Installation Bulletin for LG Hausys Cast Print Vinyls for Full Car Wrapping

Storage and processing conditions

LG Hausys Pressure Sensitive Adhesive products are delivered in rolls which should be stored either suspended or standing on the roll blocks provided in a cool, dry place. Avoid exposure to sunlight. Prior to the production process the PSA films should be accommodated to the humidity and temperature prevailing in the processing area. The optimal conditions are a relative humidity of 50% to 60% and a temperature range between 18°C and 22°C. Higher variations of the above mentioned conditions can lead to a higher degree of shrinkage of the release paper. The result is a limited flatness of the self-adhesive material and dimensional changes when cutted. Please refer to our Technical Product bulletins on our website http://sign.lghausys.eu as well.

Fabrication, Printing, Drying and Lamination process

Use solvent-based printing for optimal print quality. LG Hausys recommends to use cotton gloves during production process to prevent damage to the surface or soiling. Recommended printer settings and ICC profiles are available for download at http://sign.lghausys.eu. The LG Hausys printing media require due to their nature of different qualities (gloss level and surface) different set ups on the printer and on the RIP software.

After printing, allow the ink to properly dry at least 24 hours to 48 hours before laminating, cutting, or applying the graphic. It is important to follow this in order to give enough time to solvents to evaporate. Otherwise problems with the stability of the inks not fully dried can occur.

After printing graphics contract during the drying process. If the drying process of the inks takes place when the graphic is already applied on the substrate this results in potential shrinkage and removal on the edges. The graphics should be spread or hang out for proper drying.

Laminate with LG Hausys Cast LP80990/LP90990 and LP80994/LP90994 to prevent vinyl and/or print damage from scratches, smoke, fumes, etc. The nature of lamination is to ensure a longer live at optimum quality of the finished graphic. LG Hausys laminates improve the color effect of the surface of the printed material with gloss or matt versions. Additionally the laminate provides excellent UV protection and prevents damage from scratches and humidity. LG Hausys recommends to combine only films and laminates of the same quality type (e.g. cast printing vinyl with cast protective laminate, polymeric printing vinyl with polymeric protective laminate). The components and raw materials of these qualities are perfectly matched with each other so we warrant the best performance over the product life cycle. Please check our website http://sign.lghausys.eu for further information.

Surface Preparation

1. Surface must be completely cleaned 1 day prior to product application. Thoroughly clean vehicle by using neutral detergent with no wax content. Don't use detergents with nanotechnology to produce nanosealing or nanocoating at the surface to be cleaned. Automatic washing is not recommended as it may prevent good film adhesion. If the surface of the vehicle has been painted, wait at least 3 weeks for paint to dry before applying the film.
2. After cleaning, completely dry off the vehicle surface to remove all moisture. To speed up drying, use lint-free cloth or paper towels that leave the surface lint and dust-free.
3. After drying, check for any remaining wax, polish, or grease residue on the surface and corner areas of the vehicle. In particular, check whether any road tar or insect remains have been completely removed. If the vehicle has not been thoroughly cleaned, use a solvent cleaner to remove road tar. Always test vehicle finish for solvent, cleaner, or chemical compatibility first. After using a solvent cleaner, vehicle surface must again be completely dried before product application.

4. Deep corrugations have to be heated at a temperature to 220°C. A layer that may have grown on the varnish has to be removed with Isopropanol.
5. Dismantle all parts which may obstruct a proper application (door handles, outside mirrors, etc.).

Application Temperature and Environment

1. Application must be administered indoors where temperature and humidity can be controlled.
2. The optimal air and vehicle surface temperature for film application is 18°C ~ 22°C. If the air and vehicle surface is lower than the recommended temperature, sufficient stretching may not be obtained and the initial adhesion of film may not be strong enough to last permanently because of the rapid drop of the film temperature. If the air and/or vehicle surface temperature during application is excessively high, the initial adhesion may be too strong and can result in problems where the film may over-stretch, and trapped air may not successfully release.
3. In order to achieve sufficient bond between the film and vehicle, the vehicle must not be exposed to cold or wet climate for 24 hours after film application.
4. The above instructions must be complied with to prevent the film from developing shrinkage or film memory problems.

Application Techniques

1. Secure film to the required position by using masking tape. Make sure to position the film with at least 2-inches from the edges of the area for application.
2. Hold up the graphic on one side first and remove only half of the release paper. Then, place the graphic on the vehicle surface and stretch it over the areas to be covered. Repeat above installation procedures for remaining portion of graphic.
3. Apply film using a felt-tip squeegee. For application on curved areas, soften the film before application by using a heat gun to heat up the surrounding areas of curvature and the film to the temperature of approximately 80°C. Continuous use of the heat gun in the same spot may cause damage to the film; therefore, position of heating must be constantly changed.
4. When application is completed, cut off the edges after film has sufficiently cooled down. If the film is cut along the edges of the vehicle, the cut edges may become loosened or the film can shrink when washing the vehicle afterwards. Therefore, the edges must be cut with some reserves left and tucked inside.
5. For areas with severe curvatures, sufficiently stretch and soften the film with a heat gun before application. On areas with protrusions and indentations, apply cast film along the surface without stretching or forcing into position. Finish up the corner areas by pressing down on the film using the round tip of a squeegee.
6. If air bubbles remain after application, use an air release tool to remove only the large bubbles, as smaller bubbles disappear within several days when exposed to sunlight.
7. The above instructions must be complied with to reduce the possibility of application failure or film memory problems.

Application in corrugations

1. Put vinyl flat and even on 3D surface.
2. Apply the film with a heat gun and a temperature between 50 – 60°C into the corrugation. Put a minimum stress on the film meaning that the film won't be stretched more than necessary (see pictures below). Start with the deepest corrugation first than continue with the other.
3. After the film has been applied in the corrugation it is very important to re-heat the whole surface with a temperature of 85°C. Please use a temperature of at least 100°C for overlappings.

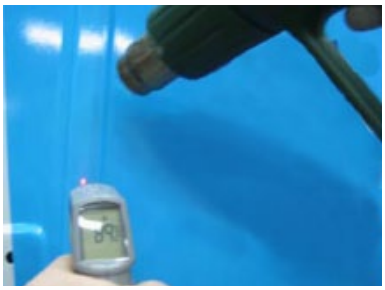
Put vinyl flat on 3-dimensional-surface. **Do not strech the film!**

Apply the film with a wet glove only on the edges (first on the upper side and than on the lower side of the corrugation).

Heat up the material to a temperature between 50 – 60°C. First, you will see some wrinkles on the surface. The film will flatten out afterwards. Start with the deepest corrugation at first!

Repeat with the same application process on the inner side of the corrugation.

Then remove the bubbles from the middle section.



Reheat the corrugated surface. Increase heat temperature of up to 85 - 105°C. If the temperature for the final tempering process is lower the memory effect stays within the film. These high temperatures are needed to create a new form for this vinyl. It is absolutely recommended to use a infrared thermometer to avoid any failures in measuring the surface temperature.

The finishing effect is to reheat the wrapping in the final step to reduce the memory effect on the vinyl.

The finished product is a new form of the vinyl - like body painting

Please note: If one step is not done correctly within the application process potential failures on the application (e.g. wrinkles, bubbles, pop-offs) might occur several days after the application process.

After Application

1. Wait three days after graphics application to wash vehicle. Wait three weeks after application before polishing or waxing vehicle.
2. When washing the vehicle, do not use high-pressure cleaners or corrosive chemicals.

Removal

1. To remove film after use, temperature of both air and vehicle surface must be above 10°C. Removal at lower temperatures may be more difficult as the film can become brittle and/or leave adhesive residue traces.
2. Using a heat gun, etc., heat up the part of film to be removed to a temperature of approximately 70°C. Lift up the edges of the film and remove it, maintaining a 90° angle between the film and vehicle surface.
3. Application of film to a surface where the coating has not been sufficiently hardened may cause damage to the surface.
4. Residue remaining after removal of film can be cleaned by using solvent or a designated remover. Always test vehicle finish for solvent, cleaner, or chemical compatibility first.
5. Defects will only be recognized as a defect only on products sold as “removable” and then, when the residue remaining is more than 20%. This warranty will only apply to LG Hausys recommended removal methods. LG Hausys should be notified of warranty claims no later than seven (7) business days after the attempted removal.

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