

Business white paper

Vehicle and Vertical Graphics Installation

Technical recommendations



HP Air Release Adhesive Gloss Cast Vinyl is a 51 micron (2 mil) high-performance white cast vinyl with a gloss finish and a permanent opaque, air release adhesive. This substrate is ideal for long-term graphic applications, achieving laminated outdoor display permanence up to 5 years¹. The air release adhesive system enables easy installation and clean removal.

Compatible with HP Designjet and HP Scitex printing systems using Original HP Latex, low-solvent, and solvent ink formulations, and when used with HP Clear Gloss Cast

HP Air Release Adhesive Gloss Cast Vinyl is primarily recommended for:

- Vertical outdoor and indoor graphics and signs
- Commercial vehicle, transit, and fleet graphics

This HP cast vinyl provides excellent ease-of-use for all types of vehicle and transit advertising including fleet marking, recreational vehicles, buses, and trailers. The embossed liner creates channels in the adhesive that allow the air to escape, making it easy to avoid and eliminate bubbles. The adhesive system has been developed specifically to:

- Be repositionable during application
- Provide excellent adhesion after installation
- Remove cleanly for up to 5 years

The clean removability offers an ideal solution for temporary signage on taxis, trams, and trains. Due to its extreme flexibility and high conformability, HP Air Release Adhesive Gloss Cast Vinyl is particularly suited for more complex challenges such as vehicle wraps. For best results, HP recommends using a professional graphics installer, for example an installer certified by PDAA.

Production tips

Graphics printing

To obtain optimum performance and durable image quality with this product, check for stated compatibility with the printer, and ensure the inks are printed, dried, and cured

¹ HP image permanence and scratch, smudge, and water resistance estimates by HP Image Permanence Lab on a range of media including HP printing materials. See globalBMG.com/hp/printpermanence.

according to the recommendations provided by HP for the particular printer.

Overlaminates

Using HP Clear Gloss Cast Overlaminates adds structural integrity to your prints, making them much easier to install now and to remove later. Image performance is extended through added scratch and fade resistance. For vehicle graphics, protection of the graphics with an overlaminates is always recommended. Current lamination compatibility can be found at hp.com/supplies/lamination.

Surface-vinyl compatibility

HP recommends careful evaluation of all surfaces prior to committing resources. First, confirm the intended surface and HP Air Release Adhesive Gloss Cast Vinyl are compatible. Vinyl adheres to most smooth, rigid surfaces, but not all. Second, confirm the condition of the surface is suitable for graphic installation. Below are some common, known issues to be mindful of: Vinyl does not adhere to most oxidized paint, primer, rust, rubber, caulk, or unpainted wood. Adhesion problems also occur on glass treated with Rain-X, paint with anti-graffiti properties, and rough textured surfaces.

Test the paint

Verify that the paint is completely dry, cured, and properly bonded to the surface prior to graphic application.

Pro tip

In the most inconspicuous area, apply gradually increasing pressure with a fingernail. If it leaves any mark at all, do not apply graphics. The paint is not fully cured. If no mark is seen, test several other areas. Assuming the paint is fully cured, clean a small inconspicuous area thoroughly (see “Cleaning Procedures” below). Install a 1-inch by 3-inch strip of the HP cast vinyl. Make sure to use firm pressure. Fold one end under or leave it loose to make the strip easier to remove. Wait five minutes and snap it off quickly. If any paint damage occurs do not apply graphics: the vinyl may stick to the paint, but the paint may not stick to the surface. If no damage occurs, repeat the test in other locations.

Environment

Install graphics indoors whenever possible. Workspaces should be climate controlled, well lit, with plenty of space. A best practice, especially with vehicles, is to bring them into a room temperature environment several hours prior to installation and maintain them at that temperature during the installation.

Installation temperature

The optimum surface temperature for installing HP Air Release Adhesive Gloss Cast Vinyl is 20° C (68° F); the recommended surface temperature range is 19–22° C (66–71° F). Never work below 10° C (50° F) or above 38° C (100° F). In colder temperatures, vinyl becomes brittle, tears easily, and does not adhere. When the vinyl is hot, it becomes very soft, stretches easily, and the adhesive is overly aggressive.

Pro tip

An infrared surface temperature thermometer is a must-have tool for serious graphic installers, pinpointing the precise temperature of an application surface at any given time.

Cleaning procedures

A clean, dry, and dust-free surface is essential for proper vinyl adhesion. Do not use aggressive, fast-drying solvents such as acetone, lacquer thinner, or denatured alcohol as they dry too fast and may harm the surface. HP recommends a preliminary cleaning test on a small, inconspicuous area. The primary keys to successful cleaning are:



- Always choose solutions based on the type of contamination
- Always use a bucket and two towels, one wet and one dry
- Always dry while the surface is still wet—before evaporation

Pour some of the solution into a small bucket. Immerse a small rag (shop towel size) in the solution and wring out the excess. Do not just “wash” the surface but work to get it clean. For stubborn areas, wet and let soak for some time before scrubbing. Once the surface is clean, remove the solution with a clean, dry terry cloth towel before it evaporates. This procedure ensures contaminants are removed, not just relocated on the surface. Fold the drying rag in half several times to create many drying surfaces. When one side is dirty, flip the towel over or refold to expose an unused portion.

Note

Painted walls and barricades may be harmed by standard cleaning procedures. If noticeably dusty or dirty, use a clean towel slightly damp with water, and lightly dry with a separate clean towel.

Below are general recommendations intended to cover the wide variety of uses for HP Air Release Adhesive Gloss Cast Vinyl:

- Use detergent and water to clean and remove excessive dirt and mud—this step is primarily for vehicles (see note below)
- Use Xylene, V&M Naptha, or PrepSol to dissolve adhesive, tar, grease, and wax
- Use 70% Isopropyl Rubbing Alcohol as the final rinse to remove dust and all other residues

Note

Moisture that accumulates behind rivets, seams, hinges, handles, moldings, trim, etc. prevents good adhesion. These areas must be dry prior to installation. For maximum efficiency, perform detergent and water washing the day prior to installation and stage vehicles (or other signs/items) in a climate-controlled indoor facility overnight. This will help them dry and acclimate to optimum surface temperature.

A high-pressure air blower connected to an air compressor can accelerate drying in hard-to-reach areas (around door handles, moldings, trim pieces, etc.). For box trucks and trailers, warm the rivets and seams with a propane torch until all liquid is evaporated.

Installation

The following is a list of the most basic tools required to apply graphics

- Tape measure
- Razor-knife (preferably one with break-off blades)
- Marking device
- Needle tipped air release tool
- Masking tape
- Heat gun
- Squeegee
- Surface temperature thermometer

Positioning with hinges

For flat graphic installation, HP recommends the hinge method. Start by placing the graphic close to the desired location and anchoring the top two corners with tape. Pull the tape loose on one corner so the graphic can be moved. Using a tape measure or ruler in one hand, slide

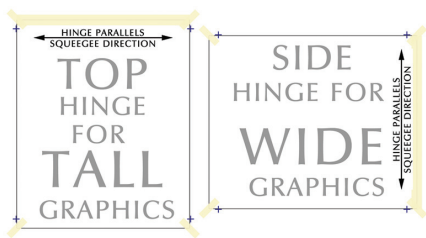


Figure 1

the graphic into position with your other hand and re-secure the masking tape. Repeat the process with the other corner. Re-check the first side again to make sure it hasn't shifted. Usually it will need to be tweaked slightly. Always do a final check on both sides and the middle.

This next step is crucial for accurate placement and wrinkle-free installation. Pull on the bottom two corners until the graphic is completely smooth and taut and anchor them with tape. Mark the location of the graphic (shown in blue in Figure 1). Should the graphic shift or come loose, you can quickly realign it to these marks.

Add the tape hinge parallel to squeegee direction. Squeegee direction should match the graphic's smaller dimension (see Figure 1).

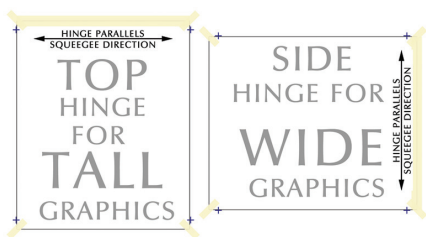


Figure 1

The tape hinge is half on the graphic and half on the surface. Press it down smoothly with your hand first, then squeegee for better adhesion. With the graphic locked securely in place, remove the tape from the corners opposite the hinge. This allows you to lift the graphic to begin removing the liner paper. The graphic is hinged in place to ensure accurate placement. Start removing the liner evenly across the hinged edge, exposing about 8–12 inches of the vinyl adhesive. Pull the graphic taut again, aligning to the marks. If necessary secure with tape again, placing the tape so it does not block the end; as more liner is removed it will be able to slide out past the end (see Figure 2).

Proper squeegee technique helps you avoid bubbles and wrinkles. Squeegee the exposed area from the middle out to the edges (never edge to edge) parallel to your hinge. Keep the squeegee low and flat. Overlap strokes so all air is pushed out. Always squeegee in straight lines, either horizontal or vertical. This keeps a path open for air to escape. There are two ways to squeegee, pushing or pulling. When pushing, you lead with the squeegee; when pulling, lead with your hand. Pulling the squeegee is recommended for flat graphic installation (see Figure 3).



Figure 2

Continue removing liner as needed, squeegee from center to outer edges, overlapping strokes until entire graphic is applied.

Squeegee—best practices summary

- For all flat surfaces; pull, don't push, the squeegee
- Squeegee in straight lines
- Overlap your strokes by about half the squeegee's width
- Work from the middle out, not edge to edge
- Maintain consistent pressure across the entire graphic until after you pass the edge
- Direct the air to the open areas—focus on pushing out all of the air

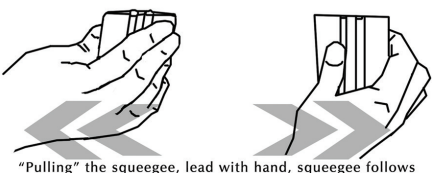


Figure 3

Finishing

Re-squeegee the entire graphic firmly, especially the edges. Carefully inspect the graphic to make sure no air remains and all edges are well adhered. Using a heat gun to warm up the graphic can be very advantageous. The heat will expand any air left behind, making it easier to locate. Most lifting starts on edges and is easily avoidable if discovered and fixed at this point. Heating all edges to 93° C (200° F) will prevent most failures.

Adhesive wet out

When you are finished, the vinyl is not. Pressure sensitive adhesives are designed to flow over a surface to maximize bond strength based on higher contact area. The dwell time for

the adhesive to wet out varies slightly but averages 24 hours at room temperature. Ultimate bond strength is typically achieved in 72 hours. Slightly higher temperatures improve adhesive flow, speeding up the bonding process. Applying adequate squeegee pressure during and after the installation will accelerate the adhesive flow and eliminate trapped air. This will ensure higher adhesive coverage of the substrate. Colder temperatures can stiffen up the adhesive to the point that it cannot flow at all and can never reach the intended bond strength.

For vehicles, HP recommends keeping them inside after installation for at least 24 hours, if the outdoor temperature is expected to be lower than room temperature. If outdoor temperatures are expected to stay above room temperature, taking it outside would be preferred.

Vehicle care

Advise the customer not to wash or wax the vehicle for at least 72 hours, while the adhesive builds to its ultimate bond strength. Wash installed graphics by hand. Do not use high-pressure or brush carwashes.

Graphic removal

To facilitate removal, warm with a heat gun, then pull the vinyl in the direction opposite to that which seems natural (i.e., if you start at the bottom, pull down) at an angle less than 90 degrees (about 30–45 degrees). Removal, like installation, is best handled by professional graphic installers, for example an installer certified by PDAA.

Printer and press compatibility and printing material size options

HP Air Release Adhesive Gloss Cast Vinyl is compatible with HP Latex, low-solvent, and solvent ink printers.

	HP Latex Inks	HP Low-solvent Inks	HP Solvent Inks	
	HP Designjet L25500/L26500/L28500 Printer series	HP Scitex LX600 (previously the HP Designjet L65500) Printer/LX800/LX820/LX850 Industrial Printers	HP Designjet 8000s/9000s/10000s Printer series	HP Scitex TJ8300/TJ8350 Industrial Presses
HP Self-adhesive Materials				
HP Air Release Adhesive Gloss Cast Vinyl	●	●	●	●
HP Clear Gloss Cast Overlaminate ³	N/A	N/A	N/A	N/A
HP Air Release Adhesive Gloss Cast Vinyl is available in the following sizes: CG935A—1372 mm x 45,7 m (54 in x 150 ft) with 3-inch core	HP Clear Gloss Cast Overlaminate is available in the following sizes: CH037A—1372 mm x 45,7 m (54 in x 150 ft) with 3-inch core CH036A—1524 mm x 45,7 m (60 in x 150 ft) with 3-inch core			

¹ For lamination compatibility see globalBMG.com/hp/lamination.

