

October, 2017

## 3M™ High Strength Double Coated Tape 93020LE

### Product Description

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

3M™ Double Coated Tapes with 3M™ High Strength Acrylic Adhesive 300LSE provides a high bond strength to most surfaces, including many low surface energy plastics such as polypropylene and powder coated paints. The acrylic adhesive also provides excellent adhesion to surfaces contaminated with oil typically used with machine parts.

### Product Features

- This tape has a film carrier which can add dimensional stability to foams and other substrates and also makes it easier to handle the tape during slitting and die-cutting.
- The bond strength of 3M™ Acrylic Adhesive 300LSE increases as a function of time and temperature, and has very high initial adhesion.



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## 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               |         | Attribute Modifier | Notes   |
|------------------------------------|----------------------|---------|--------------------|---|
| Total Tape Thickness without liner | 0.2 mm               | 7.9 mil |                    |   |
| Carrier Thickness                  | 0.012 mm             | 0.5 mil |                    |   |
| Adhesive Type                      | 300LSE               |         | Faceside           | Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.   |
| Adhesive Type                      | 300LSE               |         | Backside           | Backside adhesive is on the exterior of the roll, exposed when liner is removed.  |
| Adhesive Carrier                   | Clear Polyester      |         |                    |   |
| Liner                              | 58# Polycoated Kraft |         |                    |   |
| Liner Color                        | Tan                  |         | Primary            |   |
| Liner Thickness                    | 0.11 mm              | 4.2 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. |

| Adhesive Thickness |         | Attribute Modifier | Notes  |
|--------------------|---------|--------------------|--|
| 0.095 mm           |         | Backside           | 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. |
| 3.7 mil            |         | Backside           | Backside adhesive is on the exterior of the roll, exposed when liner is removed.   |
| 0.095 mm           | 3.7 mil | Faceside           | Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.  |

Property: Adhesive Thickness

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## Typical Performance Characteristics

| Relative High Temperature Operating Ranges |        | Test Condition              |
|--|--------|-----------------------------|
| 149 °C                                     | 300 °F | Short Term (minutes, hours) |
| 121 °C                                     | 250 °F | Long Term (days, weeks)     |

Property: Relative High Temperature Operating Ranges

| 180° Peel Adhesion |           | Dwell/Cure Time | Dwell Time Units | Substrate          |
|--------------------|-----------|-----------------|------------------|--------------------|
| 17.0 N/cm          | 155 oz/in | 15              | min              | Stainless Steel    |
| 18.1 N/cm          | 165 oz/in | 15              | min              | Polycarbonate (PC) |
| 15.9 N/cm          | 145 oz/in | 15              | min              | ABS                |
| 17.0 N/cm          | 155 oz/in | 15              | min              | Polypropylene (PP) |
| 18.6 N/cm          | 170 oz/in | 72              | hr               | Stainless Steel    |
| 19.7 N/cm          | 180 oz/in | 72              | hr               | Polycarbonate (PC) |
| 17.0 N/cm          | 155 oz/in | 72              | hr               | ABS                |
| 19.2 N/cm          | 175 oz/in | 72              | hr               | Polypropylene (PP) |

Property: 180° Peel Adhesion  
 Method: ASTM D3330  
 Temp C: 22C  
 Temp F: 72F  
 Environmental Condition: 52%RH  
 Backing: Aluminum Foil  
 notes: 12 in/min (300 mm/min)

| Property     | Values      | Method     | Test Condition            | Notes                         |
|--------------|-------------|------------|---------------------------|-------------------------------|
| Static Shear | >10,000 min | ASTM D3654 | 1000 g @ Room Temperature | 1 in <sup>2</sup> sample size |
| Static Shear | >10,000 min | ASTM D3654 | 500 g @ 70°C (158°F)      | 1 in <sup>2</sup> sample size |

## Available Sizes

| Property                  | Values                                |           | Attribute Modifier |
|---------------------------|---------------------------------------|-----------|--------------------|
| Note                      | Subject to Minimum Order Requirements |           |                    |
| Normal Slitting Tolerance | ± 0.8 mm                              | ± 1/32 in |                    |
| Core Size                 | 76.2 mm                               | 3 in      | ID                 |

## Available Sizes (continued)

| Maximum Length |        | Width              |
|----------------|--------|--------------------|
| 164 m          | 180 yd | 1/2 in to 63/64 in |
| 329 m          | 360 yd | 1 in to 3 in       |
| 329 m          | 360 yd | 3 in to 48 in      |
| 329 m          | 360 yd | 48 in to 54 in     |

Property: Maximum Length

## Electrical and Thermal Properties

**Breakdown Voltage:** 7500 V

## Environmental Resistance

**Humidity Resistance:** High humidity has minimal effect on adhesive performance. No significant reduction in bond strength is observed 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 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.

## Handling/Application Information

### Application Ideas

- Foam to powder coated painted surfaces.
- Low surface energy plastic adhesion.

### Application Techniques

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improve bond strength. To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.\*

\*Note: Carefully read and follow the manufacturer's precautions and directions for use when using solvents. Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

### Storage and Shelf Life

Store in original cartons at 70°F (21°C) and 50% relative humidity.

If stored under proper conditions, these products retain their performance and properties for 24 months from date of manufacture.

### Trademarks

3M is a trademark of 3M Company.

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## References

| Property                | Values  |
|-------------------------|---|
| 3m.com Product Page     | <a href="https://www.3m.com/3M/en_US/company-us/all-3m-products/-/3M-Double-Coated-Tape-93020LE?N=5002385+3293240962&amp;rt=rud">https://www.3m.com/3M/en_US/company-us/all-3m-products/-/3M-Double-Coated-Tape-93020LE?N=5002385+3293240962&amp;rt=rud</a>         |
| Safety Data Sheet (SDS) | <a href="https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=93020LE">https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=93020LE</a> |

## Family Group

|  | 93010LE              | 93015LE              | 93020LE              |
|--|----------------------|----------------------|----------------------|
| Adhesive Type<br>Attribute Modifier:<br>Faceside   | 300LSE               | 300LSE               | 300LSE               |
| Relative High Temperature Operating Ranges (°C)<br>Test Condition: Short Term (minutes, hours) | 149                  | 149                  | 149                  |
| Relative High Temperature Operating Ranges (°C)<br>Test Condition: Long Term (days, weeks)     | 121                  | 121                  | 121                  |
| Adhesive Thickness (mm)<br>Attribute Modifier:<br>Backside                                     | 0.044                | 0.069                | 0.095                |
| Liner Color<br>Attribute Modifier:<br>Primary  | Tan                  | Tan                  | Tan                  |
| Adhesive Type<br>Attribute Modifier:<br>Backside   | 300LSE               | 300LSE               | 300LSE               |
| Adhesive Thickness (mm)<br>Attribute Modifier:<br>Faceside                                     | 0.044                | 0.069                | 0.095                |
| Total Tape Thickness without liner (mm)  | 0.1                  | 0.15                 | 0.2                  |
| Carrier Thickness (mm)   | 0.012                | 0.012                | 0.012                |
| Adhesive Carrier   | Clear Polyester      | Clear Polyester      | Clear Polyester      |
| Liner  | 58# Polycoated Kraft | 58# Polycoated Kraft | 58# Polycoated Kraft |
| Liner Thickness (mm)   | 0.1                  | 0.11                 | 0.11                 |

## 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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