



# Vinyl Wrapping System Application Guide

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# VWS APPLICATION GUIDE

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## 1. Storage

- The VWS ranges offer a two-year storage guarantee for materials provided they have been kept at temperatures of +15°C to +25°C and at relative humidity of 40 to 60%.
- Avoid direct exposure of the vinyl to high temperatures (near radiators, direct sunlight.... etc.)
- Any part used rolls should be kept vertical or horizontally hung on racks. Rolls should never be placed on their sides as this could lead to a large matt section appearing in the whole roll.

From time to time rolls may become matt in parts. The softness of the material means that the surface can take on the appearance of the release liner in the next single turn. This is perfectly normal and reversible. The VWS range will regain its glossy appearance once applied to the substrate (car, truck ... etc) although the time it takes to regain its original finish will depend on the temperature. In winter it may take several days, or in summer, just a few hours. If a hot air gun is used during application, it could take just a few seconds.

## 2. Preparation and Cleaning of the Vehicle

To achieve the best result it is essential that careful preparation of the surface is completed before wrapping begins.

It is recommended that the film be applied indoors, in a clean, well lit, dust free environment.

Do not bring the car in from the cold and begin to wrap, it is important that the car is acclimatised to room temperature before beginning to wrap.

- Lights, handles, aerials, trims and any other protruding items should be removed, where possible, before application.
- Car wax and polish residue must be completely removed.
- Newly painted vehicles must be allowed 7-10 days drying time.
- Clean all surfaces thoroughly using a four stage preparation process: -
  - (1) Thoroughly wash the surface to remove all dirt either by hand or in an automatic car wash.

- (2) In a warm workshop environment, where the vehicle is at 17-24°C clean again with a white spirit/water mix at approximately 10% white spirit to water to remove any surface contamination, wax or silicone etc. Pay particular attention to recess areas when de-greasing and cleaning.
- (3) Finally clean the recesses and rebates with isopropyl alcohol or methylated spirit. Wipe dry with a lint free cloth before the alcohol/spirit has had an opportunity to evaporate.
- (4) To ensure complete drying of the surface before application, a heat gun can be used. If not completely dry any moisture trapped beneath the film could lead to failure.

It is important to pay attention to the edges, particularly around the rubber seals where moisture could be trapped.

The surface should now be properly prepared for application.

Cut a piece of vinyl for the panel about to be wrapped, then clean the panel once more before beginning to wrap. Cleaning the panel once more after cutting the vinyl for each section ensures no dust from cutting the vinyl is on the vehicle panel about to be wrapped. Repeat this for each panel.

### **3. Application**

#### **3.1 Dry Application Method**

Dry application is the preferred technique and the only method recommended and warranted by KPMF.

Applications should be performed in clean and dry workshop conditions with the surface allowed to reach the ambient temperature of 20°C.

Application to a cold substrate will adversely affect the adhesive bonding characteristics by reducing the adhesive tack. The adhesive would also be affected by higher temperatures which could result in it becoming more aggressive leading to pre tack where the film adheres to the substrate prematurely

- Tools required: -
  - Soft and hard squeegees.
  - Scalpel/retractable trimming knife.
  - Tape measure.
  - Heat gun.
  - Cleaning/de-greasing cloths and materials.
  - Basic toolkit (for handle/trim removal).
  - Rivet brush.

- Cotton gloves.
- For three-dimensional surfaces that require the vinyl to be shaped or moulded around rivet heads, corrugations, welded areas etc. some heat applied by a heat gun may be required.
- The application of the film to a vehicle is best performed by two people. Overall wrapping times can be reduced with the assistance of a third person to remove and replace trims, handles, lights etc. and on larger vehicles when wrapping roofs and 'difficult to get to' places.
- Measure and cut the first panel of material. Clean panel as detailed in point 2. Remove the protective release liner at an angle of about 30°- 40° angle immediately prior to application, this ensures there is limited chance of the material picking up dust.
- Keeping the material taut by holding both top corners, offer the material up to the panel and taking the predominant swage line work horizontally down the panel using a squeegee in horizontal strokes, when the area below the swage line is complete work horizontally upward. Use as little tension as possible when applying the film.
- Apply broad overlapping horizontal strokes using a soft squeegee to secure the large areas of material, (ignore recesses for the moment). The unique adhesive will allow air bubbles to be dispersed easily. If any large bubbles become trapped or a crease appears then warm the vinyl surface, 'tap' the material away from the vehicle and then re-squeegee.
- When wrapping using material produced on Airelease Liner it is essential that the whole surface is thoroughly squeegeed during application, paying particular attention to large areas such as the roof and bonnet. See Point 3.2 for full instructions on applying KPMF VWS with Airelease Liner.
- Always complete each section before beginning to wrap the next section. If material is left on an area without finishing at some point during the wrapping, when completing at a later stage, this could result in noticeable stress marks on the completed wrap.
- Where recesses and stepped changes of section are encountered, the film should be laid or fed into and around these sections applying as little tension as possible (see Point 3.3 on application into a recess). Use a hard squeegee edge to ensure that the material is well adhered to the internal angles/returns of the recesses. NOTE: If using heat, use only the minimum amount of heat required (60°C - 80°C) to make the film soften/ relax, and work in small areas stretching the vinyl applied to the flat section.
- Finally heat the film again in these areas to 100°C to ensure the adhesive is fully activated and the vinyl is set – this will help achieve ultimate adhesion in these difficult areas.

- For compound curves and complex multi curves, such as the rectangular grooves on panel vans, special techniques must be used. This involves laying a cut section into the groove, the edges of which are then overlapped by the vinyl covering the van side. See section 3.5 for further information
- **Caution: If using a heat gun, keep it at least 200mm away from the vinyl surface and use broad sweeping movements to heat the vinyl.** Use only the minimum amount of heat at all times. Overheating the film will contribute to adhesive failure.
- During fitting, care should be taken not to overstretch the film. Minimum tension should be used and it is best to average the 'stretch' over as large an area as possible.

If the film is being printed, it is suggested that the design is carefully planned to allow for 'stretch' zones around door edges/recesses and for cutting and fitting into recesses.

- The film should not be cut flush to the edges of bonnets, doors boot or panel edges. Instead, the film should be wrapped around the edges by about 6mm to minimise the exposed edges of the vinyl.
- The film should not be cut to the edges of rubber mouldings but must be applied under the moulding to eliminate the possibility of exposed edges of the vinyl.
- Text can be applied separately after wrapping.
- As with all vinyl, printed materials must be thoroughly dried for a minimum of 24 hours to eliminate the chance of retained solvents affecting the adhesive properties. The use of ICC Profiles is highly recommended to maintain compatibility.
- If overlaminating the printed vinyl please allow a minimum of 48 hours for the inks to cure before lamination.
- Application to materials such as ABS, PP or rubber is not recommended. Do not apply VWS to these surfaces if long-term decoration is required.
- After application, do not clean the vinyl with a solvent-based cleaner. Normal vehicle washing procedures should be used.
- For further advice regarding Airelease application please refer to the following section.

## 3.2 KPMF AIRELEASE Application

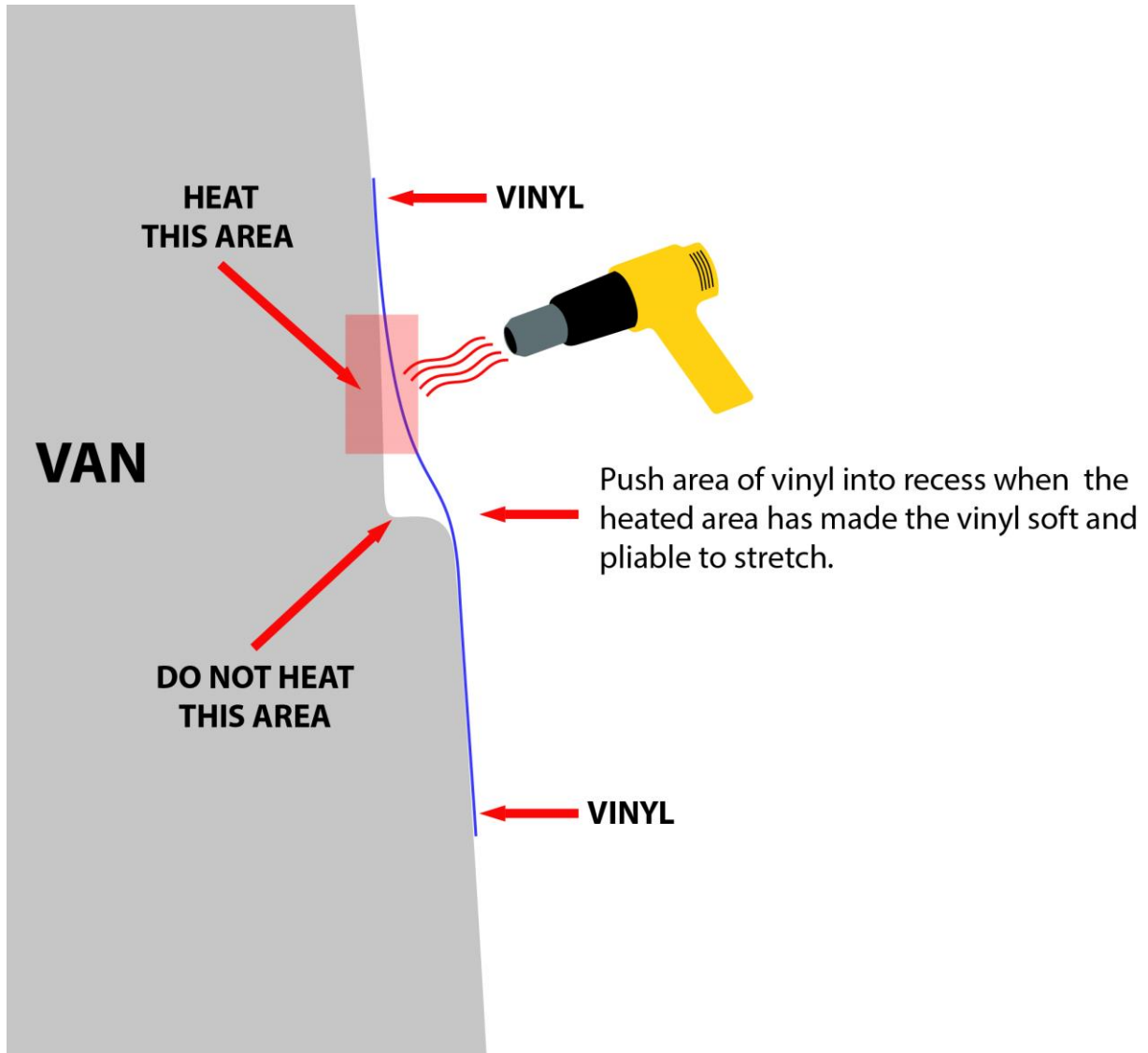
This section is specifically intended for use when applying KPMF VWS product produced on Airelease Liner.



The invisible structured surface of the Airelease Liner provides a reduced initial tack giving a trouble free and effortless application, when using Airelease liner it is essential that the whole surface is thoroughly squeegeed during application to ensure a consistent adhesive bond with the vehicle surface. When completing a full vehicle wrap it is advisable to wrap the roof and bonnet of the vehicle before all other sections.

- The vehicle should be prepared and cleaned as instructed in Section 2.
- Application should be performed in a clean dry workshop at an ambient temperature of 20°C, but it is important that the vehicle is not heated prior to application.
- When using material with Airelease Liner the dry method application technique should be followed, see Point 3.1.
- The Airelease technology allows ease of positioning and repositioning which must be completed at the time of application. Repositioning of material at a later stage could result in stress marks.
- It is essential that during application the whole surface of the vehicle is thoroughly squeegeed, using light strokes initially with the pressure being increased gradually to remove all the air from under the film. If too much pressure is used this can cause the air channels to close which will diminish the effect of the Airelease technology. Pay particular attention to large areas such as the bonnet or roof, to ensure the adhesive has a complete bond to the surface of the vehicle. If any part of the surface is missed air pockets could develop causing air bubbles to form.
- If bubbles are visible do not push the bubble from the outer edge with a squeegee as this may cause “bruising”.
- If applying into recesses and using heat, this should be done immediately as a delay in heating can cause the film to lift. For extreme recesses it may be necessary to adopt the filleting process as outlined in Point 3.5.
- Following the application the vehicle should be kept at room temperature for as long as possible. It is important that the vehicle is not placed in direct sunlight immediately after the application, this is to reduce the risk of any micro bubbles which may be under the surface expanding causing large air bubbles.

### 3.3 Application into a recess



To apply vinyl to a recess, the material should be applied on top of the recess without stretching. The material should then be heated above the recess and the material stretched on the flat/straight section. The material should then be fed into the recess without any need to stretch/stress this area. After application the section should be post heated to “set” the vinyl.



### 3.4 Relaxing Material before Application

The relaxing technique is fundamentally pre stretching the material.

While it is possible to stretch vinyl around a curved surface e.g. a wing mirror, it might be necessary to stretch the material extensively, resulting in a possible failure. This can be avoided by pre stretching.

Pre-stretching is achieved by removing the liner from the film and stretching it by hand. The material should then be placed onto the wing mirror and applied to as much of the centre area as possible, then, whilst holding the edges of material off the vehicle apply heat, the material will contract back allowing you to fold around without creases. This makes the final edges of the material fully contracted and not stretched eliminating the chance of failure.

### 3.5 Application to Panel Van Recesses



- Apply VWS over the panel and recess. Cut a strip of the film (fillet) wide enough to fit into the recess and internal edges allowing material for trimming. Remove the excess material leaving the fillet. Working from the centre of the recess outwards in both directions, squeegee the vinyl into the base of the recess, around the internal radii and up to the outside edges of the recess. Remove the waste from the panels



- Apply VWS to the flat panels and cut to overlap the edges of the vinyl in the recesses. Use gentle heat if necessary on the corners. This application method hides the joint line from view and ensures that the vinyl remains in the recesses.



- Illustration of a completed recess corner. Some material has been removed from the recess for clarity.

### 3.6 Wet Application Method

#### **PLEASE NOTE KPMF DO NOT RECOMMEND THE WET APPLICATION METHOD**

- Wet application under normal conditions is not recommended because: -
  - This method of application, combined with the low initial grab of the adhesive, produces very little initial tack.
  - Trapped water will restrict adhesion and makes it very difficult to “work” the material into recesses and around complex shapes.
  - The ultimate adhesion may be compromised, particularly in a cold climate.
- Film applied by wet application will not be warranted with regard to removal.
- If a decision has been made to use the wet application method KPMF would suggest using a mix of 2/3 water and 1/3 isopropanol. Following the application the vehicle must be kept in a heated environment for 24 hours after application and after this period of time the whole vinyl surface should be re-heated with a heat gun and squeegeed firmly. Pay particular attention to recess and swage line areas.

### 4. Aftercare

After application, do not clean the vinyl with a solvent-based cleaner. Normal vehicle washing procedures should be used.

Hand washing/conventional carwashes should not present a problem to the film. However, it is suggested that the use of power washes, steam cleaning and washing systems involving chemicals is discouraged. All of these can cause accelerated damage to any vinyl product.

Once cleaned, the surface can be polished/protected with a conventional car wax product.

Scuffmarks should be removed by a gentle rub with ‘T-Cut’ cutting compound and the gloss brought back by re-heating the vinyl followed by the application of a wax based polish.

### 5. Removal

Ideally the vehicle should be placed in a warm environment at about 20°C for at least 2 – 3 hours before attempting removal.

- Heat the vinyl to a temperature of +60°C to +80°C using a heat gun.
- Starting at an edge gently peel approximately 10 inches of vinyl away from the edge of the surface, make a cut away from the vehicle and then strip from the vehicle in 10 inch sections. This is best done at a 30-degree angle. Work gradually down each panel heating and peeling as necessary. This method will reduce any chance of paint coming off the vehicle.

**Caution: *Do not snatch the material away from the surface or attempt to remove any areas that have not been heated.***

- If there are any problems with removal – **STOP** – and contact the VWS supplier for advice on how to proceed.
- **DO NOT** continue to remove the film unless advised to do so by the VWS supplier.
- The VWS supplier cannot be held responsible for inappropriate removal methods or for poor paint/lacquer adhesion to the vehicle bodywork.

***KPMF would recommend the use of Flexi Prep Adhesive Remover as an aid with the removal of any adhesive residue remaining following the removal of vinyl.***

***KPMF would always advise that a trial patch is tested before using Flexi Prep or any other adhesive removers.***

### 6. Caution

- This film is not a cure for rust! It is recommended that it is only fitted to paintwork that is in good condition.
- Whilst the film will cope with most recesses and swage lines, it is possible to over-stretch the film. Very deep/textured recesses (similar to those found on the Mercedes Sprinter, Vito and other panel vans) can still present difficulties.
- Before wrapping vehicles with these types of recesses, please contact your KPMF distributor for specific application advice.
- It is strongly recommended that any printed vinyl is thoroughly dried for a minimum of 24 hours to eliminate solvent retention before being applying to vehicles. Solvent retention will affect the adhesive properties and the



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removability of the film.

- If laminating the printed vinyl please allow a minimum of 48 hours for the inks to cure before lamination.
- It is essential that the same batch of film is used for the complete application.

### 7. Warranty

Kay Premium Marking Films are produced under careful quality control and are warranted to be fit for the purpose and free from defect in material and workmanship. Any material shown to be defective to our satisfaction at the point of sale shall be replaced free of charge. Kay Premium Marking Films Limited liability to the purchaser shall in no circumstances exceed the cost of the amount of the defective material supplied. This product has been warranted to provide clean removability, under controlled conditions, up to a period of three years from a range of substrates. Clean removability is deemed with less than 30% adhesive residue when using heat and chemical removal methods. Exceptions to the removal warranty are those applied to the following: pre-existing graphics, paint which is not properly bonded to the substrate and custom paint applications. There is no guarantee made for: ease or speed of graphic removal, removal from improperly cured paint, removal from oxidized or chalked substrates, or from horizontally exposed outdoor applications. Due to the large variety of available paint finishes, it is advisable to fully evaluate small areas particularly after printing prior to complete applications.

### 8. Material Supply

Supplies of material, training and application advice can be obtained through your local KPMF distributor. Details of all KPMF Distributors and products can be found on our website at [www.kpmf.com](http://www.kpmf.com)

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