



ImageLOC® Technical Specifications

PRODUCT DESCRIPTION: ImageLOC® is a proprietary sign printing technology developed by Gopher Sign Company for printing durable, photo quality outdoor or indoor signs. The process begins by coating high quality, aluminum alloy sheeting with a proprietary organic material under controlled conditions. This coating is fused to the aluminum and becomes the substrate upon which we directly apply our inks, eliminating paper, vinyl or plastic from the printing process. Once imaging is completed, a proprietary organic top coat is applied, fused and bonded with the ink and substrate, sealing the image between the topcoat and substrate. This protects the digital print from harmful UV rays, water, hail, salt, sand, rain, graffiti and vandalism.

IMAGING: The ImageLOC® printing process is performed on a flatbed inkjet printer utilizing inks that have been carefully tuned to the process. Common input resolutions range from between 150 and 300 dpi. The output resolution can be printed at up to 1200 dpi, providing accurate, bright and vibrant reproduction of photographic images. This technology is also well-suited to reproducing small text and fine detail with amazing accuracy. All images are rendered into CMYK color space.

ATTRIBUTES: ImageLOC® sign printing technology produces a highly durable sign with the following attributes under normal conditions:

- Lowest cost of ownership of all durable 4-color sign technologies
- Bright, vibrant graphics
- Self-supporting in most common sign sizes
- Extremely durable
- Substantially lighter than other durable sign technologies
- Will not corrode if vandalized
- Graffiti cleans off easily with available cleaners
- Scratch resistant
- Superb UV protection (10-year warranty)
- Impervious to weather
- Excellent impact resistance
- Vandal resistant
- Will not delaminate, blister crack or peel
- Available in .125" thick
- Available in contoured shapes, with or without mounting holes or stainless steel studs, and tamper-proof hardware on the reverse side of the sign
- Printable on one or both sides of the sign

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ImageLOC® Technical Specifications (Continued)

SIGN APPLICATIONS: ImageLOC® printing technology is designed to produce durable photo-quality color images on ImageLOC® signs in outdoor applications that are intended to last for ten years or more. This highly durable sign printing technology is ideal for signs in remote, unattended areas, as well as high-traffic areas, due to its hydrophobic and graffiti-resistant finish. It performs well in all climate conditions including sunny locations, shady humid areas, extreme mountain conditions, seashore areas, and/or arid desert locations.

Applications for these signs include:

- Wayfinding signs (parks, trails, campuses, business parks, malls, etc.)
- Interpretive signs and displays
- Exhibit signs, displays and murals
- Regulatory signs
- Corporate identity signage
- Museum signage
- Zoos and aquariums
- Retail signage (restaurants, bars, retail stores, etc.)
- Parking lot and garage signage
- Resort, theme park and recreational facility signage
- Architectural signage
- Monument signs (city welcome signs, park entrance, sub-divisions, industrial parks, etc.)
- Institutional signage (universities, government facilities, hospitals, etc.)
- Gas station/convenience store signage

NOTE: Temperature extremes have been known to cause expansion and contraction of outdoor signs with alternate sign technologies such as HPL, Fiberglass Embedment, Polycarbonate and Porcelain Enamel. ImageLOC® sign panel's base material is aluminum which eliminates expansion, contraction and curling of the signs.

STANDARD PANEL THICKNESS: ImageLOC® panels have a standard thickness of .125 inches and are rigid enough to perform well without a backer plate or frame in most scenarios.

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SIGN PANEL MOUNTING OPTIONS: There are many mounting options available for ImageLOC® sign panels to include:

- Extruded frames – Our aluminum extrusion profile is welded to a full back plate and powder coated to create an attractive and cohesive frame solution for ImageLOC® sign panels. The design and hardware is tamper resistant. These frames can then be mounted to any number of exhibit base configurations including upright, pedestal, and cantilevered posts.
- Bolt-through – Specify location and size of hole required for mounting the sign panels. The holes will be pre-cut at the factory.
- Z-clip mounting – This mounting configuration includes clips that are screwed to the wall and clips adhered to the back of the sign which interlock to form a low profile mounting solution.
- Stainless steel studs – We offer flush mounted, stainless steel studs which are chemically bonded to the backside of the sign panel. Each stud has a plate welded to the stud, creating a large surface on which to secure our bond with the aluminum sign. The studs include tamper proof aluminum break away nuts to ensure security of your property. Available size options shown below.

STAINLESS STEEL STUD SELECTION CHART

Stud Specification	Lengths available in inches	Plate Diameter/ Thickness	Tensile Strength in lbs./Stud	Shear Strength in lbs./Stud
1/4"-20	.75, 1.0, 1.5, 1.75, 2.0, 2.5	1.25 x .06	500	650
5/16"-18	1.5	2.0 x .060	1200	1500
3/8"-16	0.75, 2.0	2.0 x .060	1200	1500

NOTE: Stud material is Type 304 Stainless Steel

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PANEL SIZES: Rectangular signs printed with ImageLOC® technology are available in sizes up to 47.88" x 119.88". Murals of any size can be created by tiling ImageLOC® panels together. When creating murals, the graphics will be indexed over the entire surface of the mural.

CONTOURED SHAPES: ImageLOC® signs can be cut to most shapes on our CNC router. The minimum size router bit we utilize is a 1/8-inch bit. This determines the maximum inside angles we can cut on the sign panels. **NOTE:** It is standard practice to put a minimum radius corner of 1/8 inch on all panels except those that are tiled, to minimize sharp corners. Please specify the radius of the corners on any panels ordered.

ASTM MECHANICAL PERFORMANCE SPECIFICATIONS

Mechanical Properties	ASTM Test	Grading
Scratch resistance	E-18	Exceeds 9H Pencil Test
UV resistance	G115; D7238	Delta E >10.0
Gloss level	D523	35 ±5 gloss units
Abrasion resistance	D4060-10; D968-05	Pass/Fail test
Indentation hardness	N/A	Barcol rating = 56B
Clarity	D1003	Clarity of underlying images
Chemical & stain resistance	D1308	No damage to finish when doing spot test
Fire/flame/smoke resistance	E84	Class A rating
Corrosive weather resistance	D1654; B-117	<5 millimeter creep when exposed to acidic salt spray
Adhesion	D3359	5B classification
Chalking	D4214	No chalking for 10 years
Hydrophobic	N/A	Highly graffiti resistant

STANDARD WEIGHT: ImageLOC® signs vary in weight based on the thickness of the aluminum used in its construction as indicated below:

Sign Type	Thickness	Weight/Sq. Ft.
ImageLOC®	0.125"	1.75 lbs.

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SIGN FINISH: Outdoor signage is generally subject to exposure to bright daylight conditions which can cause glare and compromise the ability to read the sign. For this reason, we have designed ImageLOC® signs with a matte gloss level that provides optimal clarity and sign visibility in conditions ranging from bright sunshine to shade.

CLEANING: Gopher Sign's Graffiti-ZAP™ works best at cleaning our panels without damaging the surface. When removing pine sap, dampen a soft cloth with mineral spirits, denatured alcohol or isopropyl alcohol and gently rub the surface until the sap is gone. After removing sap from the sign's surface, or anytime the ImageLOC® signs are cleaned, use mild soap and water to remove oily films, dirt, dust, road film and other naturally occurring contaminants from the finish. Do not use abrasive cleaners or acids on the surface as it may damage the finish. See full ImageLOC® cleaning instructions tech sheet for more detailed information.

GRAFFITI REMOVAL: General rule-of-thumb - Faster is easier. Cleaning graffiti (especially paints) off ImageLOC® signs is much easier if you get to it within 24 to 48 hours. Crayon, permanent markers, inks and paints can generally be removed from ImageLOC® signs easily using our Graffiti-ZAP™ cleaner. Other possible cleaners to try are methyl alcohol, butanol, or isopropyl alcohol. All of these cleaners are mild solvents and can cause skin irritations. We recommend wearing protective gloves such as Nitrile disposable gloves when handling Graffiti-ZAP™ or any of the cleaners referenced above.

CAUTION: Always test graffiti cleaners in a small inconspicuous area to make sure they are compatible and do not damage the surface of the sign. Do not use abrasives or metal brushes on the surface of ImageLOC® signs.