

PRODUCT BULLETIN

APPLICATION AND REMOVAL HEX'Press Cast Vinyl Film

CAST HX20000



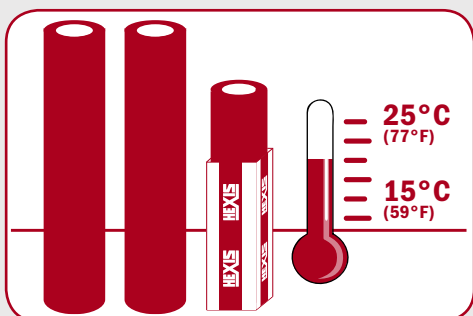
ESSENTIAL ACCESSORIES

- › Tesa® 7476 adhesive tape
- › Masking tape
- › HEXIS'O surface cleaning agent
- › CLEAN HEXIS degreaser
- › ND45 strong cleaner and degreaser
- › Assorted squeegees
- › VR 7077 edge sealing varnish
- › Electric heat gun
- › MALCOV HEXIS toolbox comprising:
 - › Laser thermometer
 - › Magnets
 - › Stanley measuring tape
 - › Craft knife
 - › Scalpel
 - › Ten 30° cutter blades
 - › Cotton gloves
 - › 10 scalpel blades
 - › Plastic squeegee
 - › A5 sheet size felt squeegee
- › DECOLL'VIT adhesive remover

ALWAYS STORE VINYL ROLLS AT THE RECOMMENDED CONDITIONS

Keep the film away from sources of heat (radiators, exposure to direct sunlight...): the ideal storage temperature is between 15 and 25°C (59 and 77°F). Store in an atmosphere with low humidity (30 to 70% relative humidity).

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



CHARACTERISTICS

The HX20000 consists of multilayered cast vinyl of 80 µm film which is perfectly suitable for all indoor and outdoor signage applications. Due to the high technical performance and the conformability the product may be used on undulated or textured surfaces (weldings and rivets). It is particularly recommended for vehicle wraps.

The combination of a highly conformable cast vinyl and the HEX'PRESS adhesive technology ensure that high quality results are achieved at a reduced application time. The technology also allows repositioning of the vinyl on the substrate during application.

PREPARING YOUR APPLICATION SURFACE

You can apply your HEXIS films on a wide variety of substrates, under the condition that these application surfaces are clean, dry, smooth, non-porous and with no traces of oil, grease, wax, silicone or other contaminating agents. To avoid any bad surprises, always assume that these surfaces are contaminated and must be cleaned. (cf. chapter 3).

Do not forget to carry out a preliminary test on a small surface to check this substrate does not deteriorate.

SUMMARY

1. Recommendations

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- 2.1 Tear off test
- 2.2 Outgassing test
- 2.3 Outgassing procedure

3. Cleaning

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- 3.3 Special cases

4. Application of the graphics or the HX20000 vinyl

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- 4.2 Undulated surfaces
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- 4.4 Convex surfaces
- 4.5 Riveted surfaces
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- 5.2 Straight cut with overlap
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6. Using the heat gun

7. Edge sealing tape or sealing varnish

- 7.1 Sealing tape
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8. Cleaning and film maintenance

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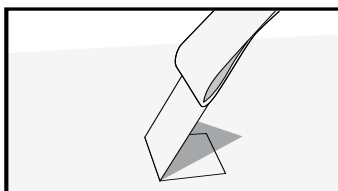
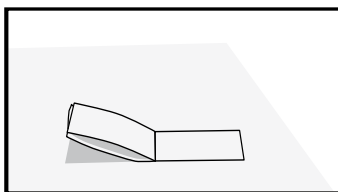
Application methods are based on the manufacturer's experience and are not restrictive. To ease application, comply with recommendations. HEXIS also offers training sessions to enable professionals to achieve optimum results.

1. RECOMMENDATIONS

- > Avoid applying the adhesive film on unpainted side strips or bumper in a full wrap.
- > The best adhesion of the Cast films is achieved after 24 hours of contact.

2 PRELIMINARY SURFACE TESTS

- > Any fresh 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, dusty or flaky paint must be sanded down and restored before application and must undergo a tear off test.



(FIG 01)

2.1 Tear off test

With a TESA 7476 adhesive tape, or an equivalent, apply on an area of 2.5cm x 5cm (1in x 2in) plus some leftover space to allow for fingers to hold it. Fold and quickly pull off perpendicularly to the surface. No trace should remain on the removed adhesive. Repeat this operation in several places. (FIG 01)

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

2.2 Outgassing test

Use a square of around 15cm x 15cm (6in x 6in) of adhesive polyester or of the film to apply. Wait 24 hours or 2 hours at 65°C (149°F). If any bubbles appear, this means the surface has insufficiently outgassed. This operation can be repeated after several days, or carry out the operation below.

2.3 Outgassing procedure with flame treatment (polycarbonate, translucent or diffusing methacrylate, expanded PVC ...) consists of changing the surface tension of a substrate by swiping it with the flame of a gas burner. Have the flame swipe past quickly with a horizontal and vertical sweep along the whole substrate (use the flame's blue tip).

Careful: never leave the flame on a set point for more than one second (risks destroying the substrate). The film must be applied immediately as this light surface treatment disappears after a few minutes.

HEXIS is not liable for any bubbles caused by outgassing.

3. CLEANING

Depending on the condition of the substrate, three cleaning possibilities are possible:

3.1 Clean surface appearance

Before applying the film on the substrate, we recommend you clean it with the gentle HEXIS'O solution. Dry with a clean and lint free cloth.

3.2 Soiled surface appearance

Clean the substrate with a cloth soaked in the CLEAN HEXIS degreasing agent and dry it with a cloth before evaporation.

If the substrate is stained due to resistant contaminating agents such as diesel oil, tar or rubber, use a cloth soaked in the powerful HEXIS ND 45 cleaning agent. If necessary, use a gentle, non-abrasive grater beforehand.

In all cases, the targeted areas must then be washed with HEXIS'O.

3.3 Special cases

Remember to adapt the preparation methods according to the substrate type and condition.

The painted surfaces must be dry and hard, and the baked paints must be cooled down. Air-dried paints or car paints need to be dried for 7 to 10 days before applying the film. For bare metallic surfaces, clean the substrate with soapy water and then with a cloth soaked in HEXIS'O solution.

The type of film to be applied will define what sort of preparation methods to use (cf. technical data sheets available on www.hexisgroup.com).

4. APPLICATION OF THE GRAPHICS OR THE HX20000 VINYL

Because of its special HEX'PRESS liner the HX20000 is always applied using the "dry" method. Such a technology allows to easily reposition the vinyl on the substrate but still requires strong squeegeeing down the critical areas of the film such as corners and edges to achieve optimum adhesion of the HX20000 on the substrate.

HEXIS'O
cleaner and
degreaser



CLEAN HEXIS
cleaner and
medium
degreaser



ND45
cleaner
and strong
degreaser



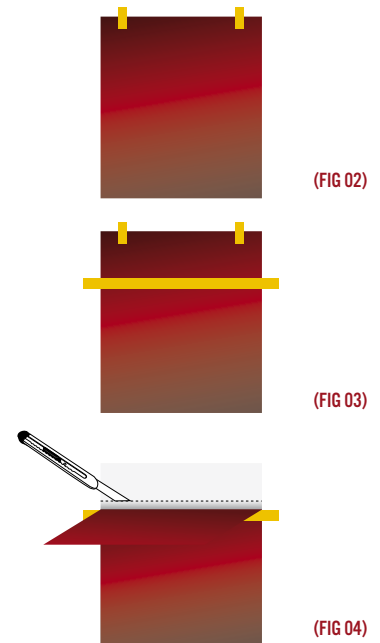
Before application of the HX20000 on its own, ensure that all surface are clean.

The ideal application temperature is between 15 and 25°C / 59 and 77°F (preferably between 20° and 25°C / 68 and 77°F) and must be respected equally for both the ambient and the substrate temperatures.

The hygrometry may result in a less effective adhesion of the film on the substrate. In a cold environment, the transfer tape must be left longer before being removed. Several days are needed to finish the final adhesion of the vinyl.

4.1. First steps and application of the HX20000 on flat surfaces

- > Wear cotton gloves (available in toolbox)
- > Position the graphic on the surface (FIG 02)
- > With the help of masking tape or magnets, make a horizontal hinge on the top part, preferably on a flat surface. (FIG 03)
- > Pull off 10cm (4in) of liner (FIG 04) and start sticking the vinyl with a squeegee (already covered with felt squeegee) making a 45° angle and applying from the centre to the edges. (FIG 05)
- > Then take off the hinge to continue removing the liner, depending on the surfaces (cf. following paragraphs). (FIG 06)
- > When applying on flat surfaces, press down hard over the entire surface, not forgetting the edges.

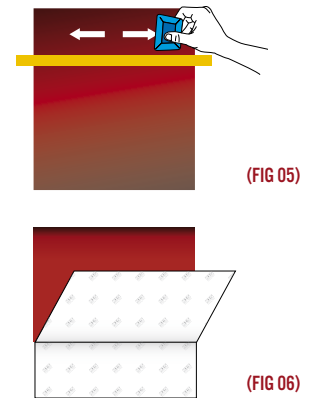


4.2 Undulated surfaces

Having complete step 4.1, you may come across small or large undulations for which the application process will be different.

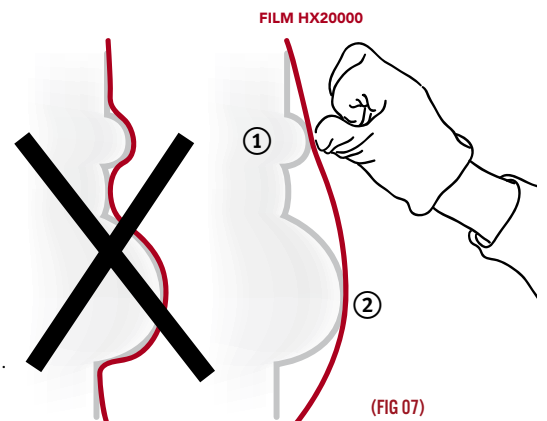
4.2.1 Small undulations: "stretched application" (FIG 07)

- > Remove all the liner
- > Stretch the vinyl onto the substrate so it touches the raised parts. (FIG 07 ① ET ②)
- > Apply the raised part with a finger or the squeegee.
- > Heat the stretched spaces between 40 and 50°C (104 and 122°F)
- > While heating, run your thumb down the hollow part of the undulation on both sides to press down the adhesive.
- > Without heating, wipe the squeegee on the part between the two undulations from the centre to the edges.
- > Now proceed with the cuts if your undulated substrate has several parts.
- > Once you have finished, reheat all the parts which underwent heavy deformation between 80° and 90°C (176 and 194°F) to thermoform the product definitively.

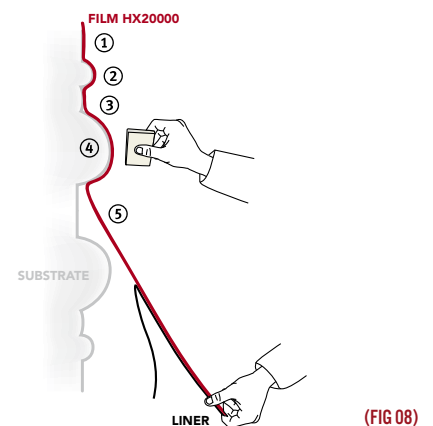


4.2.2 Large undulations: "extended application" (FIG 08)

- > Slowly remove the liner while pulling downwards
- > Apply the film with the thumb or a squeegee by wiping down horizontally into the hollow part of the undulation.
- > Start applying the hollow part (1) then the raised part (2) then the hollow part (3).
- > Go up to the following undulation (4) and then continue (5).
- > As the film was not stretched permanently, it is not necessary to reheat to 80°C (176°F).

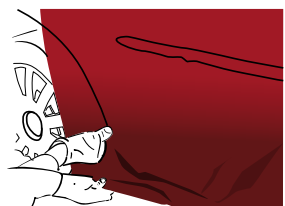


Attention: the concave areas HEX'PRESS adhesive technology requires appropriate pressure in order to completely drive out any air that remain in the micro-channels as any air that has not egressed and may not be visible may later result in the film lifting off the substrate.

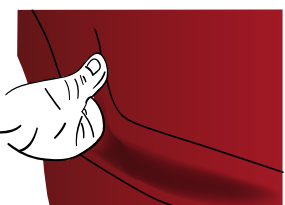




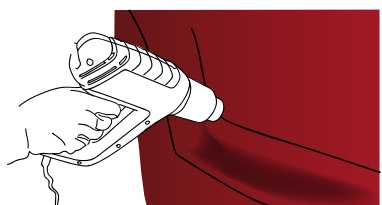
(FIG 09)



(FIG 10)



(FIG 11)



(FIG 12)

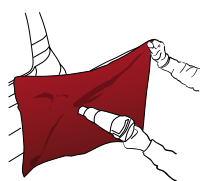
4.3 Concave surfaces

When step 4.1 is finished, proceed as follows:

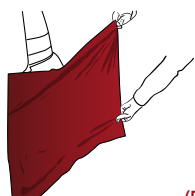
- › Pull off the whole liner (FIG 09)
- › Stretch the vinyl on the substrate so it touches the raised parts.
- › Apply the raised part with a finger or a felt-covered plastic squeegee (FIG 10).
- › Heat between 40° and 50°C (104 and 122°F) and lower your thumb in the hollow part so as to press down the adhesive (FIG 11).

Attention: HEX'PRESS adhesive technology makes the film repositionable during application and allows easy elimination of air bubbles. However particularly in concave areas HEX'PRESS adhesive technology requires appropriate pressure in order to completely drive out any air that may remain in the micro-channels as any air that has not escaped and may not be visible may later result in the film lifting off the substrate. HEXIS recommends you pay particular attention to the application of HEX'PRESS media in concave areas.

- › The job over, reheat all the hollow parts which underwent heavy deformation between 80° and 90°C (176 and 194°F) to thermoform the product definitively (FIG 12).



(FIG 13)



(FIG 14)

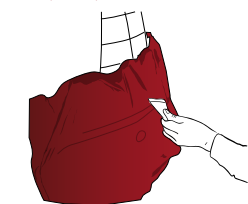
4.4 Convex surfaces

When step 4.1 is finished, proceed as follows:

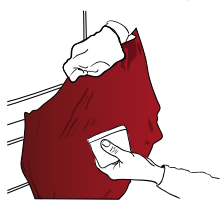
- › Remove the liner
- › Heat the vinyl (FIG 13) between 40° and 50°C (104 and 122°F), then stretch it to wrap the convex surface (FIG 14).
- › Apply the vinyl over the whole surface using a plastic felt-covered squeegee, making sure to gently brush it on the convex area (FIG 15) to eliminate all tensions and folds.
- › If necessary, lift off, re-stretch the film and reapply (FIG 16).
- › After this operation, heat to between 40 and 50°C (104 and 122°F) (FIG 17) and stretch to eliminate all folds using the squeegee.

- › Cut if necessary and reheat all the edges to 80° to 90°C (176 to 194°F).

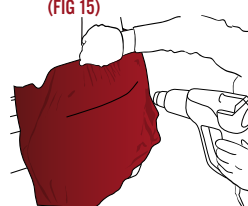
- › The application is finished (FIG 18).



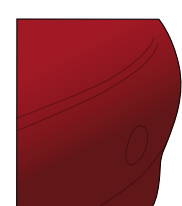
(FIG 15)



(FIG 16)



(FIG 17)

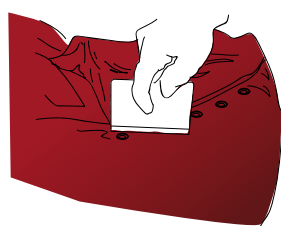


(FIG 18)

4.5 Riveted surfaces

When step 4.1 is finished, proceed as follows:

- › When you encounter a rivet and the vinyl is stretched, heat a little between 40° and 50°C (104 and 122°F).
- › Work around the rivet with the squeegee (FIG 19) or the thumb and prick the rivet 2 or 3 times with a needle allowing the air to exit.
- › Then heat each rivet again at around 80°-90°C (176 to 194°F). (FIG 20).



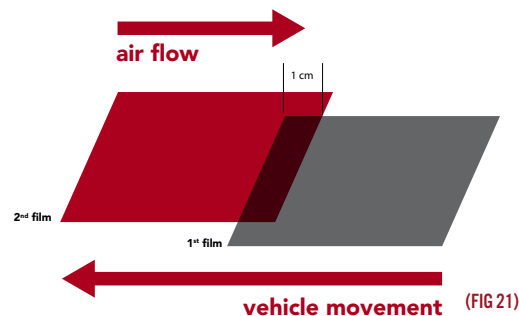
(FIG 19)

4.6 Full wraps

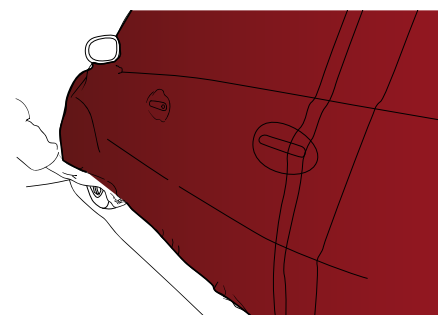
- For cars, application on the window sealing gaskets and the body joints is prohibited.
- The necessary horizontal application in certain cases such as hoods or roofs can result, over time, in a slight fading of colour or gloss compared to the vertically visible parts. In regards to the product's durability, Hexis is in no way liable for the parts which are most exposed to sunlight or severe climatic changes.
- If an overlap is necessary, HEXIS recommends it to be done over 1cm (0.4in) with:
 - Horizontal overlapping with HX20000. The upper part of the film (above) is applied on the lower part of the film (below). (roof tile principle)
 - Vertical overlapping of HX20000. On a mobile surface, assuming you always apply the film starting from the back of the vehicle and moving to the front, then the overlapping will be done in the same way (FIG 21).
- In the case of a full vehicle wrap avoid the application of HX20000 on unpainted side strips or bumpers.
- The first steps are the most important and here is some essential advice:
 - Make a horizontal hinge as indicated above just above the door handles.
 - Cut and remove the liner on the upper part.
 - Tension the film and apply with the help of a squeegee.
 - Once the upper part is applied, remove the remaining liner on the lower part.
 - Tension the film over the door handles and with a squeegee apply the film along the contours of the door handles. Once the door handles are done, tension the film down to the bottom of the vehicle body (FIG 22).
 - Do not hesitate to lift the film off again and to stretch it again so as to remove any folds. If necessary heat to between 40 and 50°C (104 and 122°F).
 - The film is now stretched over the total surface area to be wrapped. You can apply the film (FIG 23) according to the type of surface.



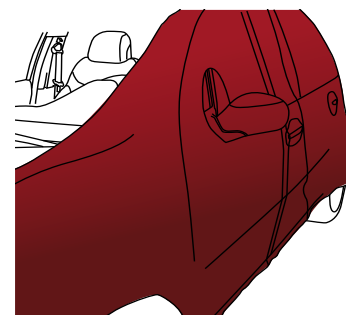
(FIG 20)



(FIG 21)



(FIG 22)



(FIG 23)

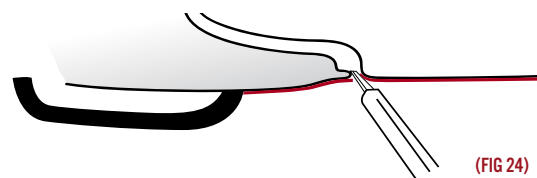
5. CUTS AND FINISHINGS

Regardless the part recovered, leave an overlap of vinyl with a minimum of 5cm. If there is a part adjacent to the part to recover, apply the vinyl along a minimum of 5cm of the adjacent part. Then proceed with the cut and finishing depending on the different requests: the cutter blade must never be perpendicular to the body to avoid scratching the paint.

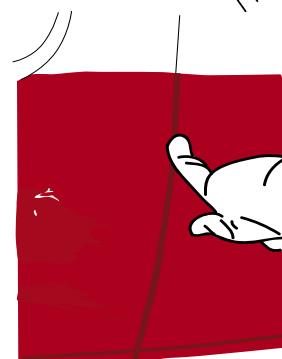
5.1 Slanting cuts:

This cutting method should be applied if the recovered part has a thin border and the adjacent part has a straight and wide edge (FIG 24). This is nearly always the case with car doors and hoods ...

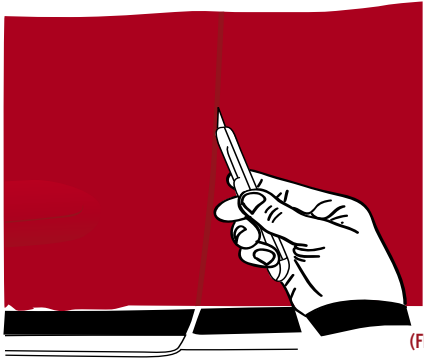
- Put on gloves (available in the Malcov toolbox).
- Use the cutter with a new blade.
- Shape the contours of the part using a gloved hand. (FIG 25)



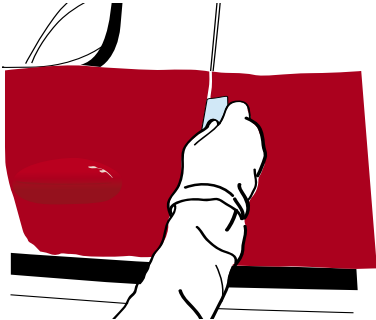
(FIG 24)



(FIG 25)



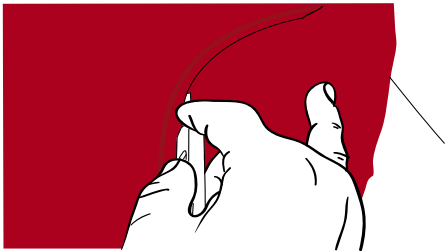
(FIG 26)



(FIG 27)



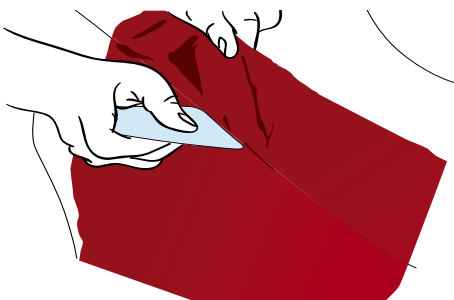
(FIG 28)



(FIG 29)



(FIG 30)



(FIG 31)

- > When cutting, the blade must be placed against the thin edge of the part to cover. The cutter must always be slanting outward. (FIG 26)
- > Finish off by running the squeegee all along the thin edge of the cut. (FIG 27)

5.2 Straight cut with overlap:

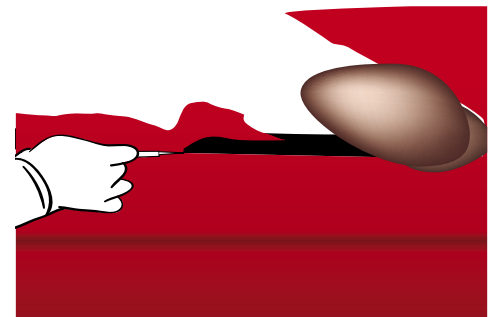
This method is to be used when the part to cover and the adjacent part have straight edges. (FIG 28) This is often found with contours of traffic lights.

- > Put on gloves (available in Malcov toolbox).
- > Use the cutter with a new blade.
- > Shape the contours of the part using a gloved hand.
- > For the cut, the cutter blade must be placed against the edge of the adjacent part. When cutting, make sure you always continue along the same line as the cut (FIG 29)
- > Finish off by running the squeegee over the cut. (FIG 30)

5.3 Straight cut without overlap:

This method is used for a cut along a joint.

- > Use the cutter with a new blade.
- > Shape the contours of the part. Remove the vinyl of the adjacent part and drag it into the hollow using a squeegee so as to shape the joint edge.(FIG 31)
- > For the cut, the blade must be placed in a flat position, between the body and the joint, and perpendicular to the joint. When cutting, have the blade run carefully along in the same direction. (FIG 32)
- > Remove surplus vinyl.
- > Finish off by running the squeegee over the cut.



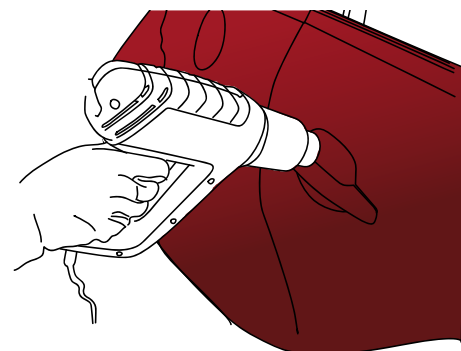
(FIG 32)

6. USING THE HEAT GUN

You just used the heat gun for the dry procedure method for complex surfaces (concave, convex, riveted).

The application finished, reheat using the heat gun all the parts which underwent severe warping (FIG 33). The heating temperature must be between 80 and 90°C (176 and 194°F). Check with the help of a laser thermometer (included in the MALCOV HEXIS).

This heat allows for acceleration in the gluing process of the adhesive which is sensitive to the pressure. In this way, the vinyl will be definitively thermoformed.



(FIG 33)

7. SEALING VARNISH

HEXIS does not recommend using a sealing varnish for a HX20000 film application on vehicles (to avoid any risks of damaging the body).

But in certain cases, such as a HX20000 film application on trains or construction site machines, the VR7077 sealing varnish is necessary to reinforce the film borders.

- Make sure the surfaces are dry
- Apply 2 pieces of masking tape
1 on the substrate at 5mm (0.2in) from the HX20000
1 on the HX20000 at 5mm (0.2in) from the edge (FIG 34)
- After having put on safety gloves and glasses, apply the varnish in one layer using a paintbrush
- Remove the masking tape 15 minutes after application
- Drying time is variable depending on the thickness of the varnish applied and the ambient temperature. For a film applied with a normal coating, the optimal drying time is 24 hours. Any physical strains (cleaning, abrasion ...) should be prohibited during this time.



(FIG 34)

⚠ There must be no contact between the varnish and the window seals.

8. CLEANING AND FILM MAINTENANCE

The Cast HX20000 film may be cleaned by any conventional automatic cleaning methods, with cleaning products and detergents used in the framework of professional maintenance for vehicles and promotional equipment. Nevertheless be careful when cleaning. Use an average pressure at a distance of at least 50cm (20in) and a water temperature of 35°C (95°F) maximum.

⚠ Caution: the film should not be cleaned in the 48 hours following the application at the risk of altering its adhesion which might result in the film lifting off.

⚠ Caution: corrosive agents and detergents are prohibited. HEXIS is not liable for any adhesive films cleaned with the unspecified additives from cleaning stations.

⚠ Car washes: the added products and the condition of the rotating brushes can harm the appearance of the graphics or films. It is a fact that after 10 car washes, the polyurethane paint becomes streaked, so consequently and in the same way, these mechanical effects can alter the vinyl aspect which frees us from any responsibility.


HEXIS tip: always be sure to test a small surface before proceeding with the cleaning of your overlapping.




9. REMOVAL PROCEDURE


The HX20000 film is equipped with a permanent adhesive and for this reason its removal needs some attention. Nevertheless, by following the instructions below, the removal will be relatively easy.

- › Using a heat gun, start from one corner and heat the film at a temperature around 60°C (140°F) (use the laser thermometer).
- › Pull up the corner using a cutter – available in the toolbox – without damaging the substrate and slowly lifting the heated parts. Continue pulling the film at a 70° to 80° angle compared to the substrate.

 *If the angle is too wide or acute, there is a risk of the film cracking.*

- › Always work on small heated areas by gently pulling up the film to decrease the risks of leaving adhesive on the substrate or of tearing the vinyl.
- › Continue heating and gently pulling off the film until there is none left. Always be aware of the active heat, the tearing angle and the tearing speed.
- › If some adhesive remains on the substrate, take a cloth soaked in our DECOLL'VIT product and rub the substrate until all traces disappear.
- › To facilitate removing the VR7077 sealing agent, it is possible to use acetone.

 *Caution: never put the liquids in contact with the window or body sealing gaskets.*

 *Before using any of our liquids, please consult our technical data sheets on our Website at: www.hexisgroup.com*

For further information of a technical nature, refer to to Technical Data Sheets available for download from our website www.hexisgroup.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.hexisgroup.com.



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