seals.

- › Smoothen the film with the MARBLEU squeegee by going along the seals from the middle of the upper seal down to the lower end of the rear rail of the door window. ①.(FIG. 03)
- › Finally starting from the centre of the upper seal smoothen the film with the squeegee downwards along the base of the wing mirror or front rail of the door window ②. (FIG. 03)

This operation will result in the appearance of vertical tunnels. This is quite normal.



Figure 02



Figure 03

- › Thermoform the bottom of the film with the heat gun (PISTHERMIQ) and smoothen the tunnels with the MARBLEU squeegee moving from the top towards the bottom. (FIG. 04) Continue until the surface is smooth.



Figure 04

⚠ Use the heat gun with reason so as not to burn the film.

- › Remove the film and moisten the window generously with the PULVITRE (Liquid (A)).

Doors with two guide rails of the same dimensions:



Figure 05

- › Reposition the compound on the window leaving a space of 4 cm (2in) from the lip of the lower seal and 2 cm (1in) from the front guide rail.
- › Repeat the smoothening (①, ②) and thermoforming on the other side of the film. (FIG. 05)
- › Remove the film and moisten the window generously with the PULVITRE (Liquid (A)).

3.1.2. Upper cut:

- › Reposition the film in a manner that:
 - the film is put neatly on the lip of the seals on each side.
 - the lip of the lower seal must be covered by the 5 mm (1/4in) of film.
- › Cut the film on the glass along the lip of the lower seal.

To protect the window from scratches push out 5 blades on the CUTVITRE with first being a fresh one to do the cut.



Figure 06

- › Apply the film with the MARBLEU squeegee over a wide band at the top and in the middle of the window. (FIG. 06)
- › Lift the bottom of the film
- › Lower the window by about 5 cm (2in).



Figure 07

- › Cut the top of the compound with a close cut along the open window with the CUTVITRE. (FIG. 07)

Tip: To obtain a neat cut, hold the cut off piece while cutting.



Figure 08

- › Cut around the corners with the CUTVITRE using the window or the squeegee as support. (FIG. 08)

At this stage the film has exactly the size of the window to be covered. Proceed in the same manner with the other sliding side windows.

3.1.3. Removing the liner:

- › Reposition the compound on the window leaving a space of 5 cm (2in) from the edge of the glass. (FIG. 09)
- › Carefully dry and clean this area both on the inside of the window.

The purpose of this operation is to limit the contamination with dust on the film when removing the liner.

- › Generously moisten with the PULVITRE (Liquid (A)), lift and fold the upper angles of the liner towards the centre.

- › Lift and then roughly roll up the newly shaped tip until the solar film appears at 3/4. (FIG. 10)

⚠ *The contamination with dust on the film at this stage will be visible with the final result.*



Figure 09



Figure 10

3.1.4. The installation:

The installation method described below is applicable both to side windows and rear windows.

- › Generously moisten the inside of the window with the PULVITRE (Liquid (A)).
- › Remove the solar film from the outside of the window.
- › Position the adhesive side of the film on the inside of the window by first sliding the upper part of the film under lip of the seal of the larger post.
- › Adjust the solar film to the top of the window so that it is near the round part of the window (approx. 1 to 2 mm from the edge). (FIG. 11)

⚠ *Keep the film as smooth as possible to void leaving permanent marks.*

- › Apply the film on the upper part of the window with the POIGNVITRE and the BLUEMAX squeegee starting from the centre towards the top of the window moving in wiping sweeps ①. (FIG. 12)

- › With the squeegee apply approx. 10 cm (4in) of film under the left and right lip seals ② (FIG. 12).

- › Heat the upper outside angle with the heat gun (PISTHERMIQ).

⚠ *Use the heat gun with reason so as not to burn the film.*

- › Close the window.

- › Remove the remaining liner while generously moistening the window and the film with the PULVERISAT (Liquid (A)).

- › With your hand slide the angle of the film under the lip seal moving downwards and towards the rear of the vehicle. (FIG. 13)



Figure 11



Figure 12



Figure 13



Figure 14

- › With your hand slide the edges of the film under the lip seals.

If necessary slightly lift the lips of the seals with the PIADZNOIR. (FIG. 14)



Figure 15

- › Firmly apply the film with the POIGNVITRE and the BLUEMAX squeegee moving from the top to the bottom ①. (FIG. 15)
- › Finish by firmly applying the film under the lips of the seals ②. (FIG. 15)

Note: *If small tunnels appear, thermoform them with the heat gun (PISTHERMIQ).*

3.2. Rear quarter windows or fixed windows:

For an easier installation on rear quarter windows that open, if possible disassemble the closing mechanism of the window.

- › Moisten the outside of the window generously with the PULVITRE (liquid (A)).
- › Position the compound in the following manner :
 - The roll is vertical and the film unrolls horizontally from the front towards the rear of the vehicle.
 - Le film should cover the window from one side to the other.

Reminder: *The liner faces towards you and the solar film part against the outside window.*

3.2.1. Getting the right size

3.2.1.a. Cutting

- › For the rear quarter windows without screenprinting: Cut the film to the dimensions of the window by leaning the blade of the CUTVITRE towards the seals (without touching them) with 5 blades pulled out of the CUTVITRE (FIG. 16).



Figure 16



Figure 17

For screenprinted rear quarter windows: Make a close cut from the outside of the window with the CUTVITRE with one blade pushed out. (FIG. 17)

3.2.1.b. Shaping on windows without screenprinted borders:

- › Apply the compound vertically from the top towards the bottom with the MARBLEU squeegee proceeding as on (FIG. 03).

This operation may result in the formation of vertical tunnels. This is quite normal.

- › Thermoform the bottom of the film with the heat gun (PISTHERMIQ) and smoothen the tunnels with the MARBLEU squeegee moving from the top towards the bottom. (FIG. 18)
- › Continue with the operation until a smooth surface is obtained.

⚠ Use the heat gun with reason so as not to burn the film.

3.2.1.c. Shaping on windows with screenprinted borders

For opening rear quarter windows that can be dismantled:

- › Cut the compound to the dimensions of the holes directly on the window with one blade of the CUTVITRE pushed out.

For opening rear quarter windows that cannot be dismantled:

- › Mark the position of the closing mechanism on the compound with the help of triangular trim guide CAROPM: (FIG. 19) Insert the outer fittings of the closing mechanism in the matching hole on the trim guide and rotate it slightly.

- › Remove the compound from the window and put it on a dustfree surface.
- › Carefully cut the marks from the rotation with the help of the CUTTVITRE and the CAROPM. (FIG. 20)

- › Generously moisten the outside of the rear quarter window with the PULVITRE and reposition the compound to make the fixing mechanism insert into the fresh extrusions.

- › Apply the compound vertically from the top towards the bottom with the MARBLEU squeegee following the edge of the window. (FIG. 21)

This operation may result in the formation of vertical tunnels. This is quite normal.



Figure 18



Figure 19



Figure 20



Figure 21



Figure 22



Figure 23

For rear quarter windows with screenprinting:

› Lighting the window from the inside, cut the compound 2mm away from the black screenprint around the window. (FIG. 22) ou (FIG. 23) whichever applies)

⚠ *To protect the window from scratches, make the cut with 5 blades of the CUTVITRE pushed out with the first being a fresh one.*

› Thermoform the lower part of the film with the heat gun (PISTHERMIQ) et smoothen the tunnels with the MARBLEU squeegee with movements from the top towards the bottom.

› Proceed with the operation until a smooth surface is obtained.

⚠ *Use the heat gun with reason so as not to burn the film.*



Figure 24

› Cut the compound as close as possible between the holes and the nearest edge of the film. (FIG. 24)

The purpose of this operation is to position the film on the inside of the window around the closing mechanism of the rear quarter windows.

3.2.2. The installation:



Figure 25

› Remove the liner from the top towards the bottom while generously moistening the compound.

› Remove the film from the window, hold it with one hand from the non adhesive side (FIG. 25) and position it on the inside of the rear quarter window.

› Apply the film with the squeegee while maintaining the film in place with the other hand.

⚠ *HEXIS cannot be held responsible for the installations of its films on deteriorated integrated aerals.*

3.3. Rear window:

- › The rear window - inside and outside - has already been cleaned.
- › Protect the back shelf against projections from soapy water.

3.3.1. The right dimensions :

- › Vaporise 3 times max. on the outside of the window with the thermoforming solution (Liquid (B)).

- › Wipe and rub the window with a paper towel so as to leave only a very slight soapy film. (FIG. 26)

Tip: Moving the fingers of your hand over the rear window there should no feeling of stickiness and very light traces of the passage of the fingers should remain visible. (FIG. 26)



Figure 26

- › Unroll the compound horizontally over the rear window and cut it leaving an overlap of approx. 1 cm (½in).

Reminder: The liner side is facing you and the solar film part facing the outside of the window.

- › Centre the film on the rear window.
- › Make a rough round cut to make room for the rear wiper. (FIG. 27)

It always remains possible to make the round hole bigger if necessary during the following operations.



Figure 27

- › Hold the film down and make it adhere from the centre with the MARBLEU squeegee by moving the tunnels. (FIG. 28)



Figure 28

- › Cut the film to the dimensions of the rear window :
 - either by a close cut from the outside of the window with one blade of the CUTVITRE pushed out. (FIG. 29)
 - or by pressing the film down with the MARBLEU squeegee along the seals and cutting following the the edge of the squeegee (without touching the seal) with 5 blades of the CUTVITRE pushed out.



Figure 29

- › Thermoform the film with the heat gun (PISTHERMIQ). Use your thumb to press down the film onto the glass. (FIG. 30)

This operation may result in the formation of vertical tunnels. This is quite normal.

- ⚠ Use the heat gun with reason so as not to burn the film.



Figure 30

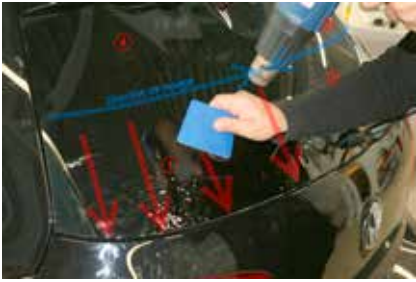


Figure 31

- › Vertically smoothen the entire film.

Proceed by areas ① ② ③ ④:

With the MARBLEU squeegee, vertically smoothen the film from the centre towards the outside starting from the central exterior band to the centre of the film tout while the compound with the heat gun (PISTHERMIQ). (FIG. 31)

⚠ Use the heat gun with reason so as not to burn the film.

The compound of the rear window is thermoformed.



Figure 32

- › Lighting the window from the inside, cut the compound 2mm away from the black screenprint around the window. (FIG. 32)

⚠ To protect the window from scratches, make the cut with 5 blades of the CUTVITRE pulled out with the first being a fresh one.

⚠ HEXIS cannot be held responsible for the installations of its films on deteriorated integrated aerials.

- › Thermoform and flatten the tunnels that may still be visible after the cuts.

3.3.2. Final cleaning before installation:

- › Open the tailgate.
- › Clear the window glass and interior trim with the help of the dust pad from any dust. (FIG. 33)



Figure 33

3.3.3. Removing the liner:

On the outside of the rear window.

- › Move the compound down by about 5 cm (2in).

This will reduce the risk of contamination with dust during the removal of the liner.

- › Generously moisten the inside of the rear window with the PULVERISAT (LIQUIDE (A)).
- › Position the tailgate in a more or less horizontal position.

This will allow to keep an even spread of the liquid on the rear window during the removal of the liner.

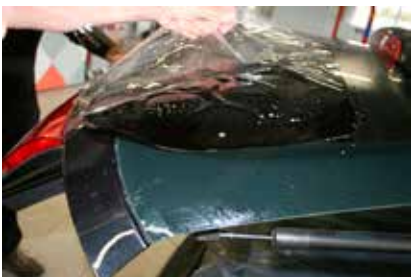


Figure34

- › Remove the entire liner, in a diagonal movement, starting from one of the corners near the roof, while generously moistening the film with the PULVITRE during this opération. (FIG. 34)

3.3.4. The installation:

- › Open the tailgate completely.
- › Position the film on the inside of the rear window starting in the area nearest to the roof. (FIG. 35)



Figure 35

- › Then carefully position the area furthest away from the roof. (FIG. 36)

⚠ Do not fold the films during this operation.



Figure 36

- › Apply the POIGNVITRE and the BLUEMAX squeegee in the following direction: make a cross in the middle ① then squeegee the four quarters ② starting from the centre towards the corners. (FIG. 37)

- › Finish by firmly applying the edges right to the seals using the POIGNVITRE and the BLUEMAX squeegee ③. (FIG. 37)

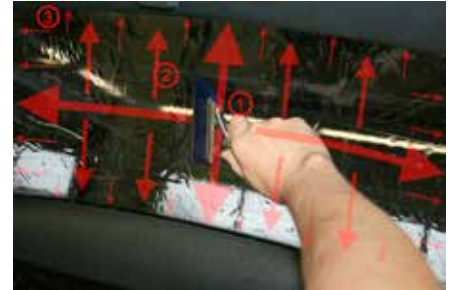


Figure 37

- › Carefully clean the outside of the rear window.
- › Check that there are no remaining tunnels in particular along the edges of the window.
- › If there are any tunnels carefully heat them with the heat gun (PISTHERMIQ) and smoothen the film with the help of the MARBLEU squeegee. (FIG. 38)
- › If the tunnels appear after a couple of hours along the border, use the MARNOIR squeegee and flatten them by driving the air or water towards the edges.



Figure 38

4. CLEANING AND MAINTENANCE OF THE FILM:

- › Leave the film to dry for 3 days without touching it and without opening the windows.
- › Wait for 30 days after the installation before cleaning the "filmed" windows in the normal way.
- › The use of scrapers or any abrasive tools is strictly forbidden.

5. REMOVAL METHOD:

Solar films for vehicles carry a permanent adhesive and by following the method below it will be easier to remove them.

- › Start in a corner.
- › Carefully lift the film with the help of the CUTVITRE without damaging the substrate and gradually remove the film ; the film should form an angle of 70-80° in relation to the substrate. A wider or narrower angle will result in the film breaking more easily.
- › Always proceed gradually by delicately removing the film from small areas.
- › If residues from the adhesive persists, generously soap the surface concerned with a sheet of absorbent paper moistened with a mixture of water and detergent.

- Rear window:
 - Use the wire wool pad and carefully scrape the adhesive off, but without pressing (this could result in scratches).

Caution: Be careful with the conductors in the defrost zone!

- Other windows:
 - If residue of the adhesive persists, use the vaporiser PULVITRE (Liquid (A)), the GRATTOIR sponge on a rear window or a LAME100 blade on other windows and moisten the surface and scrape to remove the residues.

For further information of a technical nature, refer to Technical Data Sheets available for download from our website www.hexis-graphics.com under professionals/data sheets.

The great diversity of media and the ever growing number of possible applications commit the user to ensure that the product is suitable for each particular usage.

The information given does not constitute a warranty. The seller assumes no liability for claims or damages beyond the replacement value of a product. Specifications are subject to changes without notice. Updates to specifications can be found on our website www.hexis-graphics.com.



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