

# Technical Data Sheet

## 3M™ Membrane Switch Product with Adhesive 200MP 7959MP

### Product Description

**Finite Element Analysis (FEA)** data is available for this product at: [3m.com/FEA](https://www.3m.com/FEA)

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


- Up to 400°F short-term heat resistance
- Excellent solvent resistance
- Excellent shear strength to resist slippage and edge lifting

3M™ Double Coated Membrane Switch Spacers feature 2.0 or 5.0 mil adhesive layers 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

Property	Values	Additional Information
Adhesive Type	Acrylic	
Adhesive Carrier	Polyester Film (PET)	
Liner	200MP Acrylic	
Primary Liner Type	58# Polycoated Kraft Paper (PCK)	<a href="#">View</a> 

Notes: Inner liner is primary (stays with die-cut part); Outer liner is secondary (removed first)

Secondary Liner Type

58# Polycoated Kraft Paper (PCK)

View 

Notes: Inner liner is primary (stays with die-cut part); Outer liner is secondary (removed first)

Liner Thickness

0.11 mm

Primary Liner Thickness


0.11 mm

Secondary Liner Thickness

0.11 mm

Adhesive Thickness

0.05 mm

View 

Test Name: Backside


Notes: The caliper listed is based on a calculation from manufacturing controlled adhesive coat weight. While past data pages have listed nominal thicknesses of 1 and 2 mils, the coat weight (and theoretical caliper) has not changed.

Carrier Thickness

0.13 mm

Total Tape Thickness (mil)

2 mil

View 

Test Method: ASTM D3652

Total Tape Thickness (mm)


0.05 mm

View 

Test Method: ASTM D3652

Adhesive Thickness

2 mil


View 

Test Name: Backside

Notes: Backside adhesive is on the exterior of the roll, exposed when liner is removed.

Adhesive Thickness

0.05 mm

View 

Test Name: Faceside

Notes: Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

Adhesive Thickness

2 mil

View 

Test Name: Faceside

Notes: Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

Carrier Thickness

5 mil

Liner Print

200MP

Liner Thickness

4.2 mil

Primary Liner Thickness

4.2 mil

Secondary Liner Thickness

4.2 mil

## Typical Performance Characteristics

Property  
Values  
Additional Information

90° Peel Adhesion

3.3 N/cm

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Temp C: 23C  
Temp F: 72F  
Substrate: Stainless Steel  
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

30 oz/in

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: Stainless Steel  
Backing: 2 mil PET

90° Peel Adhesion

14.7 N/cm

View 


Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 70C  
Temp F: 158F  
Environmental Condition: 50%RH  
Substrate: Stainless Steel  
Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

134 oz/in

View 


Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 70C  
Temp F: 158F  
Environmental Condition: 50%RH  
Substrate: Stainless Steel  
Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

3.4 N/cm


View 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Substrate: Aluminum  
Backing: PET Film

90° Peel Adhesion

31 oz/in

[View](#) 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: Aluminum  
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Aluminum

7.4 N/cm

[View](#) 


Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: Aluminum  
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Aluminum

68 oz/in

[View](#) 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: Aluminum  
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

13.6 N/cm

[View](#) 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0

Dwell Time Units: hr  
Temp C: 70C  
Temp F: 158F  
Environmental Condition: 50%RH  
Substrate: Aluminum  
Backing: PET Film

### 90° Peel Adhesion

124 oz/in

[View](#) 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 70C  
Temp F: 158F  
Environmental Condition: 50%RH  
Substrate: Aluminum  
Backing: PET Film

### 90° Peel Adhesion

3.6 N/cm

[View](#) 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Substrate: PET  
Backing: PET Film

Notes: 12 in/min (300 mm/min)

### 90° Peel Adhesion

33 oz/in

[View](#) 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Substrate: PET  
Backing: PET Film

Notes: 12 in/min (300 mm/min)

### 90° Peel Adhesion

5.8 N/cm

[View](#) 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: PET  
Backing: PET Film

90° Peel Adhesion

53 oz/in

View 

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Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 23C

Temp F: 72F

Environmental Condition: 50%RH

Substrate: PET

Backing: PET Film

90° Peel Adhesion

12.9 N/cm

View 

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Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 70C

Temp F: 158F

Environmental Condition: 50%RH

Substrate: PET

Backing: PET Film

90° Peel Adhesion

118 oz/in

View 

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Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 70C

Temp F: 158F

Environmental Condition: 50%RH

Substrate: PET

Backing: PET Film

90° Peel Adhesion

3.9 N/cm

View 

---

Test Method: ASTM D3330 (modified)

Substrate: Polycarbonate (PC)

Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

36 oz/in

View 

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Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion

Substrate: Polycarbonate (PC)

Backing: PET Film

Notes: 12 in/min (300 mm/min)

#### 90° Peel Adhesion

7.2 N/cm

[View](#) 

Test Method: ASTM D3330 (modified)

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 70C

Temp F: 158F

Substrate: Polycarbonate (PC)

Backing: PET Film

#### 90° Peel Adhesion

66 oz/in

[View](#) 

Test Method: ASTM D3330 (modified)

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 70C


Temp F: 158F

Substrate: Polycarbonate (PC)

Backing: PET Film

#### Tensile Strength

6462 lb/in

[View](#) 

Test Method: ASTM D2370

Substrate: Stainless Steel

Backing: PET Film

#### Overlap Shear Strength

0.54 MPa

[View](#) 

Test Method: ASTM D1001

Substrate: Stainless Steel

Backing: PET Film

#### Overlap Shear Strength

78 lb/in<sup>2</sup>

[View](#) 

Test Method: ASTM D1001

Substrate: Stainless Steel



Backing: PET Film

Overlap Shear Strength

0.48 MPa

View 

Test Method: ASTM D1001

Substrate: Polycarbonate (PC)

Backing: PET Film

Overlap Shear Strength

69 lb/in<sup>2</sup>

View 

Test Method: ASTM D1001

Substrate: Polycarbonate (PC)

Backing: PET Film

Short Term Temperature Resistance

300 °F

View 

Test Condition: Short Term (minutes, hour)

Short Term Temperature Resistance


149 °C

View 

Test Condition: Short Term (minutes, hour)

Long Term Temp C

93 °C

View 

Test Condition: Long Term (day, weeks)

Long Term Temp F


200 °F

View 

Test Condition: Long Term (day, weeks)

Static Shear

10,000+ min

View 

Test Method: ASTM D3654

Test Condition: 1000 g @ Room Temperature

Substrate: Stainless Steel

Backing: PET Film

Notes: 0.5 in² sample size

Static Shear

10,000+ min

View 

Test Method: ASTM D3654

Test Condition: 500 g @ 70°C (158°F)


Substrate: Stainless Steel

Backing: PET Film

Notes: 0.5 in² sample size

90° Peel Adhesion Stainless Steel

83 oz/in

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 23C

Temp F: 72F

Environmental Condition: 50%RH


Substrate: Stainless Steel

Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Stainless Steel

9 N/cm

View 

Notes: 12 in/min (300 mm/min) ASTM D3330 72 hour dwell on Stainless Steel at 23°C (72°F) and 50% RH Backing: 2 mil Polyester

90° Peel Adhesion Polycarbonate (PC)

5.9 N/cm

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 23C

Temp F: 72F

Environmental Condition: 50%RH


Substrate: Polycarbonate (PC)

Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Polycarbonate (PC)

54 oz/in

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 23C  
Temp F: 72F  
Environmental Condition: 50%RH  
Substrate: Polycarbonate (PC)  
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

## Electrical and Thermal Properties

Property	Values	Additional Information
Insulation Resistance	1.9 x 10 <sup>13</sup> Ω	<a href="#">View</a>
Test Method: Mil-I-46058C		
Test Condition: 100VDC, 60 sec		
Dissipation Factor	0.011	<a href="#">View</a>
Test Method: ASTM D150		
Dielectric Strength	1600 V/mil	<a href="#">View</a>
Test Method: ASTM D149		
Notes: Short time method (air)		
Volume Resistivity	1.5 x 10 <sup>15</sup> Ω-cm	<a href="#">View</a>
Test Method: ASTM D257		
Temp C: 23C Temp F: 73F		
Surface Resistivity	>5.6 x 10 <sup>16</sup> Ω	<a href="#">View</a>
Test Method: ASTM D257		
Test Condition: Room Temperature		

Coefficient of Thermal Expansion

4.7 x 10<sup>-4</sup> m/m/°C

View 

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Test Method: ASTM D696

Test Condition: First Heat(125 - 175°C)

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## Typical Environmental Performance

Humidity Resistance – High humidity has a minimal effect on adhesive performance. Bond strength 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 is maintained.

Temperature Cycling Resistance – High bond strength is maintained 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™ 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 300 °F (149°C) and for intermittent longer periods (days, weeks) up to 250°F (121°C).

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

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## 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.

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## 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 UI 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.

Note: One of 3M's core values is to respect our social and physical environment. 3M is committed to comply with ever-changing, global, regulatory and consumer environmental, health, and safety (EHS) requirements. As a service to our customers, 3M is providing information on the regulatory status of many 3M products. Further regulation information including that for OSHA, USCPSI, FDA, California Proposition 65, READY and RoHS, can be found at [3M.com/regs](http://3M.com/regs).

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## Automotive Disclaimer

Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, including, but not limited to, automotive electric powertrain battery or high voltage applications. This product does not fully adhere to typical automotive design or quality system requirements, such as IATF 16949 or VDA 6.3. This product may not be manufactured in an IATF certified facility and may not meet a Ppk of 1.33 for all properties. The product may not undergo an automotive production part approval process (PPAP). Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's automotive application and for conducting incoming inspections before use of the product. Failure to do so may result in injury, death, and/or harm to property. No written or verbal statement, report, data or recommendation by 3M related to automotive use of the product shall have any force or effect unless in an agreement signed by the Technical Director of 3M's Automotive Division. Customer assumes all responsibility and risk if customer chooses to use this product in an automotive electric powertrain battery or high voltage application, and 3M will not be liable for any loss or damage arising from or related to the 3M product or customer's use of the product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity or recall costs), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability. In no event shall 3M be liable for any damages in excess of the purchase price paid for the product.

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## Bottom Matter

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## Trademarks

3M is a trademark of 3M Company

## Industry Specifications

This product might be suitable for use in indirect food contact applications. Please see the applicable Regulatory Data Sheet for more information relating to FDA compliance.

## Handling/Application Information

### Application Examples

- 3M™ Double Coated Membrane Switch Spacers are ideal for circuit separation

## References

Property  
Values

3m.com Product Page

[https://www.3m.com/3M/en\\_US/p/d/b40070356/](https://www.3m.com/3M/en_US/p/d/b40070356/)

Safety Data Sheet SDS

[https://www.3m.com/3M/en\\_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en\\_US&co=ptn&q=7959MP](https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7959MP)

## Family Group

Link Tags:

- 7953MP
- 7945MP
- 7956MP
- 7957MP
- 7959MP
- 7961MP
- 9045MP
- 9056MP
- 9057MP
- 9059MP
- 9061MP
- 7993MP
- 7995MP
- 7997MP

Products	Adhesive Type	Secondary Liner Type	Secondary Liner Thickness	Adhesive Thickness	Carrier Thickness	Total Tape Thickness (mm)	Short Term Temperat Resistanc	Long Term Temp C	Primary Liner Thickness	Long Term Temp F	Liner	Primary Liner Type	Adhesive Carrier	Liner Thickness
7959MP	Acrylic	Kraft Paper (PCK)	0.11 mm	0.05 mm	0.13 mm	0.05 mm	149 °C	93 °C	N/A	N/A	N/A	N/A	N/A	N/A
7956MP	N/A	N/A	0.11 mm	N/A	0.05 mm	0.05 mm	N/A	N/A	0.11 mm	N/A	PCK	58# Polycoated Kraft Paper (PCK)	N/A	0.11 mm

9045MP	N/A	N/A	N/A	0.05 mm	0.03 mm	0.05 mm	N/A	N/A	0.18 mm	200 °F	PCK	94# Polycoated Kraft Paper (PCK)	N/A	0.18 mm
9059MP	Acrylic	N/A	N/A	0.05 mm	0.13 mm	0.05 mm	149 °C	N/A	N/A	N/A	N/A	N/A	Polyester Film (PET)	N/A
7945MP	Acrylic	58# Polycoated Kraft Paper (PCK)	N/A	0.05 mm	0.03 mm	0.05 mm	N/A	N/A	0.11 mm	200 °F	N/A	58# Polycoated Polyester Kraft Paper (PCK)	Film (PET)	N/A
7961MP	Acrylic	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.05 mm	0.18 mm	0.05 mm	149 °C	93 °C	N/A	N/A	N/A	N/A	N/A	N/A
7957MP	N/A	58# Polycoated Kraft Paper (PCK)	N/A	0.05 mm	N/A	0.05 mm	149 °C	93 °C	0.11 mm	N/A	N/A	N/A	Polyester Film (PET)	N/A
9057MP	Acrylic	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.05 mm	0.08 mm	0.05 mm	149 °C	93 °C	N/A	N/A	N/A	N/A	N/A	N/A
9061MP	Acrylic	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.05 mm	0.18 mm	0.05 mm	149 °C	93 °C	N/A	N/A	N/A	N/A	N/A	N/A
9056MP	N/A	94# Polycoated Kraft Paper (PCK)	N/A	0.05 mm	N/A	N/A	N/A	N/A	N/A	200 °F	N/A	N/A	Polyester Film (PET)	0.18 mm
7995MP	Acrylic	94# Polycoated Kraft Paper (PCK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200 °F	N/A	N/A	Polyester Film (PET)	N/A
7997MP	Acrylic	N/A	N/A	N/A	N/A	0.05 mm	N/A	N/A	N/A	N/A	N/A	N/A	Polyester Film (PET)	0.18 mm

7993MP	Acrylic	N/A	N/A	N/A	0.03 mm	0.05 mm	149 °C	N/A	N/A	200 °F	94# Polycoated Kraft Paper (PCK)	N/A	Polyester Film (PET)	0.18 mm
7953MP	N/A	N/A	0.11 mm	0.04 mm	N/A	N/A	N/A	N/A	0.11 mm	200 °F	58# Polycoated Kraft Paper (PCK)	N/A		0.11 mm

## ISO Statement

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

## Information

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