

The image features a stylized graphic of a smiling face. The face is composed of a white circle with a thick black outline. The eyes are represented by two large, black, semi-circular shapes. The mouth is a simple black arc. The word "RITRAMA" is written in a bold, black, sans-serif font across the top of the face. The entire graphic is presented as a white sticker with a grey drop shadow, peeling away from a blue background. The sticker is tilted slightly to the right. The blue background is a solid, vibrant color that occupies the upper two-thirds of the page. The bottom third of the page is a solid grey color, containing the title text.

**RITRAMA**

**APPLICATION GUIDELINES  
FOR RITRAMA SELF-ADHESIVE MATERIALS**



## **RITRAMA Group**

Ritrama, an Italian company founded in 1962, is today an international Group of companies specializing in the design, manufacture and distribution of self-adhesive products worldwide.

Its state-of-the-art manufacturing sites in Italy, Europe, America and Asia combined with its highly automated slitting and finishing centres, guarantee Ritrama's consistently high standards in the quality of their self-adhesive products all over the world.

Its four company divisions are continually at the forefront in identifying new market trends and providing the high quality standards in meeting a diverse range of customer requests.

At the centre of the Ritrama Group's environmental policy is the implementation of sustainable development, which safeguards the environment as well as people's health.

- First self-adhesive manufacturer in Europe to use water based adhesives.
- First self-adhesive manufacturer to use PE as an alternative to PVC.
- In 2004, Ritrama headquarters in Sassoferrato and in 2009 Ritrama (Hefei) in China were awarded the Environmental Management System-Certification ISO 14001:2004. OHSAS 18001:2007 "Health & Safety" Certification.

Ritrama's pre-sales service, i.e. sampling, product specifications, technical and promotional information, magazines, participation in trade fairs and publication of newsletters, and excellent after-sales assistance ensure a close working relationship between the company and end user.

## **Visual Communication Division**

A complete range of self-adhesive films for digital printing, plotting and silk screen printing, outdoor advertising, shop fronts, exhibitions, vehicle markings and decorations.

- Digital Print Media range: a wide range of self-adhesive solvent based, water based, eco green, vehicle wrapping repositionable adhesive solutions and air flow technology, specifically designed for large format digital printing. In addition a line of compatible overlaminating films are offered.
- RI-Mark range: a complete range of high quality self-adhesive films for computer plotting. Monomeric, polymeric, cast metallic films, Etch Glass series for decorations requiring a simulated etched glass effect.
- Promotional range: a wide range of self-adhesive products, soft and semi-rigid vinyls, static PVC, PET and PP, offered in both sheet and roll form.

### ***Products Performance and End-Use Suitability***

*As with all pressure sensitive materials, it is the responsibility of the Customer to independently pretest this material for product performance, process capability and end-use suitability. Your evaluation and qualification is the key to success for both your Company and Ritrama.*

*Thank you for your evaluation and determination of end-use suitability of Ritrama materials.*

## **Application Guidelines for Ritrama self-adhesive products**

This handbook is to offer assistance in the application of Ritrama self-adhesive films. It is intended to be a tool for guidance only and can only complement the wealth of experience and competence of professional applicators in the achievement of excellent results.

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#### **1. Preparation**

##### **1.a Ink jet printing**

- The installation of appropriate colour printing profiles is essential in order to achieve an exact colour match to the original file (please refer to the "Tools" section of Ritrama's website [www.ritrama.com](http://www.ritrama.com)).

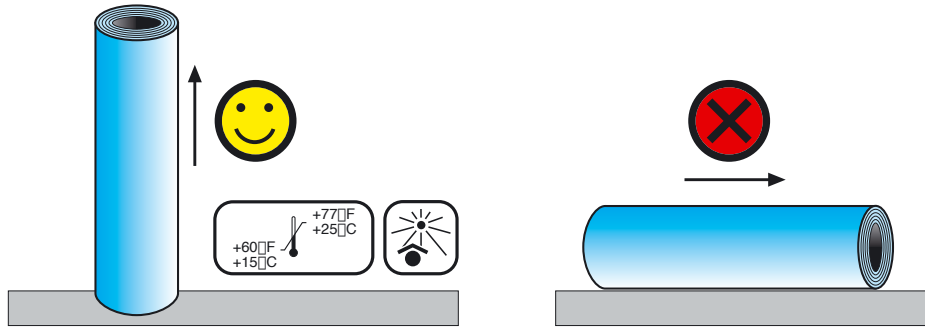
- All parameters need to be checked prior to printing and if possible, avoid excessive ink usage especially in full-bleed prints.

- Ink jet prints can be protected by using Ritrama overlaminating films. This needs to be compatible with the chosen self-adhesive film and type of design. We recommend professional rollers to ensure the right degree of pressure, tension and temperatures being applied.

## 1.b Storage

Each Ritrama self-adhesive film series comes with a guaranteed life (see Technical Chart specifications) provided that storage conditions range from a temperature of 60°F (15°C) to 77°F (25°C) and relative humidity from 40 to 60%. Exposure to a sudden change in temperature should be avoided (e.g. do not place near boilers, heaters, open doors etc where extreme weather conditions can have an impact). The rolls must be stored in their original packing and kept in a vertical position or should be hung on specially installed roll holders.

Under no circumstances must rolls be placed in a horizontal position - this would cause pressure marks in the film layers across the entire width of the roll.



## 1.c Application temperature

The room temperature and temperature of the substrate must be between 50°F (10°C) and 95°F (35°C) for all Ritrama self-adhesive films. Portable heaters may be used to adjust the substrate surface temperature. Heat guns are suitable for small surfaces. Do not use hot water or steam for this purpose, as the humidity may lead adhesive decals to lift off the surface.

## 1.d Cleaning of substrate surfaces

The entire substrate surface has to be thoroughly cleaned before applying the adhesive decal, even if it may look clean.

- Wash with soapy water, rinse and dry carefully.
  - Use a mild detergent.
  - Wipe off detergent with a cloth or paper until dry and no liquid/dust remains.
- Check all joints for possible traces of cleaning solutions. Should traces of liquid remain, a hot air dryer may be used until properly dry.

### Remarks

All joints must be clean and free from foreign material. The edges should be smooth, even and well sealed.

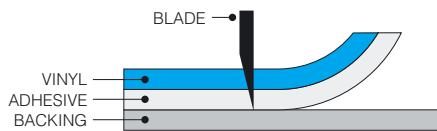
## 2. Recommended tools

- Long pointed scissors
- Cutter with divisible blade
- Spring rewinding tape measure
- Fine felt tip pen for writing on glass
- Protective cotton gloves
- Felt spatula
- Plastic, specially coated squeegee to avoid scratching the vinyl film
- Adhesive paper tape to position the film
- Professional hot air dryer with adjustable power and temperature controls
- Room thermometer and thermometer for substrate surfaces
- Detergent (isopropyl alcohol)

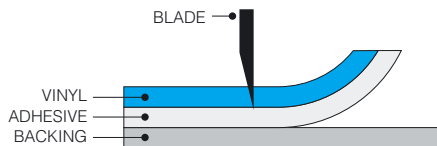
The working area must be clean and in a controlled temperature environment to guarantee optimum application of decals.

## 3. RI-MARK: cutting

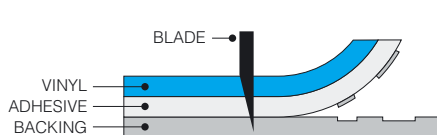
The plotter blade must be razor sharp: a blunt or damaged blade will not cut deeply or cleanly enough into the film and cause incomplete and uneven cuts. Excessive pressure exerted by a blunt blade can lead to incomplete and intermittent cutting of the vinyl.



Re-adjust the depth of the cut: the blade must cut through the vinyl and adhesive (carry out cut trials).

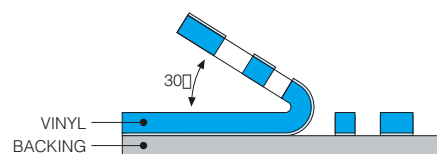


If the cut is not deep enough, it will be difficult to remove the waste film, or parts of the decal required for the application may actually be pulled along.



If the cut is too deep, it could cut through the siliconised backing paper, and the exposed paper fibres could stick to the adhesive at the time of removal, thus compromising the installation of the decal.

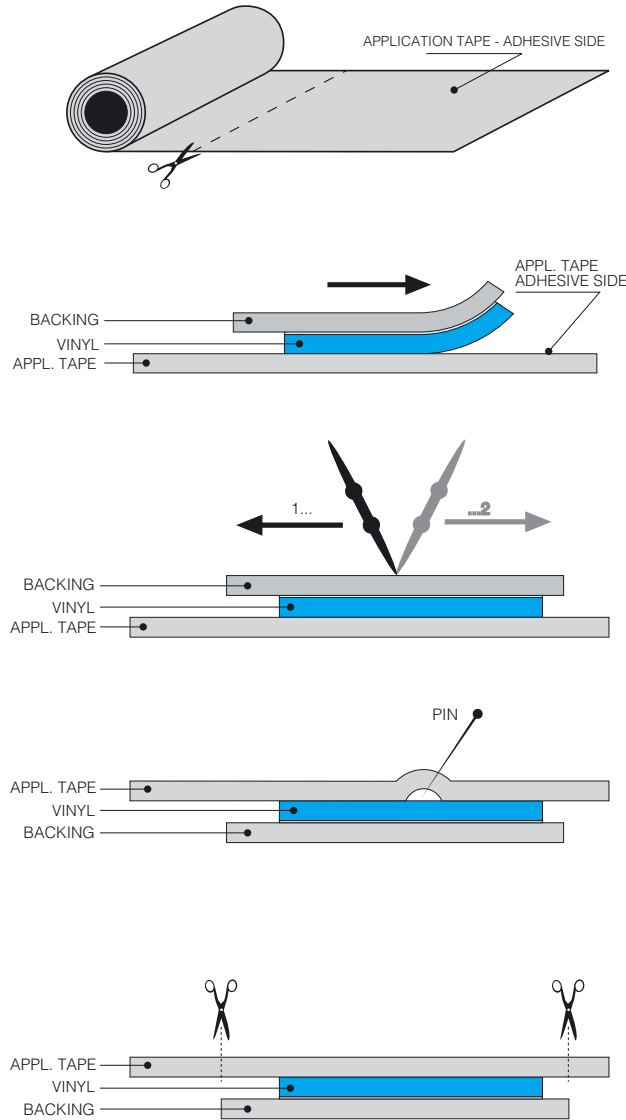
## 4. RI-MARK: stripping / weeding



We recommend stripping immediately after cutting the lettering. If too much time has elapsed between cutting and stripping and if the room temperature is too high, this process may become more difficult. The best weeding results are achieved using a steady pulling action at an angle close to 30°.

## 5. Application tape

It is best to use application tape on the vinyl with a professional roller. If a roller is not available, please follow these instructions:



1. Unroll the application tape on the work top, adhesive side up; cut off a strip larger than the vinyl to be applied to.

2. Without applying any pressure, place the vinyl - with the graphic facing down - onto the application tape.

3. Press the back of the release paper with a rigid spatula, exerting vigorous and constant strokes from the centre towards the edges.

4. Turn the substrate over - the application tape is now on the top - and pierce possible blisters with a pin. These blisters could cause creases during the application of the decal onto the substrate.

5. Trim excess application tape at the edges. The vinyl can now be made ready for transport by rolling it at a diameter of at least 12 inches (30 cm) with the application tape side out, or it may be kept in a flat position.

## 6. Decals with overlapping joints

If the decal consists of several joined parts, apply the overlapping material by creating a "tile effect". In the case of, for example, a motor vehicle:

- In the case of vertically overlapping decals, start applying from the back of the car and proceed toward the driver's cab.

- In the case of horizontally overlapping decals, proceed from the bottom of the vehicle towards the top.

This method ensures that rain and air will not cause the overlapping to become unstable and detach.

The area of overlapping must be between 0.197 inches (5 mm) and 0.394 inches (10 mm).

## 7. Application methods

Decals can be wet or dry applied. The choice is down to the applicator's preference. The wet method is more straight forward, but is not appropriate in some cases (e.g. with three-dimensional surfaces). The dry method requires greater expertise, but is more reliable and achieves longer lasting results.

- Some plastic surfaces or surfaces treated with oily substances can affect the adhesive performance of the film. We do not recommend the application of long term decals to such surfaces.

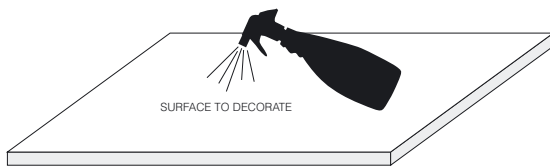
### 7.1 Wet application

This application method allows positioning of the adhesive film on the surface to be decorated, and yet move it freely without the worry of air blisters or poor adhesion arising. Once a satisfactory position is reached, the use of a squeegee from the centre outwards will ensure that all remaining water will be totally removed. We do not recommend wet application with outdoor temperatures of below 50°F (10°C).

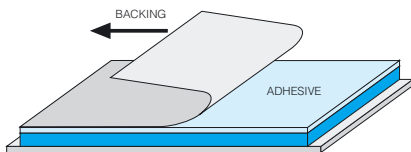
This method is recommended for decals on glass and other flat surfaces.  
- It makes it easier to apply self-adhesive films in warm places >77°F (25°C) - 86°F (30°C).  
- It facilitates the application of large format self-adhesive films on smooth surfaces only: whether flat or slightly curved.

Procedure to follow:

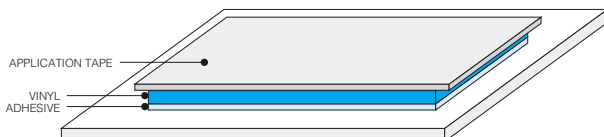
1. Prepare a solution of water containing 2% liquid soap and pour it into a spray can container.



2. Spray the entire substrate surface evenly; do not use sponges or rags as these could leave residual dirt.

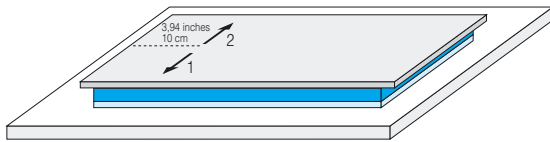


3. Remove the backing paper of the self-adhesive film (and not the film off the backing paper) at an angle of approximately 30°, whilst keeping the decal flat and spread out on the work top.

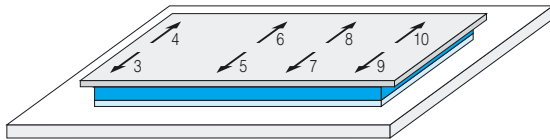


4. Position the self-adhesive film on the substrate to be decorated, which has already been sprayed with water. If the film does not have application tape applied to it, also spray the film side with the water solution. This will help the squeegee slide more easily and not damage the surface.

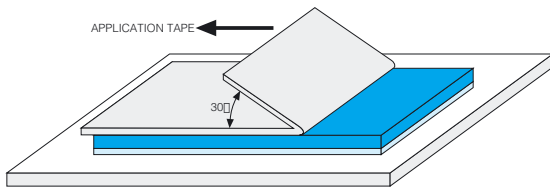




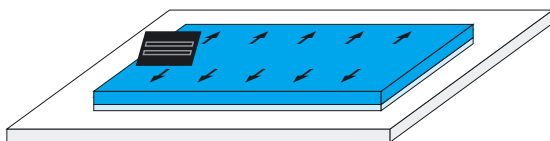
**5.** Start with the squeegee in the top part of the decal leaving a 3.94 inch (10 cm) margin. Then continue with horizontal smooth and overlapping movements from the centre and work your way outwards, applying sufficient pressure to squeeze out all remaining liquid.



**6.** Check carefully that no liquid remains, especially if you notice unevenness. Once the film has been applied, gently dry from the centre outwards whilst paying special attention to the edges.



**7.** If application tape has been used, remove it steadily and at an angle between 15° and 30°. Depending on room temperature, leave 30 to 90 minutes before removing the application tape. Do not leave the application tape in contact with the film for more than 24 hours following application of the decal.



**8.** After about an hour, repeat the squeegee process whilst paying special attention to the edges.

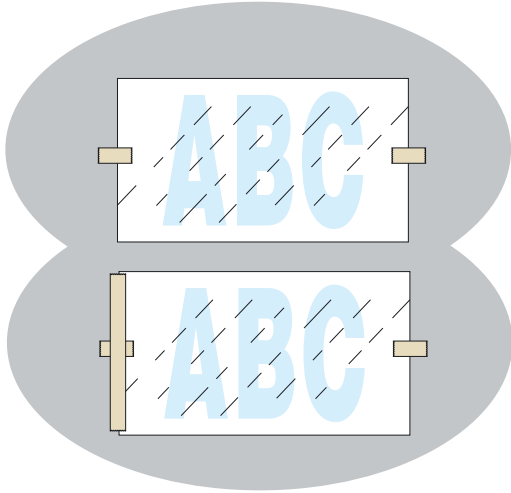
## 7.2 Dry application

Dry application is usually the favoured method as adhesion is immediate and instantly successful.

This is the required method for decorating three-dimensional or raised surfaces with require a conformable film (rivets, painted areas, indents etc). It is crucial for this type of application to use the Ritrama Cast series products.

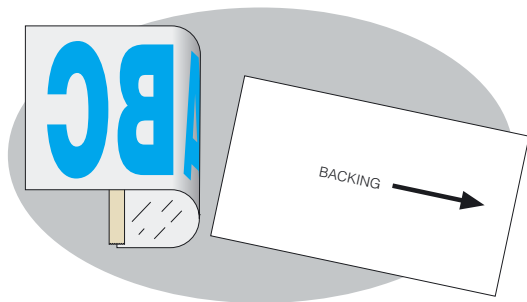
The minimum application temperature must not fall below 50°F (10°C). A hot air dryer should be used to mould the (Cast) film into shape; this should also be equipped with a thermometer.

### 7.3 Small even surfaces <math><5.38\text{ ft}^2\text{ (0.5m}^2)</math>: using lateral tapes

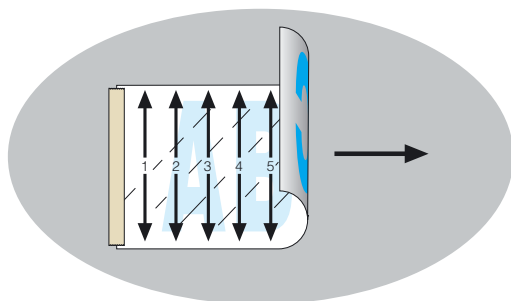


1. Place the application tape onto the plotted, weeded film. Position the entire laminate without removing the backing and secure the sides with small strips of adhesive paper tape.

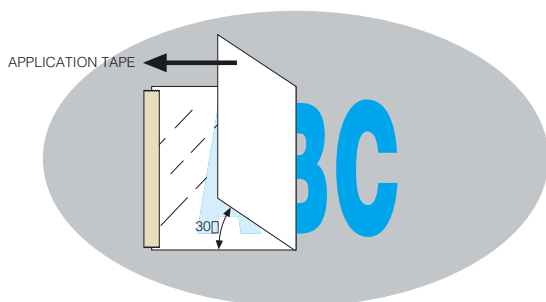
Then secure one entire side of the laminate with a strip of adhesive tape.



2. Remove the adhesive tape on the opposite side, turn over the entire laminate and remove the backing paper whilst holding up the decal.



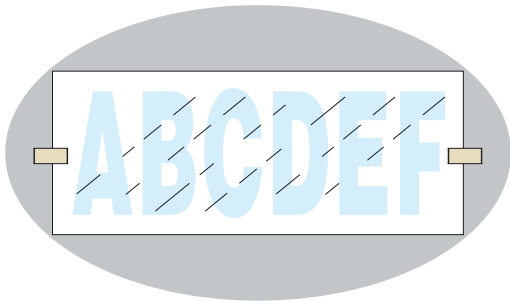
3. Start applying the decal from the side that had been secured with adhesive tape and run the squeegee with regular, firm, overlapping movements from the centre upwards and then downwards until total adhesion is achieved. During the application, ensure that the decal is held steadily by keeping it away from the surface and only allowing the film to come into contact with the surface once it has been pressed with the squeegee. Avoid any surface contact with the part of the decal that has not yet been worked on with the squeegee as this would lead to the formation of air blisters.



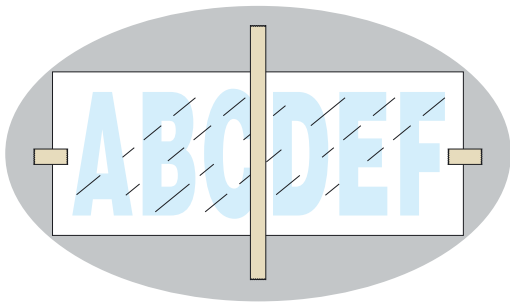
4. Remove the application tape at a steady pace and at an angle between  $15^\circ$  and  $30^\circ$ . Once all application tape has been removed, carefully run the squeegee again over the entire decal.

5. Pierce all air blisters with a pin and press to squeeze out the remaining air bubble. Do this carefully from one side of the pierced hole to avoid stretching and deforming the film. Do not use knives or blades to punch the blisters because these could tear the film. Do not worry about very tiny air blisters because these will be reabsorbed by the adhesive itself.

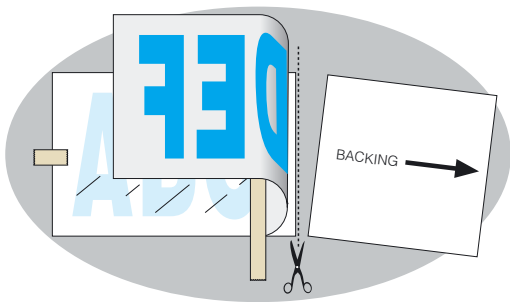
#### 7.4 Large even surfaces >10.76 ft<sup>2</sup> (1 m<sup>2</sup>): using central tapes



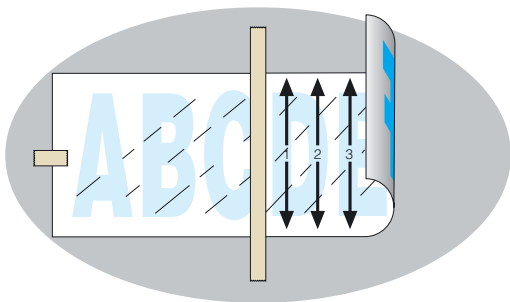
1. Place the application tape onto the plotted, weeded film.  
Position the entire laminate without removing the backing and secure the sides with small strips of adhesive paper tape.



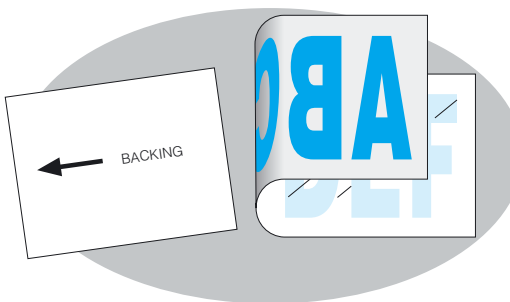
2. Apply a strip of adhesive tape vertically about half way across the longest side of the decal.



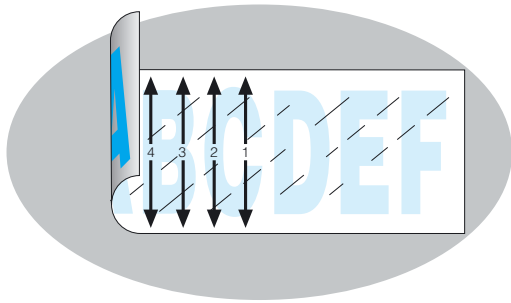
3. Remove the tape on one side, turn over half of the decal and fold loosely over the still secured other half. Remove the backing and cut it along the central tape.



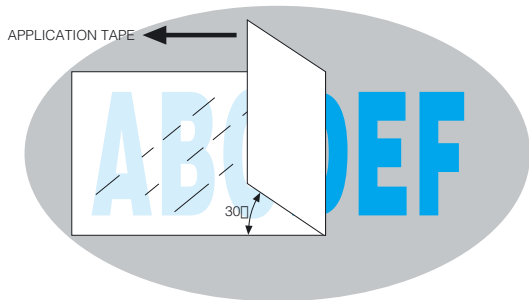
4. Press the decal with a squeegee onto the underlying surface at an angle of approximately 20°, using regular strokes from the centre outwards right along the line of the central tape. During the application, ensure that the decal is held steadily by keeping it away from the surface and only allowing the film to come into contact with the surface once it has been pressed with the squeegee. Avoid any pressure on the film which could lead to the formation of creases and blisters.



5. Remove the central tape and the side tape. Remove the remaining backing paper whilst holding up the decal.



6. Press the decal with a squeegee onto the underlying surface at an angle of approximately 20°, using regular strokes from the centre outwards right along the central line. During the application, ensure that the decal is held steadily by keeping it away from the surface and only allowing the film to come into contact with the surface once it has been pressed with the squeegee. Avoid any pressure on the film which could lead to the formation of creases and blisters.



7. Remove the application tape steadily and at an angle of 15° and 30°. Once all application tape has been removed, carefully run the squeegee again over the entire decal.

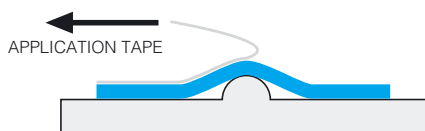
8. Pierce all air blisters with a pin and press to squeeze out the remaining air bubble. Do this carefully from one side of the pierced hole to avoid stretching and deforming the film. Do not use knives or blades to punch the blisters because these could tear the film.

### 7.5 Three-dimensional surfaces: rivets (Ritrama Cast series)

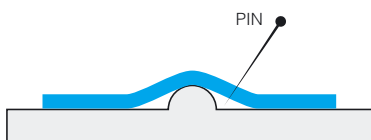
For the decoration of surfaces with rivets, Ritrama's cast series should ideally be used and applied using the dry application method. See paragraph 1.d for cleaning surfaces that need decoration. After a general cleaning each single rivet should be carefully cleaned.



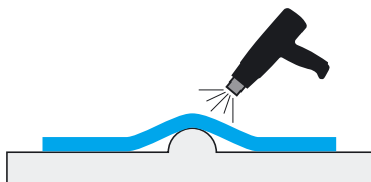
1. Apply the decoration over the whole surface, avoiding to press the area ca. 1,18 inch (3 cm) around the rivets.



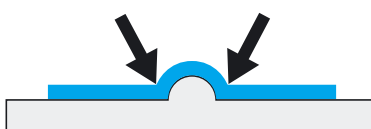
2. Remove the application tape (if used) with an even force and a detaching angle of ca. 15-30°.



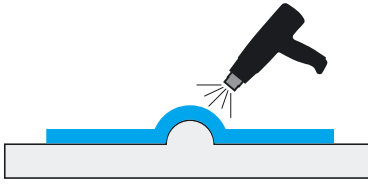
3. Group the blisters around the rivets, without deforming the film, then punch a few small holes with a pin in order to remove all the entrapped air.



4. Warm the film with a hot-air blower: air temperature approx. 393°F (200°C).



5. Press the film around the rivet with a plastic spatula, or a rivet brush, or your finger ensuring proper lint free gloves are worn for this purpose.



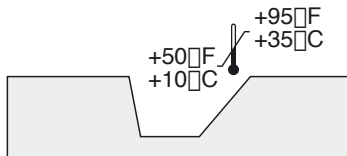
6. Complete the operation by thermally stabilizing the entire surface where the decoration was applied with a hot-air blower: air temperature approx. 1202°F (650°C). Verify with a thermometer that the surface temperature is not above 194°F (90°C).

### Remarks

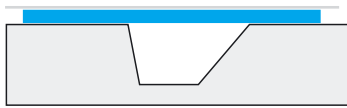
The decoration should be removed over any protruding objects, such as handles, screw bolts etc. Cut an "X" on the object and cut out the edges around its base. Carefully press down the edges around the base with a plastic spatula.

## 7.6 Three-dimensional surfaces: recesses (Ritrama Cast series)

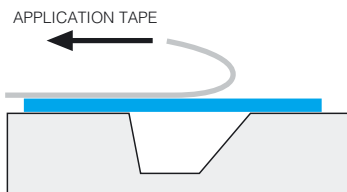
The decoration of surfaces that have recesses, require the use of Ritrama self-adhesive Cast series of films, applied using the dry application method. Such surfaces must always be fully degreased (see paragraph 1.d).



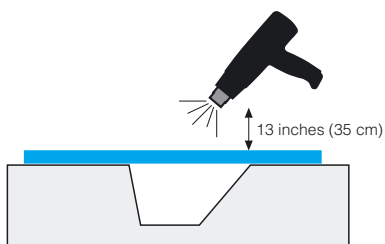
1. The environment and the surface temperature should ideally not be below 50°F (10°C). The use of the application tape will allow an even application of the adhesive film by allowing it to stick to the outer parts avoiding pre-sticking on the recess.



2. Apply the decoration made from the Ritrama Cast using the dry method on the entire surface required to be decorated.



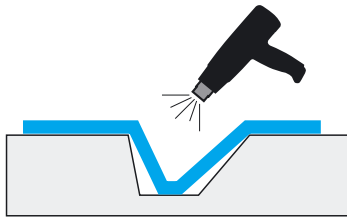
3. Remove the application tape as previously described.



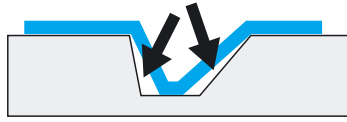
4. Warm up the cast film with a hot-air blower: air temperature approx. 393°F (200°C), distance of approx. 13,78 inches (35 cm). The adhesive film should be kept at a temperature of approx. 140°F (60°C) in order to comply with the surface required to be decorated.



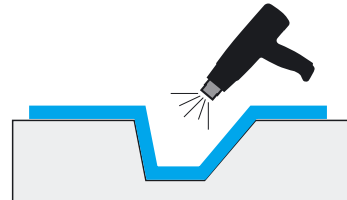
5. Shape the film by pressing with a finger into the deepest area inside the drawing using a gloved hand. Press the film with even movements in order to push the air outwards.



6. Heat up again and repeat the procedure with the parts that are not yet in touch with the surface by pressing the film with even movements in order to push the air outwards.



7. Pierce any air bubbles with the tip of a pin and press the air out ensuring the film is not deformed.



8. The application upon recesses can cause serious tension in the applied film. The entire decoration should be thermally stabilized in order to guarantee the optimum performance and life.

### Remarks

In order to eliminate tension on the applied vinyl, heat up evenly all areas of the Ritrama Cast decoration which underwent shaping by using a hot-air blower, approx. 1202°F (650°C) at a distance of 5,90-7,87 inches (15-20 cm), until a surface temperature of ca. 194°F (90°C) is obtained.

Do not expose the decoration to a temperature below 50°F (10°C) during the first 12 hours.

The adhesion of the film can be low to some particular plastic surfaces and to certain paint treated surfaces, e.g. low surface energy lacquers. The long term decoration on such surfaces is thereby not recommended.

### 7.7 Guidelines for recesses

When Ritrama Cast film is shaped it undergoes some stretching of the material which can cause a reduction in the material thickness. A highly stretched film will have less adhesion than a corresponding un-stressed film. With recesses that are particularly deep or marked, a safer option may be to cut the film along the areas of greatest stress. In turn these cut lines should be properly sealed as previously outlined.

Here are some guidelines for the degree of conformability:

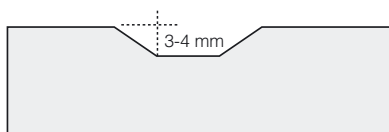
#### 1. Recess depth:

0,118 - 0,157 inches (3 - 4 mm) deep: simple and safe application.

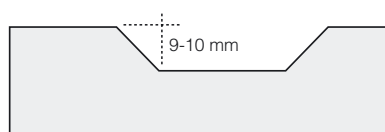
0,354 - 0,393 inches (9 - 10 mm) deep: difficult application, but possible for proper technique.

> 0,590 inches (15 mm) deep: application not recommended, result and duration at risk.

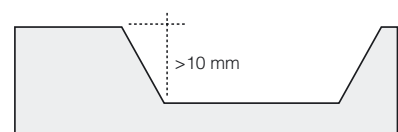
The ratio between the width of the recessed surface and its depth must be at least 6:1



simple



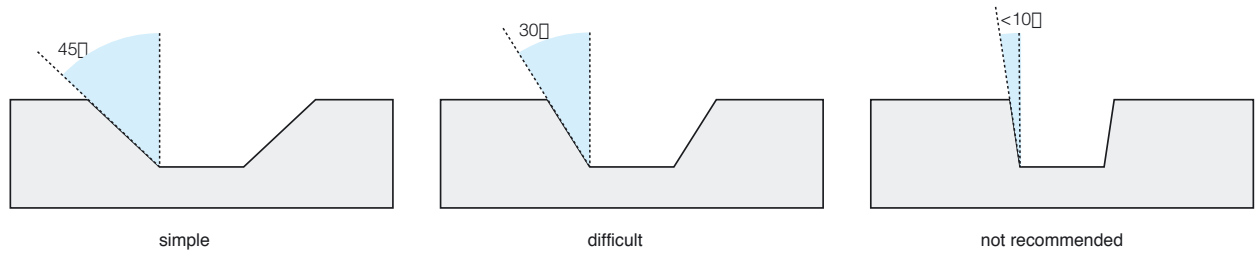
difficult



not recommended

## 2. Recess angle:

- 45° simple and safe application
- 30° difficult application, but possible
- <10° application not recommended, result and duration at risk



3. Application to smooth surfaces gives optimum results. Attention should be given to textured surfaces with particularly textured surfaces being avoided.

4. The surface should be in good condition; poorly maintained surfaces will be troublesome to decorate.

5. Thicker material or multiple layers will have less conformability.

### 7.8 Cutting procedure for RI-MARK Cast series applied to very deep recesses

1. Before applying the adhesive film on the surface to be decorated, cut out a strip of Ritrama Cast (of the same colour) as large as the recess. Apply the strip, without deforming it, in the deepest spot.

2. Apply the decoration, without deforming it, on the entire surface needed to be decorated. Cut the film at the centre of the recess.

3. Ensure the film sticks, without deforming it, to the lateral walls of the recess. Trim any surplus.

4. Remove the application tape

5. Heat up the Ritrama Cast with a hot air blower and shape it to the recess surface. Thermally stabilize all decorated areas that underwent shaping by again using the hot-air blower.

## 8. Vinyl removal procedure

For short and medium term, (including indoor) decoration, Ritrama films with removable or semi-permanent adhesives are ideally suited. These products can be easily removed at ambient conditions ensuring a smooth and even peel.

For permanent adhesive products:

1. Heat up the vinyl to ca. 158 - 176°F (70 - 80°C) with a hot-air blower: air temperature approx. 1112°F (600°C).

2. Remove the film in portions in a gradual manner.

3. Once all the vinyl film has been removed, use suitable chemical products to remove any adhesive that may have transferred. White spirit or water based citrus cleaners are widely used for this task.

Carefully follow the manufacturers guidelines for the safe use of these cleaning chemicals. It is generally recommended that any such chemicals should be first trialed in a non-critical area to determine suitability.

Lined writing area consisting of 21 horizontal lines.





Lined writing area consisting of 20 horizontal lines.



