VINYL APPLICATION

VINYL APPLICATION GUIDLINES & TROUBLESHOOTING

Applying Sign Vinyl Decals

The following is a recommended method for accurately aligning and applying sign vinyl decals.

1 - Once the decal has been cut and weeded, and application tape applied, it can be offered up to the substrate and carefully aligned in its final position.

2 - Apply a 50mm tab of masking tape to fix each end in place horizontally. Apply a third strip of masking tape vertically across the centre from top to bottom; the tape should extend above and below the decal and fix it to the substrate.

3 - Start with the right hand side of the decal and cut or tear the 50mm strip of masking tape, leaving half on the substrate. Turn the right hand side of the graphic back on itself. Peel away the silicone release liner, cutting it at the centre point where the vertical masking tape fixes the decal to the substrate, and discard. When peeling decals away from the silicone release liner always try to keep them as flat as possible and peel back the release liner towards you. This will reduce the chance of damage to fine details or serifs.

4 - The first half of the decal can now be lightly applied by holding it taught and using the two parts of the 50mm masking tape tab to align it perfectly. Squeegee down firmly.

5 - Remove the vertical strip of masking tape and repeat for the left hand side of the decal.

6 - Finally remove the application tape by peeling away at 45° to the direction of the text and 180° to the surface.

7 - Air bubbles can be removed by puncturing with the tip of a scalpel.

8 - This method of application can be modified for large graphics (in excess of 2m). Apply vertical strips of masking tape at two, three or more intervals. Cut the graphic half way between these points to form smaller panels and proceed as described above.

Application of Window Tinting Films - Building and General Use

The film should be applied to the inside of the window. The window must be cleaned first, with a razor blade or steel wool. An ammonia solution can be used to remove old adhesive or hard to shift dirt since any blemishes will detract from the finished result. The window must then be cleaned with isopropanol and allowed to dry. It is best to ensure that the film is cut oversize. To align the film it can initially be aligned at the top edge using the 'hinge' method. The film is self-adhesive and supplied on a thin clear liner, which should be removed before application.

When applying the film use a wet application method to saturate the glass. Be aware that water around the edge of the panel will cause dirt ingress so avoid excess fluid towards the edges of the film. Squeegee the film by applying overlapping strokes from the top centre outwards in each direction and then repeat down the film. A felt squeegee is recommended to avoid scratching. Once applied the excess can be trimmed. This can be achieved by running a squeegee down the edge of the film at a 45° angle with a blade pressed against it.

Application of Window Tinting Films - Vehicle Use

The film is best applied with the windows removed, satisfactory results can be achieved with the windows in place. It can be applied over rear window heater elements.

Application of Window Tinting Films - Vehicle Use continued

The film can be often cut to size by using the outside of the glass to create a profile of the window: Lay the film onto the outside of the glazing, cut the film to size, then remove the liner and apply to the inside.

When applying to a vehicle window with double curvature, 'darts' will appear. Working the film with a squeegee from the centre outward, it is best to ensure that 'darts' appearing in the film due to excess material are worked into a horizontal 'fingers' at the left and right edges of the material. This enables the darts to be cut, and any cuts can be aligned with heater element lines. Vertical fingers can be removed by using a heat gun to remove excess material, being careful not to blister the film.

Application of Window Tinting Films - Limitations of Use

Section 32 of the Department of Transport Road Vehicles Regulations [with effect from 1st January 2004] prevents the use of window tints on the front screen of vehicles and restricts the use on side windows forward of the B posts. "... anyone responsible for the fitment of window tints which reduce visible light transmission levels to below the prescribed levels [of 70% visible light transmission] forward of the B post is committing an offence and can be prosecuted." For more detailed information regarding these regulations please contact Metamark, or the Department of Transport.

For application to buildings care should be taken when applying to double-glazing as heat absorption may cause cracking. The film will have limited performance when used on internal glazed partitions.

	Mirror Silver	Smoke Grey	Limo Black
U.V Light Transmission	< 1%	< 2%	< 2%
Visible Light Transmission	15%	37%	8%
Solar Energy Rejected	79%	34%	43%
Solar Energy Transmission	12%	55%	42%

Application to Glass

There are a number of precautions needed when applying vinyl to glass. Adhesion can be a problem in cold conditions, areas of high moisture, and where the glass has been cleaned with silicon based window cleaners. Use isopropyl alcohol to clean the window, and ensure the surface is warm before attempting application. With a wet application leave the graphics overnight before removing the application tape.

Avoid covering the windows with large areas of dark coloured vinyl. The vinyl can cause prolonged heat absorption and retention and can cause the glass to crack or explode. This is particularly of a concern with laminated glass, double glazing, and large areas of vinyl. The stress levels created in the glass are determined by its dimensions, the type of glass, orientation, colour of vinyl and a number of other factors so it is important that the installer determines whether applying the vinyl to glass is appropriate.

Application to Wood

Vinyl can be applied to wood, taking into account some precautions. The wood must be sealed, by paint or primer. It must be a smooth flat surface - the grain in wood can cause adhesion problems if it is too pronounced. Finally, ensure that any paint is correctly applied to avoid the vinyl pulling the paint off the wood.

Application to Plastics

Most plastics do not generally present a problem for the application of vinyl. However certain types of plastic substrate may present a problem as follows.

Substrate	Considerations
Flexible PVC	Flexible PVC's such as banners and vehicle curtain sides gain their flexibility from the use of plasticizers, which are prone to migration, causing distortion of applied vinyl graphics. Use MetaFlex for application to banners, or curtain grade film for curtain sides.
Polycarbonates	Polycarbonates are prone to out-gassing and this gas can become trapped underneath the vinyl, forming unsightly bubbles.
Polypropylene	These are 'low energy' plastics, and adhesion may be limited.
Fibreglass	Ensure that the wax film used as a mould release agent is fully cleaned off, and also check to ensure that the material is completely cured.

Application to Painted Surfaces

Sound painted surfaces are generally suitable for the application of vinyl although the paint must be fully cured before application. For vehicles a general guideline is to allow at least 5 days after painting before the application of vinyl, although this may be longer if the initial coats of paint have not been allowed to cure before the next coat applied.

Two pack paints on vehicles provide a more stable surface than cellulose paints, as the latter will continue to give off solvent whilst hardening, and this solvent can become trapped under the vinyl causing bubbling. A test application in a small area is recommended if you have any doubts about the quality of the paint finish.

Application to Boats

Vinyl can normally be applied to boats, for use below the water line, however it is very dependent on the type of boat substrate, the condition of it, and the method of application.

It is important when applying the vinyl that the adhesive has cured to the surface, which is normally 36 hours though depends on application conditions. Particular care should be given to make sure the surface is clean, dry and free from contamination, and to sure vinyl edges are stuck. See also considerations for painted surfaces, and different types of plastics. None of the Metamark products are suitable for inflatable boats.

For application to rigid surfaces, Cast vinyl such as MD7 is the most suitable because its conformable and therefore achieves best adhesion, and is most resistant to the accelerated weathering a boat experiences. Calendered Vinyl such as 7 Series or MD5 is suitable for smooth flat or slightly curved surfaces.

Application Temperature

In cold conditions vinyl can become brittle and harder to cut, thus requiring unnecessary adjustment of the cutting depth. It can also make application difficult, as the initial adhesion of the vinyl will be reduced and the time taken for the adhesive to cure completely will be longer. The recommended application temperature for applying vinyls using a 'dry application method' is at least 10°C and for 'wet application method' is at least 17°C. Application in temperatures below 5°C is not recommended.

When applying vinyl graphics to a vehicle in cold weather always try to work indoors and raise the temperature of the vehicle by using a fan heater inside with the vehicle doors open. When this is not possible, for example an exterior application in winter conditions, it is very important to make absolutely sure that the adhesive has established a good bond to the substrate.

The service temperature range stated in the technical data sheets for each type of vinyl is the recommended temperature when in use.

TROUBLESHOOTING

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Vinyl Removal

Vinyls can most readily be removed by the application of heat. Heat the vinyl so as to soften the adhesive but not so much as to melt the film. Lift the corner of the decal and gently peel it back. The adhesive will sometimes remain on the surface, particularly if the vinyl has been in place for a number of years. It can be removed with an acetone based adhesive remover.

Adhesive Removal

After removing any residue, clean and prepare the surface with Isopropyl alcohol, which can also be used to remove adhesive where the adhesion is less aggressive. Citric acid based cleaners may also prove suitable and are more pleasant to work with, but do leave a residue which must also be removed with alcohol before any new application.

Air bubbles during or after application

Air bubbles can be reappear after application, where air is trapped beneath the film. Any dissipated air trapped under the film, particularly on non smooth surfaces, will reappear afterwards. To avoid this, ensure that during a wet application the adhesive is wet as well as the surface. When applying dry, apply firm pressure in over lapping strokes outward from the centre of the film.

Air bubbles can also be created due to out gassing from painted surfaces or some plastics. To be sure, test a small piece for 24 hours to see if the surfaces out gasses.

Vinyl lifting or pealing after application

The main cause of vinyl failure is due to poor initial adhesion. To ensure correction initial adhesion, make sure the surfaces has been correctly cleaned, using detergent then isopropanol. In cold or damp conditions initial adhesion can be a problem, and the result is that graphics, particularly fine serifs, can lift off vehicles or glass more easily. To avoid this, try to apply dry in cold conditions, or apply mild heat to the vinyl after application, to activate the adhesive.

Calendered films can lift from recesses if they have been stressed during application. Calendered films should be laid unstressed into recesses.

Cutting and weeding problems

Excessive blade cutting depth or pressure can make lifting the graphic from the liner harder, or cause the liner to delaminate. It can also bevel the edge of the cut vinyl, which can make it difficult to lift with the application tape, or appear that the tape is too low tack.

Application tape problems

Most failures of application tape are due to incorrect storage. Paper application tape is a natural product and prone to absorbing moisture, and degradation from uv light. This will make the tape hard to remove from the roll. To avoid this, store out of direct sunlight, and in a non damp conditions.

If experienced that the tape isn't lifting the vinyl this can be excessive blade cutting depth. This can bevel the edge of the cut vinyl, this makes it appear that the tape is too low tack. Metamark standard tack tapes are suitable for most applications.