

# 3M

# Dual Lock™

# Reclosable Fasteners

Technical Data

August, 2000

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## Type 250 Stem Pattern (Self-Engaging)

### Clear Products:

**SJ-3460:** Plainbacked (no adhesive)

**SJ-3560:** With Clear, 3M™ VHB™ Tape adhesive system

### Black Products:

**SJ-3440:** Plainbacked (no adhesive)

**SJ-3540:** With synthetic rubber adhesive system

**SJ-3550:** With VHB tape adhesive system

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## General Description

3M™ Dual Lock™ Reclosable Fasteners consist of continuous strips of plastic backing, with plastic mushroom shaped stems protruding up from the backing strip. When two pieces of Dual Lock fasteners are pressed together, the mushroom heads interlock with one another, with an audible snap. To open, simply pull apart. This provides fast, secure reclosable fastening performance for a wide range of applications. Cycle life exceeds 1000 reclosures.

Dual Lock Reclosable Fasteners can replace conventional fasteners such as screws, clips, rivets, snaps and bolts in many applications. Plainbacked Dual Lock Fasteners are sewn or stapled in place. Other Dual Lock Fasteners are supplied with an adhesive backing for cost-effective installation on many substrates. Simply peel off the liner and press in place.

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## Key Features

- Interlocking mushroom heads for fast, cost-effective reclosable fastening
- Self-engaging Type 250 stem pattern: Only one product to purchase and inventory
- High performance VHB tape adhesive systems on SJ-3550 and SJ-3560
- Clear product for color compatibility (SJ-3460 and SJ-3560 Fasteners)
- U.V. resistance
- Plasticizer resistant adhesive attachment to many flexible vinyls with SJ-3550 and SJ-3560 Fasteners

# 3M™ Dual Lock™ Reclosable Fasteners

## Typical Physical Properties

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

	<b>SJ-3460</b>	<b>SJ-3560</b>	<b>SJ-3440</b>	<b>SJ-3540</b>	<b>SJ-3550</b>
Materials:	polyolefin	polyolefin	polyolefin	polyolefin	polyolefin
Fastener:	polyolefin	polyolefin	polyolefin	polyolefin	polyolefin
Adhesive:	none	VHB™ tape	none	synthetic rubber	VHB™ tape
Liner:	none	clear PP & red 3M logo	none	white polyolefin	clear PE & red 3M logo
Width, inches (mm):	1 (25) 2 (51) 4 (102)	1 (25) 2 (51) 4 (102)	1 (25) 2 (51) 4 (102)	1 (25) 2 (51) 4 (102)	1 (25) 2 (51) 4 (102)
Color:	clear	clear	black	black	black
Weight, grams/1" x 1": (grams/25 mm x 25 mm)	0.5	1.1	0.5	0.7	0.9
Engaged Thickness, inches (mm): (mated to itself)	0.16 (4.1)	0.23 (5.8)	0.16 (4.1)	0.23 (5.8)	0.23 (5.8)
Cycle Life (engaged to itself):	1000+	1000+	1000+	1000+	1000+
U.V. Resistance (ASTM D2565): (Xenon arc weatherometer)	1000 hrs	1000 hrs	1000 hrs	not rated	1000 hrs
Plasticizer Resistance:	yes	yes	yes	no	yes
Flame Resistance: FAR 25.853: FMVSS:	(a)(1)(iv) 302	(a)(1)(ii) 302	(a)(1)(iv) 302	(a)(1)(iv) 302	(a)(1)(iv) 302
(SJ-3560, SJ-3540 and SJ-3550 Fasteners were tested for flame resistance after being adhered to thin metal panels).					
Shelf Life:*	24 months	24 months	24 months	18 months	24 months
*From date of manufacture when stored in original packaging at 70°F (21°C) and 50% R.H.					
Solvent Resistance: Splash testing cycle- 20 seconds submersion- 20 seconds air dry-3 cycles.	No apparent degradation of Dual Lock Reclosable Fastener when exposed to splash testing with many common solvents, including gasoline, JP-4 jet fuel, mineral spirits, motor oil, ammonia cleaner, acetone, methyl ethyl ketone (MEK).				

## Typical Performance Characteristics

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

<b>System Dynamic Closure Performance</b>	<b>SJ-3460</b>	<b>SJ-3560</b>	<b>SJ-3440</b>	<b>SJ-3540</b>	<b>SJ-3550</b>
Dynamic Tensile Disengagement: Lbs/force/square inch (k Newtons/m <sup>2</sup> )	38 (262)	38 (262)	30 (207)	30 (207)	30 (207)
Each product was mated to itself with firm pressure, and disengaged at a rate of 12 inches (305 mm)/minute.					
<b>System Static Closure Performance</b>	<b>SJ-3460</b>	<b>SJ-3560</b>	<b>SJ-3440</b>	<b>SJ-3540</b>	<b>SJ-3550</b>
Static Shear: Grams/sq. inch:					
Will hold listed weight at listed temperature for 10,000 minutes	-20°F (-29°C) 1000 72°F (22°C) 1000 120°F (49°C) 1000 200°F (93°C) 500	1000 1000 1000 1000 500	1000 1000 1000 1000 500	1000 1000 500 -	1000 1000 1000 500
Static Tensile: Grams/sq. inch:					
Will hold listed weight at listed temperature for 10,000 minutes	-20°F (-29°C) 1000 72°F (22°C) 1000 120°F (49°C) 1000 200°F (93°C) 500	1000 1000 1000 1000 500	1000 1000 1000 1000 500	1000 1000 500 -	1000 1000 1000 500

Each product was attached to aluminum and stainless steel panels, then engaged to itself in Tensile or Shear modes. Tests were conducted at the temperatures and gram loadings listed.

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## Typical Performance Characteristics (continued)

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

### For Long Term Static Load Applications

In static load applications, conditions such as temperature variation, jarring, vibration, etc. can affect long term performance. The user should design the amount of fastening area based on the specific conditions in the application. Four square inches of fastening area per pound of static load is suggested as a starting point for such evaluations.

## Application Techniques

**Note:** When using 3M™ Dual Lock Reclosable Fastener SJ-3550 or SJ-3560 on plasticized vinyl (flexible PVC), evaluation for plasticizer migration over time is recommended. Adhere the Dual Lock fasteners to the vinyl and age for 7 days at 158°F (70°C) and inspect for signs of plasticizer migration.

To obtain optimum bond to any surface, apply above 68°F (20°C). All surfaces must be clean, dry, and free of oil, grease, dust etc. Remove protective liner and press firmly onto the substrate for full surface contact. Use of a roller to help ensure full contact of adhesive on substrate is recommended.

Adhesive bond strength increases with time, as the adhesive flows into the structure of the substrate. Handling strength is achieved immediately. At room temperature, approximately 50% of ultimate bond strength is achieved in the first 20 minutes, 90% after about 24 hours and 100% after about 72 hours.

### Mechanical Attachment

Dual Lock reclosable fasteners SJ-3440 and SJ-3460 are plainbacked products. They can be stapled in place or sewn to fabrics. They can also be ultrasonically welded to polypropylene plastic.

## General Information

This information is intended to assist the designer considering Dual Lock reclosable fasteners. Actual product performance will depend on a variety of factors including the fastener selected, the conditions in which the fastener is applied, and 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 essential that the user evaluate the Dual Lock reclosable fasteners to determine whether it is fit for a particular purpose and suitable for user's method of application.

### Pressure Sensitive Adhesive Attachment

Dual Lock reclosable fasteners supplied with a pressure sensitive adhesive system can be conveniently bonded to a wide variety of materials, including but not limited to the following:

	SJ-3540	SJ-3550	SJ-3560		SJ-3540	SJ-3550	SJ-3560
Bare Metals	✓	✓	✓	Plastics:			
Painted Metals	✓	✓	✓	ABS	✓	✓	✓
Fiberglass	✓	✓	✓	Acrylic	✓	✓	✓
Structural Composites	✓	✓	✓	Polycarbonate	✓	✓	✓
Glass	✓	✓	✓	Polystyrene	✓	✓	✓
Sealed Wood	✓	✓	✓	Rigid Vinyl	✓	✓	✓
Powder Paint	✓	–	–	Plasticized Vinyl	–	✓	✓
				Polyethylene	✓	–	–
				Polypropylene	✓	–	–
				Powder Paint	✓	–	–

# 3M™ Dual Lock™ Reclosable Fasteners

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## Application Idea

3M™ Dual Lock™ Reclosable Fasteners have been used extensively in transportation, electronics, business equipment, machinery, medical, and sign & display markets, as well as other markets. Dual Lock Fasteners can replace conventional mechanical fasteners in a wide range of reclosable assembly and attachment applications.

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## Certification/ Recognition

**MSDS:** 3M has not prepared a MSDS for the Dual Lock Reclosable Fasteners which are 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, these products should not present a health and safety hazard. However, use or processing of the products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.

**TSCA:** These products are defined as articles under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

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## For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to: 3M Bonding Systems Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-809-750-3000. In Mexico, phone: 5-728-2180.

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## Important Notice

3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential 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.

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## Limitation of Remedies and Liability

If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty, or strict liability.

ISO 9002

This Bonding Systems Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



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Printed in U.S.A.  
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