



# Dual Lock™ Reclosable Fasteners

SJ3872 (Type 170)

SJ3870 (Type 250)

SJ3871 (Type 400)

*Dual Lock Reclosable Fastener with high strength modified acrylic adhesive*

**Product Information** **June, 2010**

**Product Description** 3M™ Dual Lock™ Reclosable Fasteners consist of a continuous polyolefin film backing with mushroom shaped stems protruding up from the backing. When pressed together these mushroom shaped stems interlock to provide you with a strong reliable attachment. There are three different stem densities (170, 250 and 400) offered with these fasteners, referring to the approximate number of stems per square inch.

Dual Lock reclosable fasteners can be mated in the following combinations of increasing closure strength: type 170 to type 250, type 250 to type 250, type 170 to type 400 and type 250 to type 400. Dual Lock reclosable fasteners can combine with 3M™ Scotchmate™ Reclosable Fastener Loop to form a limited use closure.

3M™ Dual Lock™ Reclosable Fasteners SJ3870, SJ3871, and SJ3872 have a high strength modified acrylic adhesive which will bond to a variety of high surface and medium surface energy plastics, metals, powder coat surfaces, and more with little or no surface preparation.

**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		
	SJ3872	SJ3870	SJ3871
<b>Type: Approx. Stems/in<sup>2</sup> (Stems/cm<sup>2</sup>)</b>	170 (26)	250 (39)	400 (62)
<b>Material of Construction</b>			
Stem/Heads	Black Polypropylene		
Backing	Black Polypropylene		
Adhesive	Black 3M™ Modified Acrylic Foam Adhesive		
<b>Thickness without liner</b>			
Unmated ± 10%	0.145 inch (3.7 mm)		
Engaged	0.240 inch (6.1 mm)		
Liner	5.0 mil (0.13 mm) thick red silicone treated polyolefin		
<b>Weight grams/in<sup>2</sup> without liner</b>	0.85	0.89	0.98
<b>Closure Cycle Life</b>	1,000		
Number of opening and closings before losing 50% of original tensile strength			
<b>Shelf Life</b>	24 months from date of manufacture when stored at 72°F (22°C) with 50% RH.		

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**System Performance**      **Note: The following technical information and data is intended as a guideline to assist customers for further evaluation. This technical information is not product release specifications or standards.**

3M™ Dual Lock™ Reclosable Fastener Combination:	SJ3872 / SJ3870 Type 170 / 250	SJ3872 / SJ3871 Type 170 / 400	SJ3870 / SJ3870 Type 250 / 250	SJ3870 / SJ3871 Type 250 / 400
<b>INITIAL TENSILE (Rigid to Rigid Substrates)</b>		<b>Pounds<sub>F</sub>/sq inch (Newtons/cm<sup>2</sup>)</b>		
Dynamic Tensile Engagement Force	13 (9)	21 (14.5)	22 (15)	31 (22)
Dynamic Tensile Disengagement Force	27 (19)	43 (30)	43 (30)	60 (42)
Static Tensile Holding Power	Holds minimum 1000 grams/in <sup>2</sup> for indicated time and temperature			
72°F (22°C)	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
100°F (38°C)/100% RH	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
180°F (82°C)	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
<b>INITIAL SHEAR (Rigid to Rigid Substrates)</b>		<b>Pounds<sub>F</sub>/sq inch (Newtons/cm<sup>2</sup>)</b>		
Dynamic Shear (1" x 1" overlap)	14 (9.8)	21 (14.5)	22 (15)	59 (41.3)
Static Shear Holding Power	Holds minimum 750 grams/in <sup>2</sup> for indicated time and temperature			
72°F (22°C)	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
100°F (38°C)/100% RH	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
180°F (82°C)	10,000 minutes	10,000 minutes	10,000 minutes	10,000 minutes
<b>PEEL AND CLEAVAGE</b>		<b>Pounds/inch width</b>		
Cleavage Strength (Rigid to Rigid) - 2.25" long	12	24	24	35
Peel Strength ("T" Peel, Flexible to Flexible)	0.5	1.0	1.0	1.5
Peel Strength (90° Peel, Flexible to Rigid)	1.5	3.0	3.0	3.5

## Typical Adhesive Performance

90 degree peel adhesion runs at 12 inches per minute  
4.5 lb rolled twice

Pounds per inch width	Stainless Steel	Polycarbonate	ABS
Initial (15 minutes)	20	15	10
72 hour dwell at 72°F (22°C)	25	25	25
72 hour dwell at 158°F (70°C)	30	20	25

Typical values not specifications.

**Note: Unless stated differently, the typical system performance and product properties were obtained using specific test methods under controlled laboratory conditions of 72°F ± 5°F and 50% ± 10% relative humidity. The user is responsible for evaluating 3M™ Dual Lock™ Reclosable Fasteners under expected use conditions to ensure suitable performance for the intended application.**

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## Design Considerations

The following information is intended to assist the designer considering the use of 3M™ Dual Lock™ Reclosable Fasteners with pressure sensitive adhesive. Product performance depends upon a number of factors, including the Dual Lock reclosable fastener selected, the conditions in which the Dual Lock reclosable fastener is applied and the time and environment 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 3M products to determine whether it is fit for a particular purpose and suitable for the users substrates, method of application and desired end use.

It is suggested that 4 square inches of Dual Lock reclosable fastener per 1 pound of static load be used as a starting point when determining how much Dual Lock reclosable fastener to use on any particular application. The amounts may be adjusted up or down depending on the needs of the specific applications

## Surface Preparation

The amount and type of surface preparation required will depend upon the surfaces to which 3M™ Dual Lock™ Reclosable Fasteners SJ3870, SJ3871 and SJ3872 are attached and expected product use exposure conditions. This modified acrylic has been found to adhere with little or no surface preparation to a wide variety of substrates. 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.

**Resistance to Chemicals:** The polyolefin backing stems and mushroom top should resist attack by most common solvents and alkaline solutions. The adhesive on Dual Lock reclosable fasteners SJ3870, SJ3871 and SJ3872 may 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.

**Resistance to Environmental Exposure:** Temperatures between -20°F (-29°C) and 180°F (82°C) should have minimal affect on closure strength. To maintain performance when exposed for extended periods to 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 should not be affected by prolonged exposure to water or humidity. Once bonded to the substrate, the adhesive has high 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.

**Washing and Dry Cleaning:** The adhesive present on these Dual Lock reclosable fastener products typically make them unsuitable to washing or dry cleaning processes. The adhesive may soften during the cleaning process, potentially leaving adhesive residues on other material. The mushroom topped stems may also be easily entangled with loop or fabric present, potentially damaging these materials when they are separated.

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## 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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