



LASER ENGRAVED NAMEPLATES & TAGS

PLASTIC

High quality laser engraved nameplates and tags are cut to any size and shape using indoor, outdoor and reverse (backside) engravable plastics. Available in a variety of colors, these nameplates and tags can be affixed using high tack adhesive, mounting screws or hung with chain, wire or cable ties. The print quality is exceptional. A variety of font styles, sizes, bold type and graphics are achieved using this laser and software technology. Plate types include, nameplates, valve tags, button tags, backlit control panels, logo plates and many more.

Specifications

- Material:** Indoor/Outdoor, or reverse engravable (backside)
- Size:** 18"x32" Maximum
- Standard Shapes:** Round, rectangle, or square. (rounded corners - no extra charge)
- Thickness:** 1/16" (standard) or 1/8"
- Standard colors:** (text color/surface color) white/black, black/white, white/red, red/white, white/blue, white/green, white/ orange
- Mounting Options:** High-tack adhesive, screw holes, or hanging hole
- Graphic File Types:** .ai, .dxf and .eps are the preferred file types



STAINLESS STEEL

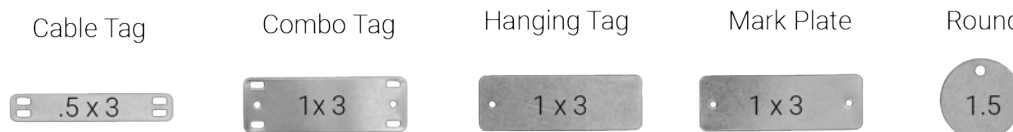
Receptacle outlet covers, nameplates, rounds, cable tags, panel doors. Custom sized/special order plates upon request.

Specifications

- Material:** 316 Stainless Steel, **Made in USA**
- Thickness:** 22 gauge

Stocked sizes

- .50" x 3" Cable Tag (slots)
- 1" x 3" Cable/Combo Tag (slots and holes)
- 1" x 3" Hanging Tag (hole on one end)
- 1" x 3" Mark Plate (hole on each end)
- 1.5" Round (hole)



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Technical Data - Plastic

Physical Properties	Specifications
Substrate	Acrylic
Colors	See website
Thicknesses	1/16", 1/8"
Sheet Sizes	12" x 24" , 18 x 32"
Fabrications Properties	Router, saw, die-cut and laser
Engraving Depth	0.0031"
Use	Exterior, interior
Processing	Screenprinting: yes Hot stamping: yes UV printing: yes
UV Light Resistance	500 hours QUV or equivalent of 2 years without any color change or fading
Abrasion	Taber testing < 200 cycles CS17 wheel / 500 gram
Cleaning Instructions	N / A
Optical	N / A
Vicat Softening Point	ASTM D-1525 208.4°F (122°F/hr; 10N) ASTM D-1525 186.8°F (122°F/hr; 50N)
Specific Gravity	ASTM D-792 1.15 g/cc
Tensile Modulus	ASTM D-638 270,000 psi
Izod Impact	ASTM D-256 @ 73.4°F 1.1 ft-lbs/in notch
Flexural Modulus	ASTM D-790 270,000 PSI
Thermal Conductivity	ASTM C-117 1.5 BTU/hr*ft ² *F/in
Tensile Strength @ Maximum	ASTM D-638 5,500 psi
Flexural Strength @ Maximum	ASTM D-790 10,300 psi
Heat Deflection Temperature	ASTM D-648 (0.455 MPa; annealed) 192°F ASTM D-648 (1.82 MPa; annealed) 176°F
Hardness	ASTM D-785 45M Rockwell
Melt Flow Rate	ASTM D-1238 1.0g/10min (446 °F/ 3.8 kg)

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Technical Data - Adhesive

3M™ Adhesive 950

3M™ Adhesive Transfer Tapes with 3M™ Adhesive 300 offer excellent adhesion to a wide variety of surfaces, including low surface energy plastics and foam. This pressure sensitive medium firm acrylic adhesive family features very high initial adhesion with good holding power and is available in several thicknesses for a wide variety of surface bonding and provides a variety of liner configurations to help ensure excellent process flexibility.

Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Physical Properties

Property	Values		Notes	Attribute Modifier
Adhesive Thickness	0.13 mm	5 mil	The thickness listed is based on a calculation from manufacturing controlled adhesive coat weights using a density of 1.012 g/cc. While past data pages have listed nominal thicknesses, the coat weight (and theoretical caliper) has not changed.	
Liner	60 # Densified Kraft			
Liner Color	Tan, No Print			Primary
Liner Thickness	0.09 mm	3.5 mil		

Typical Performance Characteristics

90° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Substrate	Notes
8.1N/cm		15	min	Stainless Steel	
74 oz/in		15	min	Stainless Steel	12 in/min (300 mm/min)
3.7 N/cm	34 oz/in	15	min	ABS	12 in/min (300 mm/min)
6.6 N/cm	60 oz/in	15	min	Polypropylene (PP)	12 in/min (300 mm/min)
9.4 N/cm	86 oz/in	72	hr	Stainless Steel	12 in/min (300 mm/min)
4.4 N/cm	40 oz/in	72	hr	ABS	12 in/min (300 mm/min)
6.8 N/cm	62 oz/in	72	hr	Polypropylene (PP)	12 in/min (300 mm/min)

Property: 90° Peel Adhesion
 Method: ASTM D3330
 Temp C: 22C
 Temp F: 72F
 Environmental Condition: 52%RH
 Backing: 2 mil Aluminum Foil



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Electrical and Thermal Properties

Property	Values	Method	Test Condition
Dielectric Constant	3.21	ASTM D 150	1KHz, Room Temperature
Dissipation Factor	0.04		
Dielectric Strength	340 V/mil	ASTM D 149	500 vac, rms[60 hz/sec]
Coefficient of Thermal Expansion	$20 \times 10^{-5} \text{ m/m/}^\circ\text{C}$	ASTM D696	First Heat
Coefficient of Thermal Expansion	$58 \times 10^{-5} \text{ m/m/}^\circ\text{C}$	ASTM D696	Second Heat

Environmental Resistance

Humidity Resistance – High humidity has a minimal effect on adhesive performance. Bond strength (is generally higher/shows no significant reduction) after exposure for 7 days at 90°F (32°C) and 90% relative humidity.

UV Resistance – When properly applied, nameplates and decorative trim parts are not adversely affected by outdoor exposure.

Water Resistance – Immersion in water has no appreciable effect on the bond strength. After 100 hours at room temperature, the high bond strength (increases/is maintained).

Temperature Cycling Resistance – High bond strength (is maintained / increases) after cycling four times through:

- 4 hours at 158°F (70°C)
- 4 hours at -20°F (-29°C)
- 4 hours at 73°F (22°C)

Chemical Resistance – When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including oil, mild acids and alkalis.

Bond Build-up: The bond strength of 3M™ Adhesive 300 increases as a function of time and temperature

Temperature/Heat Resistance: Adhesive 300 is usable for short periods (minutes, hours) at temperatures up to 250°F (120°C) and for intermittent longer periods (days, weeks) up to 150°F (65°C).

Lower Temperature Service Limit: -40F (-40°C).

Handling/Application Information

Application Ideas

- Long term bonding of graphic nameplates and overlays to surfaces such as metal and low surface energy plastics in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Bonding metal nameplates and rating plates in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Lamination to foam for gasket application.

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Technical Data - Adhesive

Handling/Application Information (continued)

Application Techniques

For maximum bond strength (during installation of the final part) the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane (for oily surfaces) or isopropyl alcohol for plastics. Use reagent grade solvents since common household materials like rubbing alcohol frequently contain oils to minimize the drying effect on skin. These oils can interfere with the performance of a pressure-sensitive adhesive. Consult solvent manufacturers MSDS for proper handling and storage instructions. Also, use disposable wipes that do not contain oils, to remove the cleaning solvents. It is necessary to provide pressure during lamination (1.5-20 PLI recommended) and during final part installation (10-15 PLI) to allow the adhesive to come into direct contact with the substrate. Using a hard edged plastic tool, which is the full width of the laminated part, helps to provide the necessary pressure at the point of lamination. Heat can increase bond strength when bonding to metal parts (generally this same increase is observed at room temperature over longer times, weeks). For plastic parts, the bond strength is not enhanced with the addition of heat. The ideal adhesive application temperature range is 70°F (21°C) to 100°F (38°C). Application is not recommended if the surface temperature is below 50°F (10°C) because the adhesive becomes too firm to adhere readily. Once properly applied, at the recommended application temperature, low temperature holding is generally satisfactory (please refer to the Typical Physical Properties and Performance Characteristics section). When bonding a thin, smooth, flexible material to a smooth surface, it is generally acceptable to use 2 mils of adhesive. If a texture is visible on one or both surfaces, the 5 mil adhesive would be suggested. If both materials are rigid, it may be necessary to use a thicker adhesive to successfully bond the components. 3M™ VHB™ Acrylic Foam Tapes may be required (please refer to data page 70-0709-3863-7).

Application Equipment

To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704-1430-8). For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

Storage and Shelf Life

It is suggested that products are stored at room temperature conditions of 70°F (21°C) and 50% relative humidity. If stored properly, product retains its performance and properties for 24 months from date of manufacture.

Industry Specifications

EN 45545 test report for details (ISO 5658-2, ISO 5660-1)

Trademarks

3M is a trademark of 3M Company

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Technical Data - Adhesive

Family Group

	927	950	950EK	9458	9471	9472	9671	9672	9459W
Liner Color Attribute Modifier: Primary	Tan, No Print	Tan, No Print	White, No Print	White, No Print	Tan, Green Print, "3M"	Tan, Green Print, "3M"	Tan, Green Print, "3M"	Tan, Green Print, "3M"	
Adhesive Thickness (mm)	0.05	0.13	0.13	0.025	0.05	0.13	0.05	0.13	0.0375
Liner	60# Densified Kraft	60# Densified Kraft	78# Extensible Kraft	55# Densified Kraft	60# Densified Kraft, tan with green "3M" print	60# Densified Kraft, tan with green "3M" print	83# Polycoated Kraft, tan with green "3M" print	83# Polycoated Kraft, tan with green "3M" print	55# Densified Kraft
Liner Thickness (mm)	0.09	0.09	0.13	0.08	0.09	0.09	0.15	0.15	0.08

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

Recognition/Certification

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements
 SDS: 3M has not prepared a SDS for this product which is not subjected to the SDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R.1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, this product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

UL: These products have been recognized by Underwriters Laboratories, Inc. under UL 969, Marking and Labeling Systems Materials Component. For more information on the UL Certification, please visit the website at <http://www.3M.com/converter>, select UL Recognized Materials, then select the specific product area.
 Military: Meets Mil-P 19834B Type 1.

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Information

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