



ARLON

FUSION WRAP + FLITE TECHNOLOGY™

Specifying the right product could be the difference between bidding on or winning a job. Fusion Wrap featuring FLITE Technology™ can be the product of choice in various situations: when cost-driven opportunities are presented, if shorter to medium term durability is specified, or when a flat to simple curve vehicle wrap application is present. A calendared film specifically designed for vehicle wraps, the thin and flexible film facilitates ease of use and efficiency. The lite initial contact adhesive system from FLITE Technology will ensure repositionability, developing a quick anchor tack to speed up installations. Pair with Series 3170 intermediate cast overlaminates for the thinnest hybrid installation.

Unique Features:

- ▶ Product of Choice in Cost-Driven Opportunities
- ▶ Thin, Flexible, High-Performance Calendared Film Facilitating Easier Handling and Installation
- ▶ Clean Removability up to 2 Years on Most Vehicle Wrap Applications
- ▶ Added Repositionability During Installation Building a Quick Bond
- ▶ Superior Conformability and Stretch for a Calendared Wrap Film

Applications:

- ▶ Vehicle Wraps



Certified for
HP Latex Inks

Performance & Physical Data

Finish:	Gloss
Durability (Unprinted):	7 Years
Roll Widths:	54" (1,37 m) 60" (1,52 m)
Roll Lengths:	50 Yards (45,72 m)
Adhesive:	Clean Removing, Repositionable (Light Gray)
Release Liner:	Lay-Flat Polycoated with Low Profile FLITE Technology™
Ink Compatibility:	Eco-Solvent Solvent UV Latex
Compatible Overlaminates:	Series 3170 Series 3220 Series 3270 Series 3210 Series 3420*

*Use on flat and simple curves only
To ensure a successful vehicle wrap application, please read through Arlon's Fusion Wrap Installation Guide.

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arlon.com

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► Fusion Wrap

High Performance Digital Calendered Film with FLITE Technology®

Fusion Wrap is a 2.4-mil (60 micron) white gloss high performance calendered film with FLITE Technology®. Fusion Wrap's lite contact system is designed for fast and effective installation for vehicle wraps and graphics. Fusion Wrap features a low profile air egress liner and has a tinted, permanent pressure-sensitive adhesive that creates enough opacity to ensure a vibrant print. Fusion Wrap is rated for outdoor durability up to 7 years (unprinted). Printed durability is dependent on the ink system used.

APPLICATIONS & FEATURES

- Great for shorter or medium-term vehicle wraps & graphics with simple to moderate curves
- Lite initial contact that forms a strong bond
- Two year wrap durability for best performance and removal
- Printable on Eco-Solvent, Solvent, Latex, and UV printers
- Recommended overlaminates: Series 3170, Series 3220, Series 3270, Series 3210, or Series 3420*

*Use on flat and simple curves only.

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PERFORMANCE & PHYSICAL DATA

PROPERTY	TEST METHODS	TYPICAL VALUE	
SURFACE FINISH	Gloss Meter 60° Reflection	80 to 90 Gloss Units	
THICKNESS	Micrometer, Federal Bench Type	2.4-mil (60 micron)	
TENSILE STRENGTH	Tensile Tester 2-in (51 mm) jaw separation; crosshead speed of 12 in/min. (5.1 mm/s); web direction	≥ 9.5 lb/in	≥ 1.7 kg/cm
ELONGATION	Instron Tensile Tester as above	Average 180%	
SHELF LIFE (IN BOX)	Ideal Storage Temperature 70°F (21°C) and 50% relative humidity	1 year from factory shipment	
APPLICATION TEMPERATURE RANGE	On clean, dry substrate	60°F to 100°F	15°C to 38°C
SERVICE TEMPERATURE RANGE	On clean, dry substrate	-20°F to 150°F	-29°C to 65°C
DIMENSIONAL STABILITY	158°F (70°C), 48 hour	10-mil	0.24 mm
PEEL ADHESION	PSTC-1, 15 min, 70°F (21°C)	≥ 1.5 lb/in	≥ 0.27 kg/cm
	PSTC-1, 24 hours, 70°F (21°C)	≥ 2.5 lb/in	≥ 0.45 kg/cm
	PSTC-1, 1 week, 70°F (21°C)	≥ 3.0 lb/in	≥ 0.54 kg/cm
LINER RELEASE	TLMI Release at 90°, 300 in/min (760 cm/min)	44.0 g/2 in	8.6 g/cm

NOTE: Recommended post-heat surface temperature of vinyl installed: 200°F to 220°F (95°C to 105°C). Post-heat must be applied gradually and approximately 5" from the film. Standard Terms & Conditions Apply

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USE & APPLICATION

Fusion Wrap will resist weathering best when applied to vertical or upper outboard angles. Horizontal angles, such as hood and auto roof surfaces, will deteriorate more quickly than vertical. This is due to increased exposure to sun and moisture, as well as high deposition of dirt and atmospheric contaminants. Actual horizontal weathering will be dependent on maintenance, location and elemental exposure. Use heat and/or chemical when removing image from vehicle.

Fusion Wrap is designed to be used for vehicle wraps and graphics. When wrapping curves and channels with Fusion Wrap, it is recommended the product be draped and not stretched into areas with channels. The manufacturing process of Fusion Wrap poses certain limitations on applications, refer to the Fusion Wrap Installation Guide & information below for installation techniques and recommendations. If you have any questions if Fusion Wrap will work for your specific application, please contact your Arlon Sales Rep.

APPLICATION	INSTALLATION TECHNIQUE REQUIRED	INSTALLATION TECHNIQUE	OVERLAMINATE(S)
VEHICLE/FLEET DECALS			SERIES 3170, SERIES 3220, SERIES 3270, SERIES 3210 OR SERIES 3420
FLAT VEHICLE SIDES			SERIES 3170, SERIES 3220, SERIES 3270, SERIES 3210 OR SERIES 3420
SIMPLE CURVES			SERIES 3170, SERIES 3220, SERIES 3270, SERIES 3210 OR SERIES 3420
DEEP CHANNELS	X	TIP #48: How to Install on Deep Channels: Using the Inlay Method TIP #49: How to Install on Deep Channels: Using the Cut and Lay-in Method	SERIES 3170, SERIES 3220, SERIES 3270, SERIES 3210
RIVETS*	X	TIP #50: How to Install on Rivets: The Roller Method TIP #51: How to Install on Rivets: The Poke/Lance Method	SERIES 3170, SERIES 3220, SERIES 3270, SERIES 3210

*Can be applied on low profile rivets. Rivet vary in shape and size so tenting may appear.

WRAPPING COMPLEX CURVES WITH CALENDERED FILM

Complex curves are panels or components of the vehicle that bend in multiple directions. They're commonly found in bumpers, door handles, side view mirrors, fog light pockets, recessed windows in cargo vans, wheel well channels, and shark fin antennas. Due to calendered films' nature to shrink, do not apply into these areas by bridging and overstretching or a one-piece seamless wrap. Instead, an installer must use cut-outs, inlays, or seams/overlaps.

GLOSSARY OF APPLICATION TERMS

- Simple Curves:** Defined as a slight stretch to the film in one direction (example: the side vehicle).
- Complex Curves:** Defined as extensive stretching (with or without heat) of material in multiple directions (example: bumpers).
- Deep Channel:** Channels in excess of a quarter inch in depth that require a "bridge and stretch" method for application.
- Rivets:** AN470 Universal head 1/2" rivets also known as roundhead trailer rivets, cherry rivets, or button head rivets.

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TERMS & CONDITIONS

The following is made in lieu of all warranties expressed or implied:

All orders and purchases made in connection with this document are governed and limited by Arlon's Standard Terms and Conditions, which are incorporated in full by this reference and are available at <http://www.arlon.com/terms-and-conditions> or in hardcopy by request.

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ARLON

INSTALLATION GUIDE

Fusion Wrap

*Technical Services
March 2019*



Fusion Wrap

ARLON INSTALLATION GUIDE

Reading and following this Installation Guide will ensure you as the applicator are equipped with best practices when applying Fusion Wrap, and can help ensure a successful installation and a satisfied customer. You owe it to yourself as an installer and to your customers to be highly educated on the material you are working with.

TOOLS NEEDED

<ul style="list-style-type: none"> Heat Source(s): <ul style="list-style-type: none"> Heat Gun IR Heater Torch Vinyl Cutting Tape Technologies 30° Snap-Off Blades 	<ul style="list-style-type: none"> IR Thermometer Release Liner Knife Squeegees Lint-Free Installation Gloves Magnets Masking Tape
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PREPARATION

RECOMMENDED PRACTICES	BENEFITS
<p>1. Vehicle needs to be delivered "Street Clean" The vehicle must have gone through a basic (or economy) car wash and is ready for the shop's final recommended cleaning process prior to wrapping.</p>	To prepare the car for more detailed cleaning prior to wrapping and help maintain a clean zone in the shop.
<p>2. Install in a clean and controlled environment Surface Temperature: 60°F – 100°F (15°C – 35°C) Humidity: Below 85%</p>	To create optimal installation conditions and avoid moisture on the surface that will hinder adhesion.
<p>3. If possible, remove any easily removable hardware Side mirrors, door handles, auxiliary turn signal lights, third brake lamp, vent trims, badge and emblems, roof molding and railings, antenna, etc.</p>	To allow for thorough cleaning of the vehicle edges and gaps. To increase efficiency and minimize over-stretched edges by eliminating protruding components.
<p>4. Properly outgas film prior to lamination and/or install Due to differences in temperature, humidity, and ink load, outgas prints (Eco-Solvent or Solvent) in open air until film recovers to its original state prior to lamination. Outgassing time may range from a minimum of 24 hours to as long as possible.</p>	Outgassing before lamination will avoid trapping the solvent in the print which may lead to delamination, adhesion, and removal issues. <i>See TIP 34: Outgassing and Installing Arlon Print Media</i>
<p>5. Laminate with Series 3170 Overlamine* Recommended settings: 0"(0 mm) nip gap; no heat necessary.</p>	The overlamine will provide ample physical and weathering protection to the print. *Other Arlon cast overlamines may be compatible. Please check with distributor. <i>See TIP 20: Lamination Transfer tape or protective overlamine</i>
<p>6. Ensure all printed pieces for the job are included</p>	Efficient workflow, layout and alignment.

PRACTICES TO AVOID	BENEFITS
Avoid (or at least take note and inform the customer) aftermarket paint, OEM paint that is older than 3 years, or used vans with questionable paint.	Aftermarket, 3-year old OEM and damaged paint may hinder adhesion or peel during installation or removal.
Avoid wrapping a freshly painted car. Paint must have been cured for at least 3 weeks. Check also with the paint manufacturer for curing/drying time.	If the surface is wrapped before the paint fully cures, bubbles will form as the paint outgasses and may also lead to adhesion failure.



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PRACTICES TO AVOID (CONTINUED)	BENEFITS
Avoid laminating or installing without proper outgassing.	Any residual solvent carrier or ink resin in the print will migrate into the overlaminates and print media's adhesive. A properly cured print will allow the film's adhesive and physical properties to work as they should.
Avoid text smaller than 3" font size and intricate contour cuts	The low liner release makes for an easier install but will pose a challenge to cut and weed.

INSTALLATION

RECOMMENDED PRACTICES	BENEFITS
<p>1. Apply with a felt-edge squeegee</p> <p>For sharp wrinkles, use the unlined (hard) side. Different squeegee shapes and hardness also depends on the installer's preferences.</p>	<p>To prevent scratches while squeegeeing.</p> <p><i>See WrapItRight® Video: Basic Squeegee Skills.</i></p>
<p>2. Apply firm pressure and overlap squeegee strokes</p>	<p>To achieve maximum adhesive contact and surface coverage.</p>
<p>3. Place the seams properly with at least ½" (10mm) overlap</p> <ul style="list-style-type: none"> For vertical overlaps, install from the rear towards the front. For horizontal overlaps, install from the bottom-up. 	<p>The seam edges will be less likely fail or get damaged because they will be facing away from the elements.</p> <p>A good amount of overlap will also provide the installer enough to correct the graphics' alignment.</p>
<p>4. Use heat to stretch the film</p> <p>Heat Range: 105°F - 120°F (40°C - 50°C)</p> <p><i>NOTE: Stretch may vary depending on the print system and ink saturation. The ability of the film to hold its stretch depends on the panel's curve profile. Cut edges and seams must also be free from stretch or at least kept to a minimum.</i></p>	<p>Applying heat to the film will allow it to stretch.</p> <p>Limiting the heating temperature will prevent the film from being too stretchy which may lead to image distortion, color shift, and significant amounts of shrinkage.</p>
<p>5. Use Inlays and Seams on deep concave areas</p> <ul style="list-style-type: none"> A separate piece must be used in areas where an installer normally uses the Expanded Pocket Technique with cast wrap films (i.e.: front bumper, headlights, rear bumper, fog light recess, grill mesh, etc.). For channels commonly found in cargo vans, cut the film past the body line and apply the film onto the channel without any stretch. 	<p>To reduce the risk of popping.</p> <p><i>See TIP 48: How to Install on Deep Channels - Cut and Drop Method</i> <i>See TIP 49: How to Install on Deep Channels - Using Inlay Strips with the Cut and Drop Method</i></p> <p>For more how-to videos, visit: wrapitright.com.</p>



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<p>6. Clean the edges of the previously applied panel again</p>	<p>To ensure adhesion at the overlap.</p>
<p>7. Minimize and Distribute Stress on Curves and Channels Heat a larger area and gently stretch in multiple directions.</p>	<p>To reduce regional stress which leads to edge lift, popping, and distorting the graphic.</p>

PRACTICES TO AVOID	BENEFITS
<p>When considering the amount of stretch necessary, avoid installing both concave and convex curve profiles with the same approach.</p>	<p>Convex curves (bumpers and mirrors) will hold more stretch than on concave (pockets, channels, and recesses). Varying the installation approach on each curve profile will ensure the film's adhesion and stability.</p>
<p>Avoid bridging and stretching the film into channels or wrap small parts with compound curves such as door handles and shark fin antenna.</p>	<p>Calendered films have inherent tension due to manufacturing. Adding more tension in the film poses a much higher risk of lifting, popping, and shrinking.</p>
<p>Expect more tenting on rivets in comparison to cast film.</p>	<p>Calendered film are less conformable than cast thus setting the proper expectations for the customer can avoid future claims.</p>

FINISHING

RECOMMENDED PRACTICES	BENEFITS
<p>1. Minimize stretch on areas that will be cut Edges, wheel wells, seams, overlaps and channels.</p>	<p>Avoiding stretch on cut edges or seams will prevent edge curl, lifting, or fingers from forming over time.</p>
<p>2. Use vinyl cutting tape technologies If freehand cutting is necessary, it is highly recommended to use masking tape to provide a cutting surface rather than directly on top of paint. Always have a new blade for every panel cut.</p>	<p>Vinyl cutting tape technologies will prevent cuts on the vehicle's paint and allow previewing cut lines. A new blade provides a smoother edge finish.</p>
<p>3. Let the adhesion build prior to trimming Wait for at least 15 minutes after installation before trimming and allow for 1/8" (5 mm) overhang to properly tuck the film into the crevices.</p>	<p>To prevent edge curling.</p>
<p>4. Use Cut & Overlap Technique on corners</p>	<p>To provide the customer a high quality finish and detail without the risk of wrinkling and lifting.</p>



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PRACTICES TO AVOID	BENEFITS
Avoid trimming while the film is warm.	Even if the blade is new, warm film will be too soft to make a clean cut.
Avoid cutting directly on paint (or keep it to a minimum).	If cut too deep, the vehicle finish will be damaged. Cuts on paint will also be liable to lift away from the primer during removal of graphic.
Avoid overstretching on the corners.	To avoid premature adhesion failure. Corners converge at a small area where adhesive coverage is insufficient to hold a stressed area of the film in place.

POST-INSTALLATION

RECOMMENDED PRACTICES	BENEFITS
<p>1. Best practice is to post-heat the entirety of the film</p> <p>Post-heating is a function of temperature, time, and reapplication of pressure.</p> <ul style="list-style-type: none"> At a minimum, edges, seams, corrugations, and other stretched areas must be post heated to temperatures between 200°F and 220°F (95°C-105°C). For flat surfaces, determine the post heating temperature by adding 25°F (+15°C) to the ambient temperature. 	<p>Applying ample heat on the flat surfaces will reveal any uninstalled areas and bubbles.</p> <p>High temperature and pressure will accelerate the adhesion build.</p>
<p>2. Overnight dwell time</p> <p>If possible, let the vehicle dwell overnight in the shop prior to delivery to customer.</p>	<p>To allow for the adhesive to build prior to exposure to the elements.</p> <p>In case the installer missed a section or edges weren't installed properly, you can easily fix them without being contaminated outdoors.</p>

PRACTICES TO AVOID	BENEFITS
When post heating with high temperatures, avoid simply heating the film without reapplying pressure.	To achieve even higher adhesive contact by inducing more adhesive flow and closing the air egress channels.



Fusion Wrap

ARLON INSTALLATION GUIDE

MAINTENANCE

RECOMMENDED PRACTICES	BENEFITS
<p>1. Post-Wrap Inspection For vehicles operating locally, mandate a post wrap check-up 3 days after installation, 1 week, and 1 month.</p>	To validate the Installer's Warranty.
<p>2. Regularly Hand Wash If using an automated carwash, opt for touchless car wash when you don't have overlaps and all edges are tucked.</p>	To minimize the risk of scratches, chips, swirls, and edge lift due to abrasive cleaning methods.
<p>3. Power Washing</p> <ul style="list-style-type: none"> • Nozzle pressure should never exceed 1,300 PSI (90 Bar). • Water temperature should not exceed approximately 140°F (60°C). • Nozzle tip should never be closer than five feet from the graphics. • Angle of water spray should be no shallower than 60° from perpendicular. • The detergent solution should always be blended with water at the correct ratio. A more concentrated solution can damage both the adhesive and the vinyl. • A post-washing, fresh-water rinse will help maintain the life of the paint and vinyl. 	To improve the lifetime and look of the film.

PRACTICES TO AVOID	BENEFITS
Avoid washing the car until 1-3 weeks' time has passed from the installation date, depending on environment temperature and humidity.	To allow for maximum adhesion bond before disturbance.

REMOVAL

RECOMMENDED PRACTICES	BENEFITS
<p>1. Use heat during removal Removal Temperature: between 90°F - 150°F (30°C - 65°C) using a torch, heat gun, or steamer.</p>	Removal becomes easier because heat softens both adhesive and film to temporarily lower the adhesion and reduce the risk of tearing.
<p>2. Remove at a slow and steady pace at an angle no greater than 90°</p>	<p>Safety - peeling the film towards you rather than pushing it away is safer for installers in the event that the film tears. If the film tears and the installer is pushing the film away, there is potential in damaging the car or injury to the installer.</p> <p>A slow and steady pace is required as a sudden change in peeling force may cause layer separation, delamination and/or film tearing.</p> <p><i>See TIP 44: Fleet & Vehicle Wrap Removal</i></p>