



Dual Lock™ Reclosable Fasteners

SJ3557 (Type 170)

SJ3558 (Type 250)

SJ3559 (Type 400)

Product Information

February, 2009

Product Description

3M™ Dual Lock™ Reclosable Fasteners offer advanced closure alternatives to zippers, screws, snaps, hooks, bolts and more. They offer greater design flexibility, faster product assembly, smoother and cleaner exterior surfaces and improved product performance in many applications. The Dual Lock reclosable fasteners consist of continuous polyolefin strips with polyolefin stems having a mushroom shaped top. The mushroom heads allow the Dual Lock reclosable fasteners to easily slide over each other allowing positioning of parts before they are snapped together creating a firm fastening attachment. Simply peel the pieces apart by hand to disengage.

There are three types (170, 250 and 400) of these Dual Lock reclosable fasteners referring to the approximate number of stems per square inch.

These Dual Lock reclosable fasteners can be mated in the following combinations of increasing closure strength: Dual Lock reclosable fastener type 170 to type 250, type 250 to type 250, type 170 to type 400 and type 250 to type 400.

In some cases mating with 3M™ Scotchmate™ Reclosable Fasteners Loop provides a quick grab – low engagement force with a high closure strength, but reduced cycle life. **It is not recommended to combine Dual Lock reclosable fastener type 170 to type 170 or type 400 to type 400.

These Dual Lock reclosable fasteners have a 37 mil white conformable acrylic foam adhesive providing good contact with substrates having a slight texture or surface irregularities. The adhesive is protected with a removable liner, a clear silicone treated liner on the Dual Lock reclosable fasteners SJ3557, SJ3558 and SJ3559.

Product Construction

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

Product Number	3M™ Dual Lock™ Reclosable Fastener		
	SJ3557 (Type 170)	SJ3558 (Type 250)	SJ3559 (Type 400)
Material of Construction	Dual Lock Adhesive		
	Clear Polypropylene White Acrylic Foam Adhesive		
Thickness Unmated ± 15% w/o liner	0.14" (3.5 mm)		
Selvedge Edges	None		
Weight w/o liner	0.028 oz/in ² (0.123 g/cm ²)	0.030 oz/in ² (0.132 g/cm ²)	0.032 oz/in ² (0.142 g/cm ²)
Liners	Clear 4 mil (0.10 mm) thick silicone treated polyolefin liner printed with 3M Dual Lock in red.		
ENGAGED THICKNESS (Nominal w/o liner)	Inches (mm) ± Tolerance		
Compression Mode	.215 (5.46)		
Tensile Mode	0.237 (6.02)		
CLOSURE CYCLE LIFE	1,000 openings and closings that the Dual Lock reclosable fastener is subjected to while maintaining 50% or greater of the original tensile values.		
SHELF LIFE	24 months from date of manufacture when stored in original packaging at 72°F (22°C) and 50% relative humidity.		

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Typical System Performance Physical Properties and Performance Characteristics

Note: The following technical information and data is intended as a user guide representing typical performance and should not be used for specifications.

Unless stated differently, typical performance characteristics were measured under controlled laboratory conditions of 72°F (22°C) and 50% Relative Humidity to obtain maximum reliability. The user should evaluate products in the actual application to ensure suitable performance for the intended use.

Typical System Performance

Product Number	3M™ Dual Lock™ Reclosable Fasteners		
	SJ3557 (Type 170) engaged to SJ3558 (Type 250)	SJ3558 (Type 250) engaged to SJ3558 (Type 250)	SJ3558 (Type 250) engaged to SJ3559 (Type 400)
TENSILE (Rigid to Rigid Substrates)			
	lbs _F /sq inch (Newtons/cm ²) @ 72°F/50% RH:		
Dynamic Tensile Engagement Strength	13 (9)	22 (15.2)	31 (22)
Dynamic Tensile Disengagement	27 (19)	43 (30)	60 (42)
Static Tensile Holding Power	Holds minimum 2.2 #/in ² (155 grams/cm ²) for indicated time and temperature		
100°F/100% RH	10,000 minutes	10,000 minutes	10,000 minutes
220°F	10,000 minutes	10,000 minutes	10,000 minutes
SHEAR (Rigid to Rigid Substrates)			
	lbs _F /sq inch (Newtons/cm ²):		
Dynamic Shear (1" x 1" overlap)	16 (11)	30 (21)	43 (30)
Static Shear Holding Power (1" x 1" overlap)	Holds minimum 2.2 #/in ² (155 grams/cm ²) for indicated time and temperature		
100°F/100% RH	7,200 minutes	10,000 minutes	10,000 minutes
200°F	10,000 minutes	10,000 minutes	10,000 minutes
220°F	300 minutes	10,000 minutes	10,000 minutes
PEEL AND CLEAVAGE			
	Pounds/inch width (grams/cm width)		
Cleavage Strength (Rigid to Rigid)	12 (2,150)	25 (4,468)	40 (7,167)
Peel Strength ("T" Peel, Flexible to Flexible)	0.7 (125)	1 (179)	1.5 (270)
Peel Strength (90° Peel, Flexible to Rigid)	1.8 (320)	3.5 (627)	4.6 (820)

Note: Long Term Static Load: Conditions such as temperature variations, engagement area, supported weight, forces on the closure vibrations or side to side movement after engagement or exposure to prolonged periods of moisture, ultraviolet or other environmental factors can affect the closure strength and long term static load performance. 3M™ Dual Lock™ Reclosable Fasteners may slip or creep in the direction of the static load forces when subjected to static load forces temperatures or weights greater than indicated. The user is responsible for designing the amount of fastening area based upon the specific conditions for the application. Four square inches of fastening area per pound (57.3 sq. cm/kilogram) of static load is suggested as a starting point for such evaluations.

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Additional Performance Characteristics

Note: The following technical information and data is intended as a user guide representing typical performance and should not be used for specifications.

Solvent Resistance: The polypropylene backing, stems and mushroom top resist attack by most common solvents and alkaline solutions. The adhesive on these 3M™ Dual Lock™ Reclosable Fasteners could be affected by some common laboratory solvents and transportation fluids (gasoline, motor oil, etc.). Tests should be conducted by the user to evaluate the solvents and exposure time expected for the actual application.

Plasticizer Resistance: The adhesive on these Dual Lock reclosable fasteners has reasonable resistance to plasticizers found in many common flexible vinyls or other materials containing high levels of plasticizing materials. Tests should be conducted by the user to evaluate the plasticizer resistance for the chosen application, environmental exposure and duration for the actual application. Other products to evaluate for plasticizer resistance is the family of 3M™ Dual Lock™ Reclosable Fasteners SJ3560, SJ3550CF or 3M™ Scotchmate™ Reclosable Fasteners SJ3522 and SJ3523.

Flammability Resistance: 3M™ Dual Lock™ Reclosable Fasteners SJ3557, SJ3558 and SJ3559 pass FMVSS 302 flammability tests when attached to a thin metal panel. If you need reclosable fasteners that pass many of the other standard flammability tests (such as FAR 25.853, ASTM E-162, ASTM E-662, BSS-7239, etc.), it is suggested that you refer to 3M™ Scotchmate™ Flame Resistant Reclosable Fasteners Data Pages (70-0709-3976-7 and 70-0709-3978-3).

Environmental Effects: Temperatures down to -20°F (-29°C) increase the typical closure strengths. These products perform well under long term exposure to sunlight or ultraviolet radiation. Specific testing under the expected environmental conditions is recommended.

Water (Humidity) Resistance: Closure strength should not be affected by prolonged exposure to water or humidity. Once bonded to the substrate the adhesive has excellent resistance to moisture under typical use conditions. Exposure to elevated heat and chlorine or bromine may compromise the adhesive performance to the Dual Lock reclosable fasteners.

Volatile Outgassing: Volatile outgassing, as per ASTM E595, is one important test in determining the suitability of materials for spacecraft. Generally these products have low volatile outgassing values. Products tested at the Goddard Space Flight Center can be found at the following web site:
<http://epims.gsfc.nasa.gov/og-cgi/sectionb/sectionb.html.sh>.

Sterilization/Autoclaving: These Dual Lock reclosable fastener products have not been tested for performance after sterilization or autoclaving processes. It is recommended that the customer evaluate the suitability of the Dual Lock reclosable fastener product for these characteristics typical of what is expected for normal usage.

Washing and Dry Cleaning: The adhesive present on these Dual Lock reclosable fastener products typically make them unsuitable to washing or dry cleaning processes.

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Attachment Techniques

Note: The following technical information and data is intended as a user guide representing typical performance and should not be used for specifications.

The following information is intended to assist the designer considering the use of 3M™ Dual Lock™ Reclosable Fasteners. Final product performance depends on actual conditions, including the Dual Lock reclosable fastener selected, the conditions in which the Dual Lock reclosable fastener is applied, the time and environmental conditions in which it is expected to perform. Because many of these factors are uniquely within the user's knowledge and control, it is required that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application and desired end use.

As a general rule, four square inches of Dual Lock reclosable fastener area per pound of static load to be supported is suggested as a starting point for evaluation. More or less area may be needed depending on specific conditions or end use applications. The Dual Lock reclosable fasteners and substrates surfaces should have equilibrated for a minimum of 1 hour at temperatures of 68°F (20°C) or greater before application. Generally these adhesive backed Dual Lock reclosable fasteners should be applied to surfaces that are smooth, dry and free of oils, mold release agents or other surface contaminants. After the substrate has been cleaned and dried, the liner is removed from the Dual Lock reclosable fastener's adhesive and without touching the adhesive, the Dual Lock reclosable fastener's adhesive is applied to the surface using light finger pressure. The Dual Lock reclosable fastener is rolled down with pressure to increase contact of the adhesive with the substrate's surface. Adhesive bond strength increases with time, pressure and temperature. A minimum of twenty four hours dwell time is recommended before applying a load or disengaging assembled parts, 72 hours is the recommended time to achieve maximum bond strength.

Available Sizes

Standard Widths on 3 Inch Core	Roll Length
1" (25.4 mm)	50 yds. (45.7 meters)
6" (152.4 mm)	50 yds. (45.7 meters)

**It is not recommended to engage Dual Lock reclosable fastener type 250 to type 250 for widths of 0.75" or narrower. If these narrow widths are required, it is suggested that any of the following combinations be evaluated: Dual Lock reclosable fastener type 170 to 250, 250 to 400 or 170 to 400.

Application Ideas

3M™ Dual Lock™ Reclosable Fasteners can replace conventional mechanical fasteners in a wide range of assembly and attachment applications where reclosability is desired. They provide a firm adhesive bond to a wide variety of surfaces. Because product performance will depend on actual conditions within any 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.

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Certification/ Recognition

MSDS: 3M has not prepared an MSDS for this product which is not subject 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, the product should not present a health or 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 or safety hazards.

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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ISO 9001:2000 - ISO/TS 16949:2002

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