English-US

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Technical Data Sheet

3M™ Membrane Switch White Spacer 7966WDL

Product Details

Product Description

3M™ High Performance Acrylic Adhesive 200MP is a popular choice and industry standard, for graphic attachment and general industrial joining applications. It provides outstanding adhesion to metal and high surface energy plastics. This adhesive provides some initial repositionability for placement accuracy when bonding to plastics. It also performs well after exposure to humidity and hot/cold cycles and provides the assurance the switch will perform through difficult environmental conditions and millions of actuations.

Product Features

•The High Performance Acrylic Adhesive 200MP offers excellent short-term heat resistance and will performan at temperatures up to 400ºF (204ºC)
• The 200MP adhesive provides high resistance to solvents and humidity
• The 2 mil nominal adhesive tape delivers excelent shear strength to metal surfaces
• 3M Membrane Switch products use the 200MP adhesive, which provides long lasting membrance switches
• 3M™ Double Coated Membrane Switch Spacers feature 2.0 mil adhesive layer for industry-standard, high-performance requirements.

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

Attribute Name	Test Method	Test Condition	Value
Adhesive Type			200MP Acrylic
Adhesive Carrier			White/Silver PET (Polyester)
Adhesive Thickness		Faceside	0.05 mm (2 mil) [1]
Carrier Thickness			0.05 mm (2 mil)
Adhesive Thickness		Backside	0.13 mm (5 mil) [2]
Total Tape Thickness	ASTM D3652		0.23 mm (9 mil)
Liner Print			200MP
Primary Liner Type			58# PCK [3]
Secondary Liner Type			58# PCK [3]
Primary Liner Thickness			0.1 mm (4.2 mil)
Secondary Liner Thickness			0.1 mm (4.2 mil)

[1] Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

[2] Backside adhesive is on the exterior of the roll, exposed when liner is removed.

[3] Inner liner is primary (stays with die-cut part); Outer liner is secondary (removed first)

Typical Performance Characteristics

Dwell Time: 72 h
Backing: 2 mil Aluminum Foil
Test Method: ASTM D3330

Attribute Name	Temperature	Test Condition	Substrate	Value
90° Peel Adhesion	23 °C (73 °F)	Faceside	Stainless Steel	10.0 N/cm (91 oz/in) [1]
90° Peel Adhesion	70 °C (158 °F)	Faceside	Stainless Steel	10.1 N/cm (93 oz/in) [1]

Attribute Name	Temperature	Test Condition	Substrate	Value
180° Peel Adhesion	23 °C (73 °F)	Faceside	Stainless Steel	11.1 N/cm (102 oz/in) [1]
90° Peel Adhesion	23 °C (73 °F)		Aluminum	10.3 N/cm (94 oz/in) [1]
90° Peel Adhesion	23 °C (73 °F)		Polyester (PET)	6.6 N/cm (60 oz/in) [1]
90° Peel Adhesion	23 °C (73 °F)		Polycarbonate (PC)	9.2 N/cm (84 oz/in) [1]

[1] 300 mm/min (12 in/min)

Substrate: Aluminum
Temperature: 23 °C (73 °F)
Dwell Time: 72 h

Attribute Name	Test Method	Value
Overlap Shear Strength	ASTM D1002, ISO 4587	1.81 MPa (262 lb/in²) [1]

[1] Pressure was obtained via a Mechanical Press set at 138 kPa (20 psi) for 15 seconds on 25 x 25 mm (1 x 1 in) sample Crosshead speed 300 mm/min (12 in/min).

Static Shear

Substrate: Stainless Steel
Dwell Time: 72 h
Backing: 2 mil Aluminum Foil
Test Method: ASTM D3654

Temperature	Test Condition	Value
23 °C (73 °F)	1000 g	10,000 min [1]
70 °C (158 °F)	500 g	10,000 min [1]

[1] 25 x 25 mm (1 in x 1 in) sample area, test terminated after 10,000 minutes

Substrate: Stainless Steel
Temperature: 23 °C (73 °F)
Dwell Time: 72 h
Backing: 2 mil Aluminum Foil
Test Method: ASTM D3654

Attribute Name	Environmental Condition	Test Condition	Value
Short Term Temperature Resistance	204 °C (400 °F)	500 g wt for at least 60 min	60 min [1]
Long Term Temperature Resistance	149 °C (300 °F)	500 g wt for at least 10,000 min	10,000 min [1]

[1] 6.5 cm² (1 in²) Sample area

Typical Environmental Characteristics

Environmental Resistance

Humidity Resistance – High humidity has a minimal effect on adhesive performance. Bond strength shows no significant reduction after exposure for 7 days at 90ºF (32ºC) 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 is maintained.

Temperature Cycling Resistance – High bond strength is maintained after cycling four times through:
4 hours at 158ºF (70ºC)
4 hours at -20ºF (-29ºC)
4 hours at 73ºF (22ºC)

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™ High Performance Acrylic Adhesive increases as a function of time and temperature as the adhesive further wets the surface and reaches maximum bond strength after 72 hours at room temperature.

Temperature/Heat Resistance: 3M™ High Performance Acrylic Adhesive on polyester carriers is usable for short periods (minutes, hours) at temperatures up to 400ºF (204ºC) and for intermittent longer periods (days, weeks) up to 300ºF (149ºC).
Lower Temperature Service Limit: -40ºF (-40ºC).

Handling/Application Information

Application Examples

- Use where opacity of the adhesive layer is helpful to eliminate graphic ink flood coat or facilitate backlighting.
- Attachment of nameplates, appliques, and decorative trim to metal and high surface energy plastics.
- Suitable for lamination to back-printed polycarbonate or polyester graphic overlay materials.
- Used in the automotive, appliance and electronic industries for cost-effective, longterm bonding.

Application Techniques

Processing

Die Cutting: Steel rule die and hard tooling - Good die-cutting and kiss-cutting properties. Lubricate dies with vanishing oil or similar low residue lubricants for improved processing if required. Optimal design, quality construction, and make ready give best results when cutting PSA materials and substrates. Consult with your tooling supplier for design and qualification of new tooling needs.

Laser Converting: Laser cutting, kiss-cutting, scoring and perforating using CO2 lasers has proven very successful for cutting PSA materials particularly for prototyping and short-run work. Consult with your laser job shop or vendor to test and qualify converting process.

Roll Laminating: Use rubber over steel roll set up with moderate application pressure. Make adhesive to substrate contact at nip area only to avoid air entrapment in bond. Proper rubber roll durometer hardness, parallelism of rolls, roll diameters and width, PLI and nip gap, and web thread up and table configuration set-up parameters are all critical to satisfactory results to eliminate wrinkles, entrapped bubbles, etc. Heated rolls or heat assist can be very helpful to good lamination quality and bond build-up. Consult with your laminating equipment supplier for details.

Special Considerations
For maximum bond strength, surface should be thoroughly cleaned and dried. A typical substrate cleaning solvent is heptane or isopropyl alcohol*. There are many others that will work well, but cleaning materials must be tested to assure compatibility with the substrate and that residues are not deposited on the surface.

Bond strength may be improved with firm application pressure and moderate heat causing adhesive to flow and develop intimate contact with bonding surface.

*Note: When using solvents, be sure to follow the manufacturer’s precautions and directions for use when handling such materials.

Application Equipment

For assistance in helping you determine the best equipment for your application, contact your local 3M sales representative, or call 1-800-362-3550.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

Available Sizes

Attribute Name	Value
Core Size (ID)	152.4 mm (6 in)
Length Tolerance	0 — +1/4 in
Master Width	0 — +6.35 mm
Maximum Available Width	1219 mm (48 in)
Squareness	1 — 16 in
Standard Roll Length	329 m (360 yd)
Standard Sheet Size	24in x 36in in [1]
Width Tolerance	0 — +1/4 in

[1] Custom sheets are available for 3M™ Adhesive Transfer Tapes8132LE, 8153LE

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

MSDS:3M has not prepared a MSDS for this product which is not subjected to the MSDS 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 746C and UL 969. 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.

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Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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