

# MACfleet 6500 – application guide

## 1. MACfleet 6500 product features

The MACfleet 6500 series is a new generation of vinyl especially adapted to vehicle decoration.

This 55 micron soft laminated vinyl has an **exceptional long-life (8 to 10 years)** and a **superior softness**. It means that it can be applied to highly uneven surfaces.

In addition to its extraordinary application and coverage qualities, MACfleet 6500 enjoys **superior opacity** and **colour stability** (won't turn white or change shade, even after stretching !).

Comment on vinyl appearance:

Rolls may become matt in parts. The high softness of MACfleet 6500' means that the surface of the vinyl sometimes takes on the appearance of the protective paper (backing) in the next single turn. This feature is perfectly normal and reversible. MACfleet 6500 will regain its glossy appearance once applied to a substrate (car, truck, window,...).

The time it takes to regain its glossy finish will depend on the temperature. In winter, it may take several days, or in summer, just a few hours when exposed to sunlight. If you are using a hot air blower (often used during application) it could take little more than a few seconds.

## 2. Storage

Mactac provides a two-year storage guarantee for MACfleet 6500 on condition that it has been kept at temperatures of 15 to 25°C and at humidity of 40 to 60%.

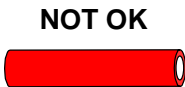


Temperature  
15 – 25°C



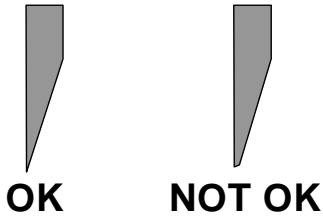
Humidity  
40 – 60%

Also avoid directly exposing the vinyl to high temperatures (near radiators, in direct sunlight, etc.)

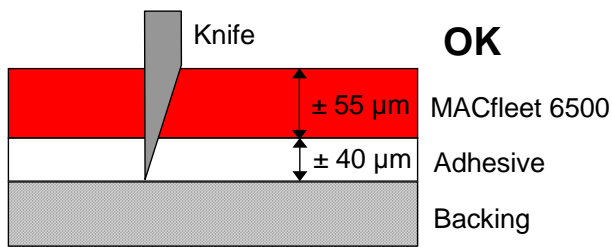


Any part-used rolls should be kept upright or hung on racks.  
At no time should they be placed on their sides as this could lead to a large matt section appearing in the whole roll.

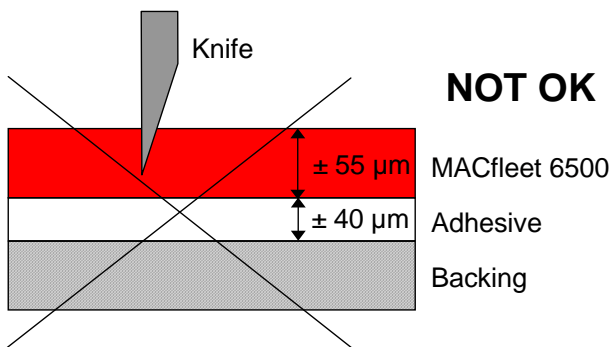
### 3. Cutting out shapes



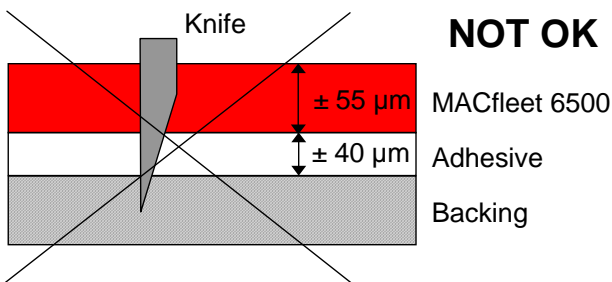
Use a knife with a sharp blade. Blunt or worn knives will result in untidy cuts (known as “jagged edging”).



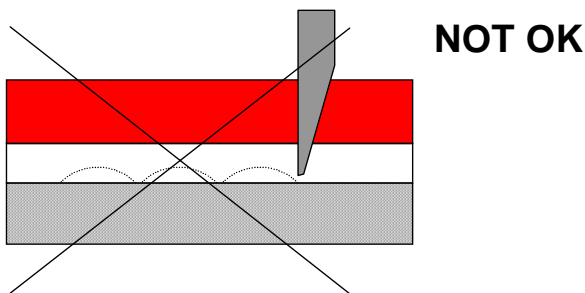
Cut to the correct depth. The knife should cut all the way through the vinyl ( $\pm 55\mu\text{m}$ ) and the adhesive ( $\pm 40\mu\text{m}$ ).



If the cut is not deep enough (the vinyl and/or if the adhesive is not cut all the way through), the letters and logos that you have cut out could be pulled away during stripping.



If cuts are too deep, then the backing could split when the letters or logos are being transferred onto the MACtransfer tape.

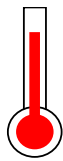


Applying too much pressure when using a blunt knife could result in the knife bouncing off the backing paper, which means that the adhesive will not be cut all the way through.

#### 4. Peeling the vinyl off

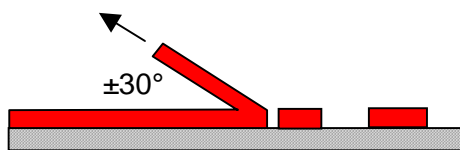


Maximum  
1 hour



Temperature :  
15-23°C  
Max 25°C

MACtac recommends weeding the MACfleet away as soon as the shapes have been cut out. This is because the thickness of the adhesive layer ( $\pm 40\mu\text{m}$ ) could result in it “resealing” itself if the vinyl is left for several hours before peeling, or if it has been exposed to temperatures above 25°C.



For best weeding results, use a cleaving angle of  $\pm 30^\circ$  and pull at a steady speed.

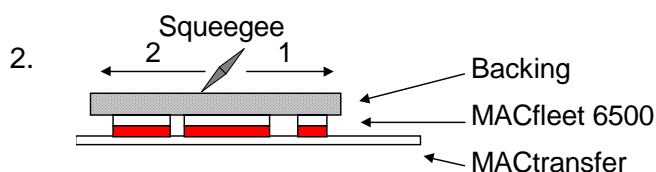
#### 5. Laminating the transfer paper (= Application Tape)

The application tape should preferably be laminated using a laminator.

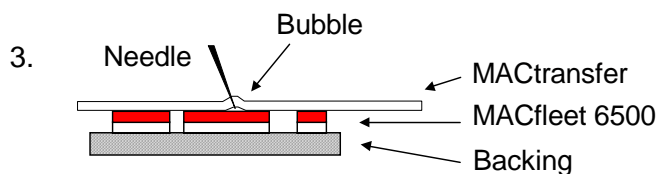
If this is not possible, then use the following procedure:



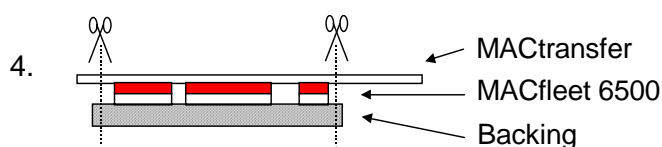
Roll the AT out on a table with the adhesive facing upwards.  
Cut a band wider than the lettering / logo to be transferred.



Place the lettering / logo on the AT.  
Squeegee the reverse side of the MACfleet 6500 backing with a stiff plastic squeegee, working outwards from the centre.



Turn the layers over and prick any air bubbles trapped between the application tape and the vinyl using a needle or a cutter (bubbles could cause wrinkling when applying MACfleet to your surface).



Cut the AT to the same size as the MACfleet vinyl.  
To carry the MACfleet with the AT on it to the place where it is to be applied, roll it up with a diameter of at least 5 cm, with the AT facing outwards, or carry it flat.

## 6. Cleaning the surface of application

Even if they appear clean, all surfaces should be cleaned using the procedure below:

- Clean with soapy water, then rinse with clean water (do not leave any traces of soap on the surface).
- Clean away any grease using isopropyl alcohol or denatured petrol.
- Dry the surface using a dry cloth or a clean paper towel which will not leave any small pieces behind, before the isopropyl alcohol or denatured petrol has had a chance to evaporate.

## 7. Applying MACfleet 6500 to the substrate

A wet method or dry method application technique may be used. The method chosen should suit the size of the decorative feature to be applied and the complexity of the surface to be decorated. Dry application is the most reliable method.

### 7.1. Wet method

This method of application produces very little initial adhesion. This allows the user to position the vinyl where he or she wants and avoids air bubbles and folds.

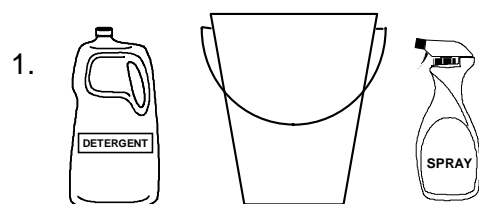
The adhesion will gradually increase after several hours as the water evaporates.

The final adhesion will be reached after 24 or 48 hours.

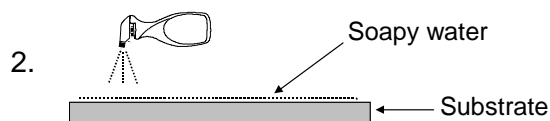
It is not advisable to apply MACfleet 6500 using the wet method in temperatures lower than 15°C.

#### **Advantages of the wet method:**

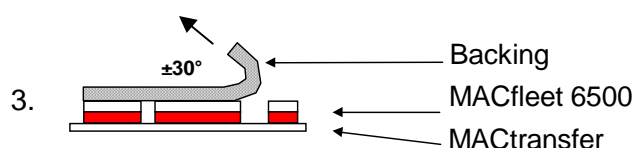
- Allows MACfleet to be applied to surfaces in high ambient temperatures (>25-30°C).
- It makes it easier to apply large sections of MACfleet on flat or slightly curved surfaces.



Prepare a solution of soapy water (one capful of detergent to 10 litres of water) and pour it into a spray bottle.

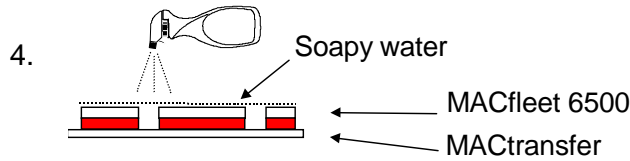


Use the spray bottle to wet the entire substrate surface (do not use a sponge or a cloth as these can leave dust, fluff, etc.).

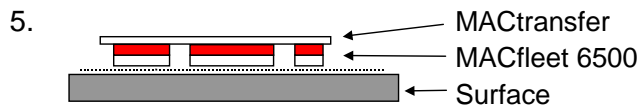


Make sure the adhesive film is flat on a table.

Pull the backing off it (and not the reverse) at an angle of 30°.

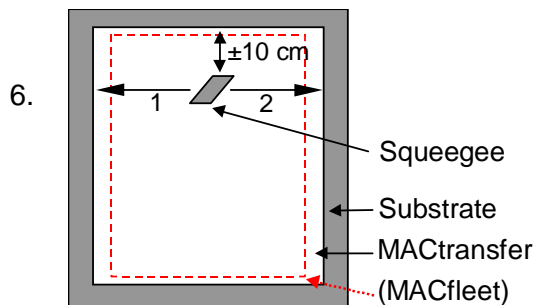


Wet the adhesive all over using a spray bottle.



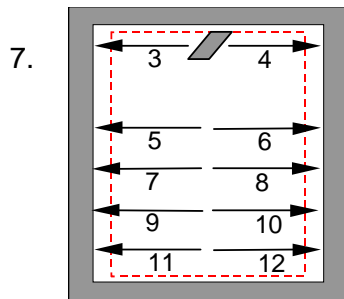
Place MACfleet on the wet substrate surface.

If the MACfleet does not have any application tape on it, wet the entire surface of the vinyl. This will make it easier to slide the plastic squeegee without scratching the vinyl



Squeegee horizontally, working from the centre outwards to the left and then the right stopping  $\pm 10$  cm from the top edge of the vinyl.

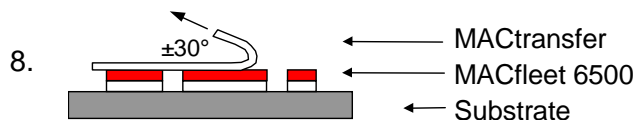
Apply enough pressure to squeeze out any water trapped between the MACfleet adhesive and the substrate surface.



Squeegee the last 10 cm of the top edge working from the centre outwards, to the left and then the right.

Continue to squeegee horizontally moving from the centre outwards with overlapping movements.

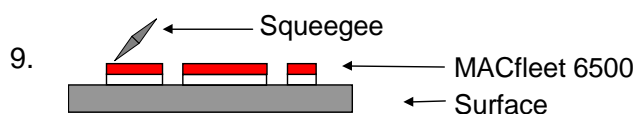
Check that no pockets of water have been trapped. If this is the case, scrape from the centre to the edge in order to squeeze it out. Wipe the vinyl and the edges.



If MACfleet has AT on it, pull it off at a steady speed, at a cleaving angle of 0 to 30°.

It is advisable to wait between 30 and 90 minutes (depending on the ambient temperature) before removing the AT.

It should not be left in contact with the vinyl for more than 24 hours.



24 hours later squeegee the film again, paying particular attention to the edges.

## 7.2. Dry method

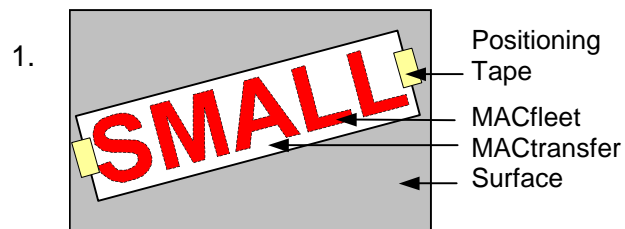
Dry application is a safer application method because the marking film reaches its final adhesion more quickly than during wet application.

This application method should be used on three-dimensional surfaces that require the vinyl to be shaped (over rivet heads, corrugations, welded areas, etc.).

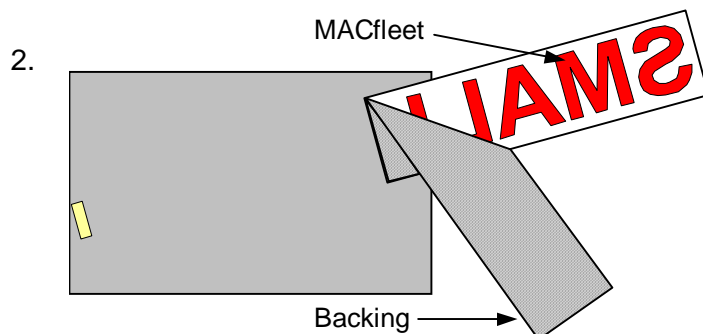
The lowest temperature at which MACfleet 6500 should be applied on flat or slightly curved surfaces is 10°C.

The lowest temperature at which MACfleet should be applied on three-dimensional surfaces, which require the vinyl to be shaped, is 18°C. Hot air will need to be used.

### 7.2.A. Small surface areas (< 0.5 m<sup>2</sup>)



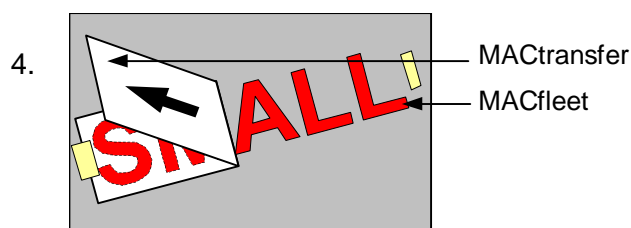
Place the application tape on top of the lettering or logo. Position the lettering or the logo **WITHOUT REMOVING THE BACKING**, using positioning tape at each end.



Cut one edge of the positioning tape. Peel the backing off.



Position the lettering or the logo once again on the spot marked by the piece of positioning tape. Squeegee quickly and firmly from the centre outwards in overlapping movements.



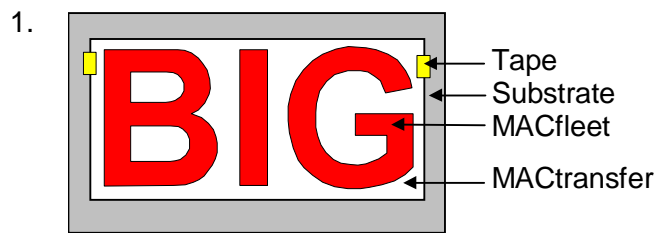
Pull the AT off at steady speed, at a cleaving angle of 0 to 30°. Prick any air bubbles (\*) trapped between the MACfleet and the substrate.

(\*) In the event that “tiny bubbles” of air get trapped between the MACfleet and the substrate surface (bubbles which have a diameter < 2 mm), there is no need to do anything since they will disappear of their own after few days thanks to the vinyl’s porosity.

If the bubbles are over 2 mm in diameter, use the following procedure:

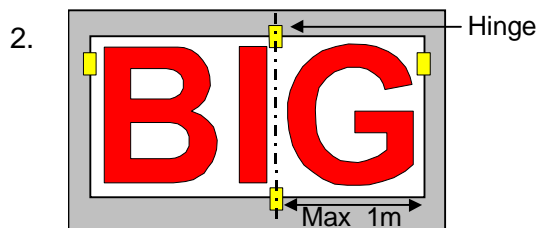
- 1 - try to collect the bubbles together without putting the vinyl out of shape.
- 2 - prick the bubble at one end.
- 3- squeeze the air out from the side opposite the opening.

**7.2.B. Large flat surfaces (>1 m<sup>2</sup>) : hinge method**

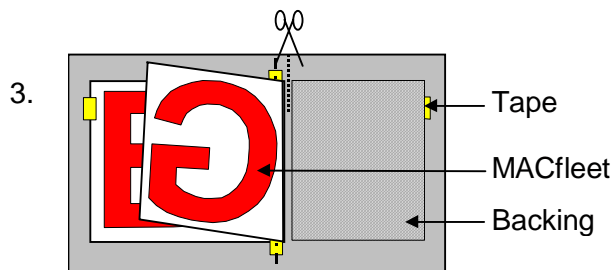


For surfaces of this kind, it is absolutely necessary to apply AT to the lettering or logo.

Position the lettering or the logo WITHOUT REMOVING THE BACKING by using a piece of positioning tape at each end.



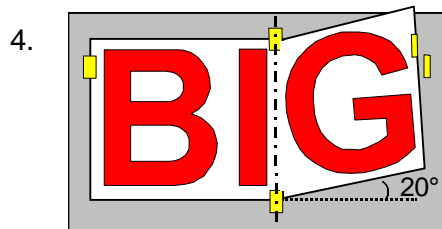
Make a hinge perpendicular to the largest dimension of the letters or logo, no more than 1m away from any one of the edges.



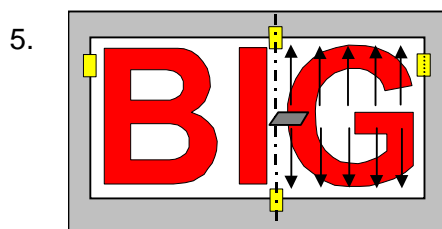
Cut the positioning tape.

Fold one half on top of the other.

Remove and cut the backing as far as the hinge.

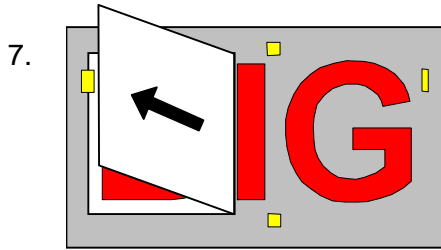


Fold the hinge back making sure that you leave a space between the MACfleet and the substrate surface (angle of ±20°) in order to avoid it sticking too soon.



Squeegee firmly from the centre outwards in overlapping movements.

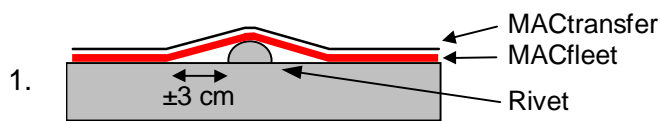
Repeat the same set of actions for the other section of the lettering or logo.



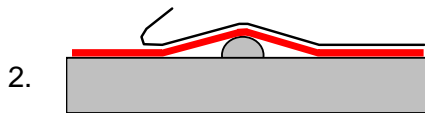
Remove the AT at a steady speed, at a cleaving angle of between 0 and 30°.

Prick any air bubbles trapped between the MACfleet and the substrate and squeegee once more.

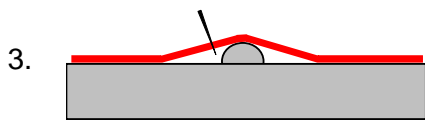
### 7.2.C. 3 dimensional surfaces : rivets



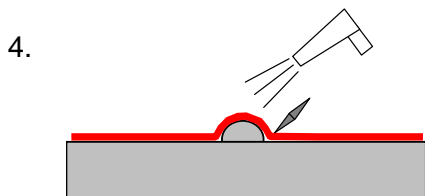
Apply the MACfleet, using the dry method described earlier, to the whole area of the surface of application, leaving a  $\pm 3$  cm gap between the vinyl and the substrate, around rivets.



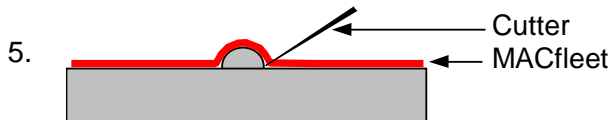
Remove the application tape at a steady speed and a cleaving angle of 0 to 30°.



Collect the bubble around the rivet without putting the vinyl out of shape. Prick several holes in the vinyl around the rivet.

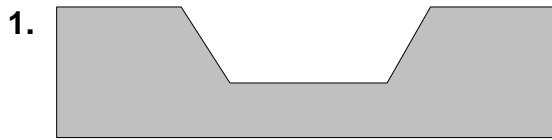


Squeeze out any air trapped between the MACfleet and the rivet using your finger. Press the vinyl down hard around the rivet using a plastic squeegee and a hot air blower (air temperature of  $\pm 300^{\circ}\text{C}$ ).



Finish off by cutting the MACfleet around the rivet using a cutter.

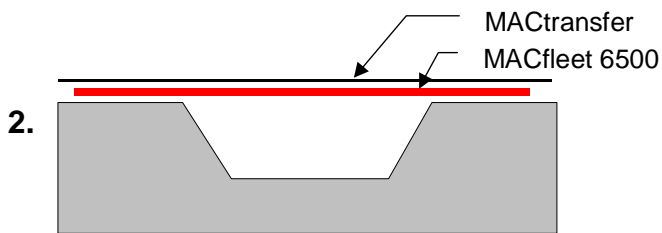
### 7.2.D. 3 dimensional surfaces : corrugations



Temperature – angled surface : 18-25°C

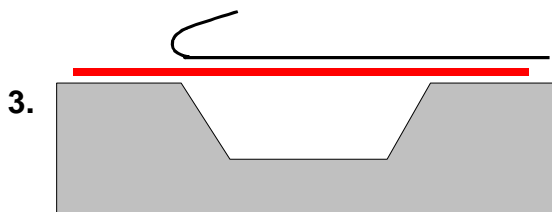
The ambient temperature and the angled surface of the object must be between 18 and 25°C.

Clean the substrate surface and remove any grease using isopropyl alcohol.

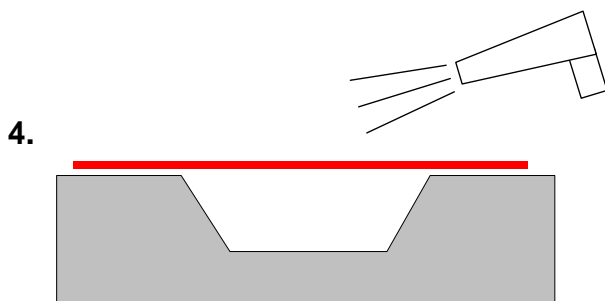


Apply MACfleet 6500 using MACtransfer application tape over the 3 dimensional surface.

The application tape is used to give more stability to the vinyl during the first stages of application.



Remove the AT.

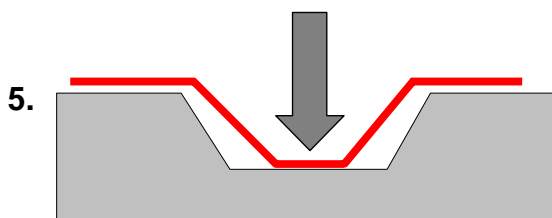


Heat MACfleet 6500 with an industrial air gun (air temperature:  $\pm 250^{\circ}\text{C}$ ).

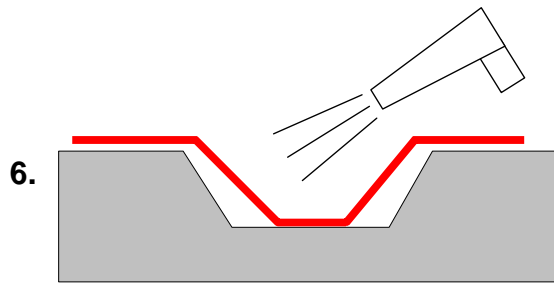
The vinyl itself must reach a temperature of  $\pm 60^{\circ}\text{C}$ .

At this temperature, the adhesive will be "activated". This will help to reach 100% of its sticking capacity to the surface.

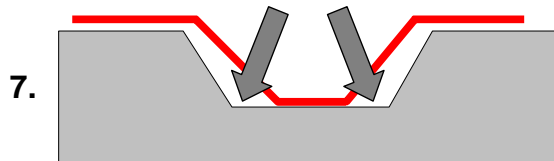
NB: Take care not to burn the vinyl. Use quick movements with the industrial air gun, keeping it  $\pm 20$  cm away from the vinyl.



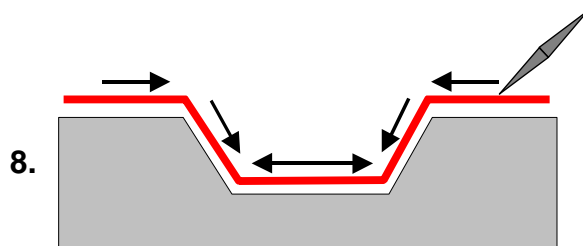
Press the vinyl into the corrugation using your finger.



Heat any areas that have not yet come into contact with the substrate.



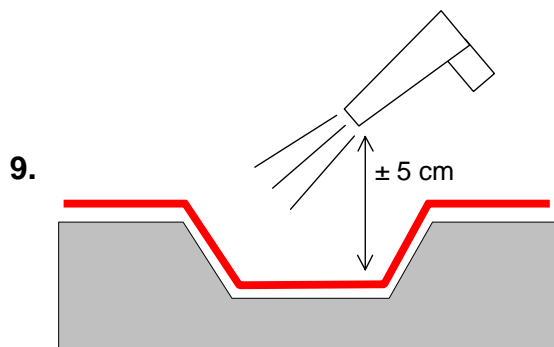
Press down once more using your finger.



Once the vinyl comes into contact with the surface, press **firmly** using a plastic squeegee.

This point is essential to increase initial adhesion of MACfleet 6500 and to avoid lifting.

Prick any air bubbles that appear.



Once 100% of the vinyl is in contact with the surface, **heat it one last time** (air temperature: 600-650°C).

This reinforces the initial adhesion and cancel all tensions in the vinyl.

The decoration should not be exposed to temperatures lower than 10°C during the first 3-4 hours.

- In extreme cases (very deep corrugations, paint with low surface tension, etc.), contact MACTac for detailed advice.
- If you need to apply a second colour, leave the first MACfleet 6500 colour applied for 20-30 minutes, then apply the second colour. Using a double layer of vinyl increases the risk of the vinyl peeling off. Heat should be used, as described earlier, in order to minimise the chances of this happening.
- Adhesion to plastics such as ABS, PP or rubber is always difficult. Do not decorate surfaces of this kind if you require long-life decoration.
- Any images printed on MACfleet 6500 Di can be protected using LF3699 lamination film.  
Before lamination check first to ensure that the inks are completely dry and has good anchorage to the vinyl. The lamination is done using a professional laminating machine.



## **8. Removing the vinyl**

1. Heat the vinyl to a temperature of 70-80°C using a hot air blower (air temperature of  $\pm 300^{\circ}\text{C}$ ).
2. Peel off the MACfleet in small pieces at a time.
3. Chemical products for easier vinyl removal are also available in the shops. Follow the manufacturer's instructions carefully.
4. Any residue of adhesive can be removed by rubbing with a towel soaked in isopropyl alcohol, denatured petrol or a shop-bought "adhesive remover".