



Dual Lock™ Reclosable Fasteners

Roll Goods with Pressure Sensitive Adhesive

Technical Data Sheet

June 2012

General 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 are used primarily to secure rigid and semi-rigid surfaces such as trim or door panels, instrument panel bezels, headliners, and other automotive interior and exterior trim.

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.

Applications Dual Lock Reclosable Fasteners can replace conventional mechanical fasteners in a wide range of assembly and attachment applications where reclosability and serviceability is desired. Some examples of applications include:

- Vehicle headliners
- Attaching accessories and equipment
- Attaching window and door trim panels
- Vibration and sound damping control
- CHMSL cover plates
- Center console flanges
- Interior trim
- Sunroof rings

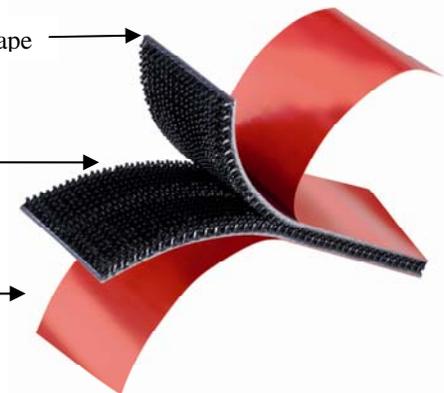
Dual Lock Reclosable Fasteners with pressure sensitive adhesive backing provide a firm adhesive bond to a wide variety of surfaces, including, but not limited to those listed above. Since product performance will depend on actual conditions within a specific application, it is essential that the user 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

3M™ Pressure Sensitive Acrylic Foam Tape

3M™ Dual Lock™ Fasteners

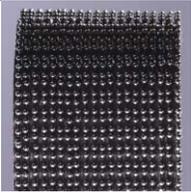
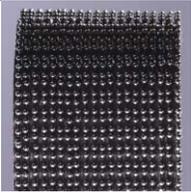
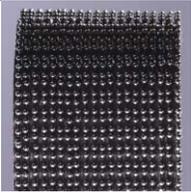
Liner



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Product Features:	Easy Alignment of Parts:	Provides easy and firm engagement from any direction.						
	Reclosability:	Can be opened and re-closed in high cycle applications.						
	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, such as a variety of mechanical fastener backed options, non-woven backed, pressure sensitive adhesive backed or ultrasonic weldable. This provides the ability to attach to a variety of surfaces, using different methods.						
Adjustable Engagement and Disengagement Forces:	Combinations of stem densities and the engaged area provide adjustable and proportional engagement and disengagement forces.							
Variety of Stem Densities:	<table border="1" style="width: 100%; text-align: center;"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>Type 170 170 stems/inch² (26 stems/cm²)</td> <td>Type 250 250 stems/inch² (39 stems/cm²)</td> <td>Type 400 400 stems/inch² (62 stems/cm²)</td> </tr> </table>					Type 170 170 stems/inch ² (26 stems/cm ²)	Type 250 250 stems/inch ² (39 stems/cm ²)	Type 400 400 stems/inch ² (62 stems/cm ²)
								
Type 170 170 stems/inch ² (26 stems/cm ²)	Type 250 250 stems/inch ² (39 stems/cm ²)	Type 400 400 stems/inch ² (62 stems/cm ²)						

Product Information and 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/ounces/in ² (grams/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

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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:	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.

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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 Dual Lock mating parts resulting in less engagement area, and
- A warped mounting surface causing less surface contact with the Dual Lock adhesive.

The nature of the acrylic foam tapes used on 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.

3M suggests that the maximum loading of a 1 square inch piece of Dual Lock Reclosable Fastener with PSA backing should be:

Static Force	Example	Suggested Static Loading (per 1 in ²)
Tensile		1.1 lbs (500 grams)
Shear		0.7 lbs (333 grams)
Cleavage		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.

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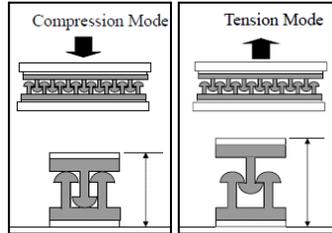
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3M™ Dual Lock™ Reclosable Fasteners Product Thickness Chart

When loading exceeds gap tolerance, risk of field failure increases significantly. To reduce this risk, select products that, when engaged, fall within the tension or compression thickness window defined by the table below.

Thickness codes for each product may be found in the product information section.



Typical Stack-Up Engaged Thickness (mm): Tension (T) and Compression (C) Modes +/- 10%																		
Product #1 Thickness Code	Engaged Mode	Product #2 Thickness Code																
		0	5	15	37	45	60	80	84	90	97	99	100	104	110	114	125	134
0	Tension	4.14	4.27	4.52	5.08	5.28	5.66	6.17	6.27	6.43	6.60	6.65	6.68	6.78	6.93	7.04	7.32	7.54
	Compression	3.58	3.71	3.96	4.52	4.72	5.11	5.61	5.72	5.87	6.05	6.10	6.12	6.22	6.38	6.48	6.76	6.99
5	Tension		4.39	4.65	5.21	5.41	5.79	6.30	6.40	6.55	6.73	6.78	6.81	6.91	7.06	7.16	7.44	7.67
	Compression		3.84	4.09	4.65	4.85	5.23	5.74	5.84	5.99	6.17	6.22	6.25	6.35	6.50	6.60	6.88	7.11
15	Tension			4.90	5.46	5.66	6.05	6.55	6.65	6.81	6.99	7.04	7.06	7.16	7.32	7.42	7.70	7.92
	Compression			4.34	4.90	5.11	5.49	5.99	6.10	6.25	6.43	6.48	6.50	6.60	6.76	6.86	7.14	7.37
37	Tension				6.02	6.22	6.60	7.11	7.21	7.37	7.54	7.59	7.62	7.72	7.87	7.98	8.26	8.48
	Compression				5.46	5.66	6.05	6.55	6.65	6.81	6.99	7.04	7.06	7.16	7.32	7.42	7.70	7.92
45	Tension					6.43	6.81	7.32	7.42	7.57	7.75	7.80	7.82	7.92	8.08	8.18	8.46	8.69
	Compression					5.87	6.25	6.76	6.86	7.01	7.19	7.24	7.26	7.37	7.52	7.62	7.90	8.13
60	Tension						7.19	7.70	7.80	7.95	8.13	8.18	8.20	8.31	8.46	8.56	8.84	9.07
	Compression						6.63	7.14	7.24	7.39	7.57	7.62	7.65	7.75	7.90	8.00	8.28	8.51
80	Tension							8.20	8.31	8.46	8.64	8.69	8.71	8.81	8.97	9.07	9.35	9.58
	Compression							7.65	7.75	7.90	8.08	8.13	8.15	8.26	8.41	8.51	8.79	9.02
84	Tension								8.41	8.56	8.74	8.79	8.81	8.92	9.07	9.17	9.45	9.68
	Compression								7.85	8.00	8.18	8.23	8.26	8.36	8.51	8.61	8.89	9.12
90	Tension									8.71	8.89	8.94	8.97	9.07	9.22	9.32	9.60	9.83
	Compression									8.15	8.33	8.38	8.41	8.51	8.66	8.76	9.04	9.27
97	Tension										9.07	9.12	9.14	9.25	9.40	9.50	9.78	10.01
	Compression										8.51	8.56	8.59	8.69	8.84	8.94	9.22	9.45
99	Tension											9.17	9.19	9.30	9.45	9.55	9.83	10.06
	Compression											8.61	8.64	8.74	8.89	8.99	9.27	9.50
100	Tension												9.22	9.32	9.47	9.58	9.86	10.08
	Compression												8.66	8.76	8.92	9.02	9.30	9.53
104	Tension													9.42	9.58	9.68	9.96	10.19
	Compression													8.86	9.02	9.12	9.40	9.63
110	Tension														9.73	9.83	10.11	10.34
	Compression														9.17	9.27	9.55	9.78
114	Tension															9.93	10.21	10.44
	Compression															9.37	9.65	9.88
125	Tension																10.49	10.72
	Compression																9.93	10.16
134	Tension																	10.95
	Compression																	10.39

Roll Widths and Lengths

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 1/2" (12.7 mm).

Product Number	Standard Widths +/- 1/16" (+/- 1.6mm)					
	1/2" (12.7mm)	3/4" (19mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	6" (152.4mm)
SJ3758			X		X	X
SJ3787			X			X
SJ3785			X		X	X
SJ3752	X	X	X		X	X
SJ3781	X	X	X	X	X	X
SJ3751	X	X	X		X	X
SJ3822			X		X	X
SJ3823			X		X	X
SJ3824			X		X	X

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Contact Information	The information provided in this technical document is intended as a guide for this product. For more information, and help selecting a 3M product for an application, please contact your 3M technical service representative.
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