APPLICATION AND REMOVAL METHOD
Transparent digital printing films for windows
V202CG1 / V302CG1 / V362CG1 / VCLEARCG1

PRODUCT BULLETIN

REQUIRED EQUIPMENT

› 11-litre PULVITRE sprayer
› pH neutral soap (such as washing-up liquid)
› Window scraper:
> › SCRUBFLOOR + SCRUBBLADE
> › or GRATVITRE + LAME25
› Window squeegee:
> › POIGNEVITRE + LAMEVITRE
› CUTVITRE cutter and LAMOLFAS50 refill
› N2TIRO adhesive tape
› Application squeegee:
> › MARVITRE
> › or YELSQUEEG
> › or BLUESQUEEG
› Ruler
› 5-m DMTRUBFR measuring tape
› One roll of absorbent paper
› Silicone seal (outdoor windows)

STORE YOUR FILMS UNDER APPROPRIATE CONDITIONS

Keep the films away 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 % - 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.
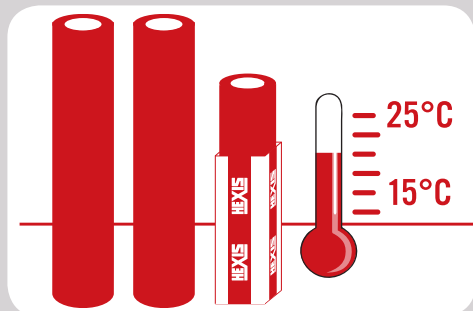
FEATURES

Clear films intended for solvent, eco-solvent, latex and UV inkjet printing.

V202CG1
› 70-µm calendered polymeric PVC film
› Permanent adhesive

V302CG1
› 80-µm calendered monomeric PVC film
› Permanent adhesive

VCLEARCG1
› 80-µm calendered monomeric PVC film with improved transparency
› Removable adhesive

V362CG1
› 80-µm calendered monomeric PVC film
› Removable adhesive

PREPARING YOUR APPLICATION SURFACE

The transparent digital printing films can be applied to glass, windows, showcases as long as the target surface is clean, 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.

Do not forget to carry out a preliminary test with the cleaning agents on a small surface to check if the substrate and seals remain undamaged.

> For further technical information on each film used, please refer to the technical data sheets available on our website at www.hexis-graphics.com.

CONTENTS

1. RECOMMENDATIONS:

› Prepare your project in advance:

- Cut the films slightly larger than the dimensions of the glass (5 cm width and 10 cm length).
- Wind up the film with the liner facing inwards.
- Fasten each roll using a Tiro-like adhesive tape.

› Use only the cleaning agents listed in this guide. Any other product should be avoided.

› A silicone sealant at the outskirts of the film improves the stability of the film over time.

⚠ *Application to the seals of the glazings is forbidden.*

› For indoor applications, air conditioning must be switched off.

› For outdoor applications, carry out the application at a temperature exceeding 10 °C (50 °F), and preferably <u>on a windless day</u>, while ensuring that the temperature during the course of the day and week of application, particularly at night, is positive; in order to obtain an optimum adhesion of the film.

› The best adhesion of the films is achieved after 24 hours of contact.

2. GLAZING AND THERMAL BREAKAGE:

The application of a printed, clear digital printing film to glass must be carried out on a glazing in good shape and free from defects.

> *The glazing edges damaged or chipped during manufacturing, cutting, transport or installation are most commonly the starting point for breakage by thermal shock.*
> *It is the responsibility of the installer to make sure of the suitability and compatibility of the glazing with the application of clear digital printing film. HEXIS are not liable for glass breakage caused by clear digital printing film application to a defective glazing. Please refer to the technical data sheets for clear digital printing films available on our website at www.hexis-graphics.com.*

The application of clear digital printing film to glazing requires taking into account some factors. Indeed, covering a part of or the whole window by a coloured (printed) film can cause localised heating relative to a non-covered surface. The extent of this heating depends on the exposure, nature and colour of the applied film.

For example, we know from experience that the temperature increase can:
     o range from + 10 °C to +15 °C (+50 °F to +59 °F) for clear and frosted glass films;
     o be of up to + 30 °C (+ 86 °F) for translucent films;
     o be of up to + 40 °C (+104 °F) for opaque films.

› Note that juxtaposing light and dark colours in your prints can cause a temperature gradient on the window.

The following factors must be considered:

› type of film (*for further technical information, please refer to the technical data sheets available on our website at www.hexis-graphics.com*),
› type of glazing (*simple, double, triple, tinted, tempered, laminated, etc.*),
› glazing orientation (*northern exposure ranging from -60° to +45°, featuring a low thermal breakage risk due to its non-exposure to sunlight),*
› glazing inclination,
› climate conditions (*season, sky quality, temperature, etc.*),
› thermal inertia of the window frame (*the higher the thermal inertia is, the less the frame temperature will adapt to external conditions*),
› glazing's indoor environment (*furniture, stickers or posters affixed to the glazing, radiators, convectors, etc.*),
› glazing's outdoor environment (*shadows caused by trees, close buildings, overhanging terraces, canopies, external blinds, etc.*).

3. FILM LAMINATION:

It is recommended to laminate the V202CG1 film with the PC500 or V750 laminating films. For UV printings, use the VCR750 laminate.

It is recommended to laminate the V302CG1 and V362CG1 films with the V700 or V650 laminating films. For UV printings, use the VCR650 laminate.

It is recommended to laminate the VCLEARCG1 film with a VCLEARCG1 in order to ensure an optimal transparency.

Make sure that the film is dry before laminating: the clear digital printing films are touch-dry after 15 minutes, but it is advisable to wait for at least 24 hours before proceeding with any application, lamination or cutting. Let the films dry stacked in sheet racks in a ventilated room in order to ensure solvent evaporation.

It is important to make sure that the lamination station is clean and that the visual and laminating film are free from dust before laminating. Indeed, any artefact trapped between the 2 films will be visible once the graphics applied to its substrate.

4. SUBSTRATE CLEANING:

Surface cleaning is required before performing any application. Always assume that every substrate is dirty. Some residues or dirt may be invisible, but may also impair the film adhesion or the final result.

For indoor application of printed digital printing films, it is recommended to protect floors, walls and furniture from soapy water splashes.

› Prepare the 11-litre PULVITRE sprayer with approximately 2 capfuls of pH neutral soap and water.

› Clean the pane very thoroughly. Spray the soapy liquid all over the window as well as on the seals and corners. (FIG. 01)

Figure 01

› Squeegee the whole glass surface with the window scraper (SCRUBFLOOR or GRATVITRE) starting from the top, with the blade in flat position to remove residues of adhesive, dust and grease.

› In the case of a complete coverage of the glazing, finish by cleaning the lower part of the seals by sliding the blade angle between the pane and the seal. (FIG. 02)

   HEXIS tip: Often replace the window scraper's blade.

Figure 02

⚠ *Ensure the integrity of the window seals during the cleaning operation with the window scraper as the blade is very sharp. HEXIS are not liable for any damages caused to the seals and glazing during the cleaning procedure.*

› Spray one more time on the entire glazing surface and apply the POIGNEVITRE + LAMEVITRE window scraper ***from top down***. Finish by drying the edges with absorbent paper. (FIG. 03)

⚠ *Thoroughly wipe the surface and seals dry in order to remove remaining contaminants.*

Figure 03

5. APPLICATION OF CLEAR DIGITAL PRINTING FILM THAT HAS BEEN PRINTED:

Prior to any application of printed, clear digital printing film, make sure that all surfaces are clean (cf. paragraph 4. SUBSTRATE CLEANING: on page 3), while paying particular attention to critical areas such as corners and edges.

Our HEXIS films can be applied indoors or outdoors, according to the type of film.

> *HEXIS tip: Please refer to the films' technical data sheets before any application.*

(Example in the case of a complete glazing coverage):

5.1. Removing the liner from the film:

› Take one of the prepared rolls (by following the recommendations in §1).
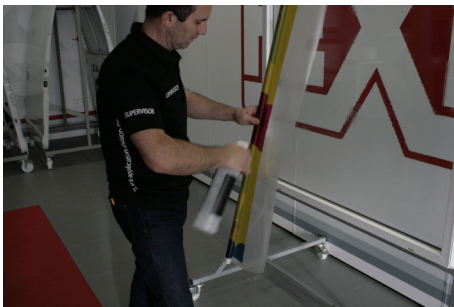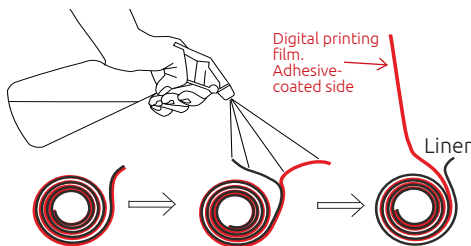
› Unwind approximately 20 cm of the film.

Figure 04

› Generously spray the liner (inner film surface) with PULVITRE. (FIG. 04)

› Again wind up the film on approximately 10 cm.

Digital printing film. Adhesive-coated side

Liner

Figure 05

› Remove the first winding section of the liner from the printed clear film while generously wetting the adhesive of the printed clear film and the liner.

› Fold the delaminated liner part on the outer side of the printed clear film (non-adhesive coated face).

› Again roll up the complex printed clear film + liner while keeping the non-protected part of the printed clear film in the open air. (FIG. 05)

5.2. Film installation:

Figure 06

› Again spray on the whole glass surface using PULVITRE. (FIG. 06)

› Place the adhesive-coated side of the printed clear film on the glass (hold the roll and the liner with the other hand).

› Adjust the position of the printed clear film on the pane.

Figure 07

› Unwind the film and hold, without pressure, the upper part of the film and liner with one hand. (FIG. 07)

⚠ *Too strong pressure on the film would make it adhere to the substrate.*

Figure 08

› Unroll completely and at the same time the film roll + liner, along the pane, while taking care that the liner remains in contact with the outer side of the printed clear film. (FIG. 08)

⚠ *Any contact between the liner and the adhesive-coated side of the film may irrevocably deteriorate the film.*

› Apply superficially the whole film with a moderated hand pressure.

5.3. Liner removal:

Remove the liner (FIG. 09):

- Thumbs downward;
- The other fingers push the liner towards the thumbs;
- Go down to approximately 20 cm from the bottom of the printed clear film.

Figure 09

⚠ *Caution: On the last winding section of the roll, take care that the liner does not touch the adhesive-coated surface of the printed clear film.*

› Remove the remaining liner by pulling it downwards and away from the printed clear film. (FIG. 10)

Figure 10

5.4. Fixing the film position:

› Spray the PULVITRE sprayer on the printed clear film surface. (FIG. 11)
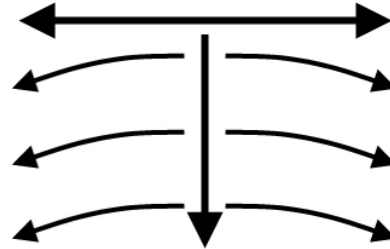

Figure 11

Figure 12

› Apply the film with one of the scrapers MARVITRE, YELSQUEEG or BLUESQUEEG (FIG. 12) by following the instructions below:

- Mark a T with the squeegee.
- Squeegee from top to bottom and from the centre outwards by carrying out circular arcs, as shown in the diagram below, so as to expel water.

5.5. Dimensioning:

Figure 13

› Cut the extra film with a cutter, while taking care to spare window seals (FIG. 16). Proceed as follows in order to protect window seals and avoid zigzag cutting:

- The squeegee must be leant on the outer edge of the seal.
- The cutter blade must be leant on the scraper by forming a 45-degree angle with the window.
- Then move the scraper-cutter assembly.

⚠ *Leave a free margin of 1 mm between the window seals and the edge of the printed clear film. The application to window seals can lead to the lifting of the film.*

Caution: Too high cutting pressure may result in pane scratching. HEXIS cannot be held responsible for any damages and degradations caused to the substrate during film cutting. It is the responsibility of the installer to take all the necessary precautions during this operation.

Figure 14

› Finish off by drying the film rims with the MARVITRE scraper wrapped with absorbing paper (FIG. 15). Thoroughly wipe all the edges on approximately 10 cm as shown in the diagram below:
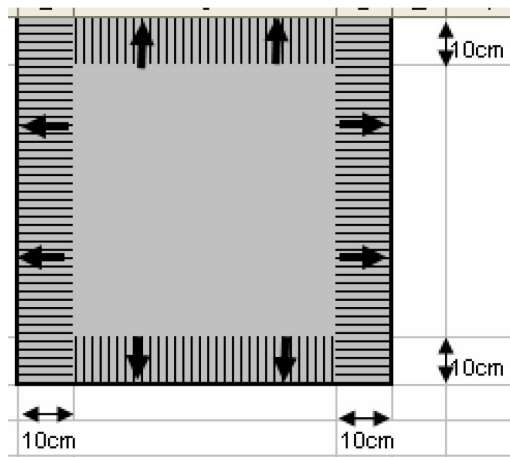
⚠ *Small water bubbles or milky traces may appear right after film application. This phenomenon is quite normal. These traces will fade and disappear naturally one week later.*

› With the window scraper, remove the remaining water from the film surface. (FIG. 15)

Figure 15

› Make sure that the contours of the window pillars are clean and dry. Now your film is applied.

6. OPTIONAL SEAM BY JUXTAPOSING:

Even though HEXIS advise against the application of films with seams, if you have to make one on your glazed surface, please proceed as follows.

For a vertical or horizontal seam, the method will be the same:

› Position the second film with an overlap of approximately 15 mm on the first one already applied.

› Place the ruler in the centre and on the entire overlap length.

› Using CUTVITRE fitted with a new blade, cut in one-shot, evenly pressured, both film (FIG. 16) thicknesses while preventing cutting into the substrate underneath.
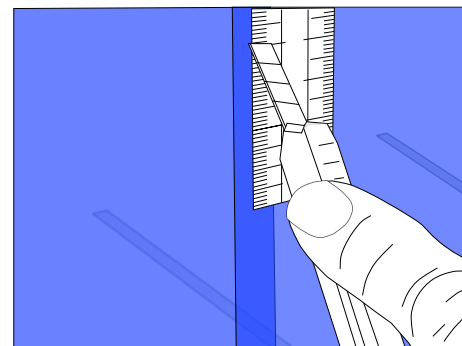

Figure 16

⚠ *Caution: Too high cutting pressure may result in substrate scratching. HEXIS cannot be held responsible for any damages and degradations caused to the substrate during film cutting. It is the responsibility of the installer to take all the necessary precautions during this operation.*

› Remove any excess film.

› Moisten the film again and finish the application by squeegeeing in parallel to the seam.

7. SEALANT:
(FOR OUTDOOR APPLICATION ONLY)

For film applied outdoors, it is advisable to install a seal, especially for windows, like silicone sealant.

The sealant is very important as it strengthens the film's lifespan outdoors. Thus air, natural or industrial pollution, stagnant water from rain and others will no longer be able to result in film lifting starting from the edges!

› Make sure that the surfaces are dry.

› Apply the silicone sealant to the whole film border + window.

8. FILM CLEANING AND MAINTENANCE:

› Let the film dry for 1 day without touching it.

⚠ *After application, wait for 1 week before cleaning the "film coated" window.*

› Clean the "film coated" glass with a standard cleaning agent and soft cloth.

› Using abrasive tools (scrapers, etc.) is absolutely forbidden.

9. REMOVAL PROCEDURE:

The printed clear films feature a permanent adhesive and by following this method, the removal will be relatively easy.

› Using a heat gun, start from a corner and heat the film to a temperature of around 50 °C (122 °F).

⚠ *Do not overheat. Respect the indicated temperature.*

› Gently lift the corner with the cutter - available in the tool box - without damaging the substrate, and gradually remove the film previously heated; 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.

› 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, use the SCRUBFLOOR or GRATVITRE window scraper and PULVITRE sprayer, wet the surface and scrape it in order to eliminate the residues.

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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