

3M™ Dual Lock™ Reclosable Fasteners

Technical Data Sheet



Description

3M™ Dual Lock™ Reclosable Fasteners are positive-locking, blind fasteners designed for attaching automotive trim components. The products feature mushroom-shaped polyolefin stems that snap together, forming a high tensile closure.

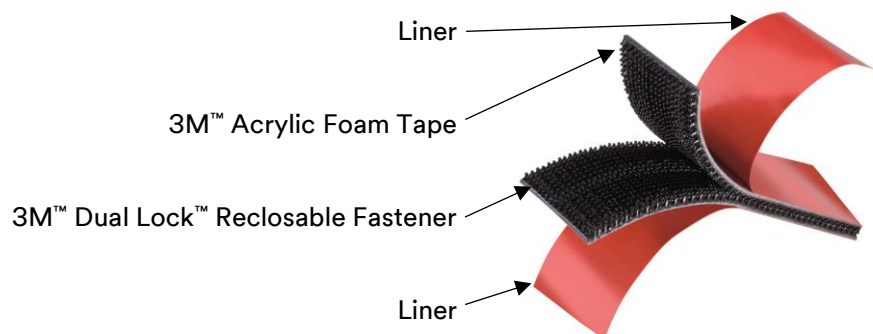
Dual Lock™ Reclosable Fasteners overcome the often difficult alignment and installation problems of screws and hidden fasteners. They offer simple installation with no additional tools required.

Dual Lock™ fasteners are used primarily to secure rigid and semi-rigid surfaces. Dual Lock™ fasteners can replace conventional mechanical fasteners in a wide range of assembly and attachment applications where reclosability is desired. Some examples of applications include:

- Vehicle headliners
- Attaching accessories and equipment
- Attaching window and door trim panels
- Vibration and sound dampening control
- CHMSL—Center High Mounted Stop Light—cover plates
- Center console flanges
- Interior trim
- Sunroof rings

Dual Lock™ Reclosable Fasteners provide a firm bond to a wide variety of surfaces, including, but not limited to those listed above. Since product performance will depend on actual conditions within a specific application, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular material purpose and suitable for the user's method of application.

Product Construction



Product Features

| | |
|---|---|
| Easy Alignment of Parts | Designed to eliminate concerns about misalignment and premature or incomplete engagement while providing easy and firm engagement from any direction. |
| Reclosability | Can be opened and re-closed in high cycle applications. Cycle life is the number of cycles (openings and closings) that the fastener is subjected to while maintaining 50% or greater of the peel values. The cycle life is 1000. |
| Appearance | Able to attach on the backside of a trim piece allowing for blind fastening and an uninterrupted show surface. |
| Vibration Resistance | Dramatically reduces the rattling and vibration of components. |
| Ease of Assembly | Does not require any special tools or equipment; fasteners can be used to attach components before they enter the final assembly plant, thus reducing the number of parts and the length of assembly time. |
| Multiple Attachment Methods | Available in numerous forms, allowing for the ability to be attached to a variety of surface, using different methods. |
| Adjustable Engagement and Disengagement Forces | <ul style="list-style-type: none">• Provides a range of engagement and disengagement forces that can be achieved by combining the different stem densities.• Provides adjustable and proportional engagement and disengagement forces to the engaged area of the fastener. |

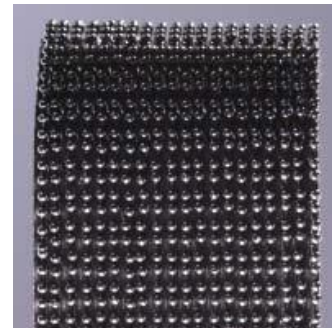
Stem Type



Type 170
170 stems/inch²
(26 stems/cm²)



Type 250
250 stems/inch²
(39 stems/cm²)



Type 400
400 stems/inch²
(62 stems/cm²)



Physical Properties

The following technical information and data should be considered representative or typical only and should not be used for specification purposes. For more information and help selecting a 3M product for an application, please contact a 3M technical service representative.

| Product Number* | Stem Type | Weight oz/in ² (g/cm ²) | Thickness Code | Thickness Unmated +/- 10% | Adhesive System | Adhesive Color | Adhesive Thickness | Liner |
|-----------------|-----------|--|----------------|---------------------------|-----------------|----------------|--------------------|--|
| SJ3758 | 250 | 0.055 (0.24) | 125 | 0.23" (5.7 mm) | AR5 | White | 0.125" (3.18mm) | Clear, 4 mil (0.10 mm) thick silicone treated polyolefin liner |
| SJ3787 | 250 | 0.030 (0.132) | 15 | 0.12" (3.0 mm) | | Dark Gray | 0.015" (0.38 mm) | Red, 4.5 mil (0.11 mm) thick non-silicone treated polyolefin liner |
| SJ3785 | 400 | 0.026 (0.114) | | | | | | |
| SJ3752 | 170 | 0.028 (0.123) | 37 | 0.14" (3.5 mm) | AR7 | White | 0.037" (0.94mm) | Red, 4.5 mil (0.11 mm) thick non-silicone treated polyolefin liner |
| SJ3781 | 250 | 0.030 (0.132) | | | | | | |
| SJ3751 | 400 | 0.032 (0.141) | | | | | | |
| SJ3822 | 170 | 0.028 (0.123) | 37 | 0.14" (3.5 mm) | AR7 | White | 0.037" (0.94mm) | Clear 4 mil (0.10 mm) thick silicone treated polyolefin liner |
| SJ3823 | 250 | 0.030 (0.132) | | | | | | |
| SJ3824 | 400 | 0.032 (0.141) | | | | | | |

*SJ3751, SJ3752, SJ3781 and SJ3785 meet Chrysler specification PF8543 and PF8858
 SJ3751, SJ3752, SJ3758, SJ3781, SJ3785 and SJ3787 meet Ford specification WSB-M15P35 Type III
 SJ3751, SJ3752, SJ3781, SJ3785 and SJ3787 meet GM specification GM3618 and GM2743M

Typical Performance Properties

Performance tests are run using standard test procedures. The values presented are typical values not to be used for specification purposes. Contact a 3M technical service representative for additional information.

| Typical Initial System Dynamic Tensile Strength | 3M™ Dual Lock™ Reclosable Fastener engaged to 3M™ Dual Lock™ Reclosable Fastener | | | |
|--|--|----------------------|----------------------|----------------------|
| | Type 170 to Type 250 | Type 250 to Type 250 | Type 170 to Type 400 | Type 250 to Type 400 |
| Initial Engagement: lb _F /in ² (N/cm ²) | 13 (9.0) | 22 (15.2) | 21 (14.5) | 31 (21.4) |
| Initial Disengagement: lb _F /in ² (N/cm ²) | 27 (18.6) | 43 (29.6) | 43 (29.6) | 60 (41.4) |

| Typical Initial System Dynamic Peel and Cleavage Strength lb _F /in (N/cm) width | 3M™ Dual Lock™ Reclosable Fastener engaged to 3M™ Dual Lock™ Reclosable Fastener | | | |
|--|--|----------------------|----------------------|----------------------|
| | Type 170 to Type 250 | Type 250 to Type 250 | Type 170 to Type 400 | Type 250 to Type 400 |
| Cleavage Strength (rigid to rigid) 2.25" (5.7 cm) long piece | 12 (21.0) | 24 (42.0) | 20 (35.0) | 32 (56.0) |
| "T" Peel Flexible to Flexible | 0.7 (1.2) | 1.9 (3.3) | 1.4 (2.5) | 1.5 (2.6) |
| 90° Peel Flexible to Rigid | 1.8 (3.2) | 4.1 (7.2) | 3.1 (5.4) | 4.6 (8.1) |

Additional Performance Characteristics

| | |
|---|---|
| Resistance to Chemicals | The polypropylene backing, stems and mushroom tops resist attack by most common solvents and alkaline solutions. Tests should be conducted by the user to evaluate the solvents and exposure time expected for the actual application. |
| Flammability Resistance | 3M™ Dual Lock™ Reclosable Fasteners pass FMVSS 302 flammability tests when attached to a thin metal panel. If other standard flammability tests (such as FAR 25.853, ASTM E-162, ASTM E-662, BSS-7239, etc.) are required, please refer to 3M™ Scotchmate™ Flame Resistant Reclosable Fasteners data pages (70-0709-3976-7 and 70-0709-3978-3). |
| Resistance to Environmental Exposure | Temperatures between -20°F (-29°C) and 200°F (93°C) should have minimal effect on strength. To maintain performance when exposed for extended periods of sunlight or ultraviolet radiation, these products should be placed between two opaque or UV-resistant surfaces. Specific testing under the expected environmental conditions is recommended. |
| Resistance to Water or Humidity | Closure strength will not be affected by prolonged exposure to water or humidity. |




Maximum Suggested Static Loading

Laboratory testing indicates that 1 square inch piece of 3M™ Dual Lock™ Reclosable Fastener bonded to a high surface energy substrate will hold a maximum static load of 2.2 pounds at 220°F for 10,000 minutes. Note that these tests were performed with only one force interacting on the sample. These tests do not take into consideration the real world conditions often encountered during normal vehicle operation over the life of a vehicle.

Factors that should be considered for real world use are:

- Additional stresses/forces induced under normal driving conditions (i.e. vibration, humidity, etc.)
- Uneven gapping caused by variations in the application and the assembly of the vehicle or application design
- Extended temperature and humidity cycling over the life of the vehicle
- Misalignment of the mating parts resulting in less engagement area
- A warped mounting surface causing less surface contact with the adhesive

The nature of the acrylic foam tapes used on 3M™ Dual Lock™ Reclosable Fasteners should be considered. 3M™ Pressure Sensitive (PSA) Acrylic Foam Tapes are viscoelastic by nature, and their strength and stiffness are a function of the rate at which they are stressed and the thickness.

| Recommended maximum loading of a 1 square inch piece of Dual Lock Reclosable Fastener with PSA backing | | | | | |
|--|--|---|--|---|---|
|  | Tensile Static Force Suggested Static Loading (per 1 in ²) = 1.1 lbs (500 grams) |  | Shear Static Force Suggested Static Loading (per 1 in ²) = 0.7 lbs (333 grams) |  | Cleavage Static Force Suggested Static Loading (per 1 in ²) = 0.6 lbs (250 grams) |

Note: These suggestions should be considered a starting point for a design and are influenced by tape thickness and area. It is important to design in additional safety factors for real world conditions.

Rolls Lengths and Widths

3M™ Dual Lock™ Reclosable Fastener Roll Goods with Pressure-Sensitive Adhesive are available in a standard roll length of 50 yards (45.7 meters). Minimum width is ½" (12.7 mm).

| Product | Standard Widths +/- 1/16" (+/- 1.6mm) | | | | | |
|---------|---------------------------------------|-----------------|----------------|------------------|----------------|-----------------|
| | 0.5 in (12.7 mm) | 0.75 in (19 mm) | 1 in (25.4 mm) | 1.5 in (38.1 mm) | 2 in (50.8 mm) | 6 in (152.4 mm) |
| SJ3758 | | | ● | | ● | ● |
| SJ3787 | | | ● | | | ● |
| SJ3785 | | | ● | | ● | ● |
| SJ3752 | ● | ● | ● | | ● | ● |
| SJ3781 | ● | ● | ● | ● | ● | ● |
| SJ3751 | ● | ● | ● | | ● | ● |
| SJ3822 | | | ● | | ● | ● |
| SJ3823 | | | ● | | ● | ● |
| SJ3824 | | | ● | | ● | ● |

Shelf Life

XXXXXXXXXXXX from date of manufacture when stored at 4°C–38°C (40°F–100°F) and 0–95% relative humidity. The optimum storage conditions are 22°C (72°F) and 50% relative humidity.

Regulatory Information

Please refer to the product label and Safety Data Sheet (SDS) for health and safety information before using. Observe proper handling precautions as outlined in the SDS, which is available on request or at www.3M.com/msds.

The product is published as a material entry and is available for access on www.mdsystem.com. For product IMDS I.D. number, email requests to 3M-IMDSrequest@mmm.com.

Contact Information

The information provided in this technical document is intended as a guide for this product. For more information or help in selecting a 3M product for an application, please contact your 3M technical service representative or call 1-800-328-1684.

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