

3M

Dual Lock™ Reclosable

Fasteners Data Page

Technical Data

March 2014

SJ3540/41	Standard Dual Lock type 250/400
SJ3550/51/52	Standard Dual Lock type 250/400/170
SJ3560	Standard Dual Lock type 250
SJ4570	Low Profile Dual Lock

Product Description

3M™ Dual Lock™ Reclosable Fasteners are positive locking, hidden fasteners designed for use in a variety of attachment solutions. They consist of continuous strips of polyolefin stems with a mushroom shaped top protruding up from the backing. When snapped together the mushroom shaped caps interlock producing a strong reliable Fastener.

There are three different stem densities of the standard fasteners (170, 250 and 400) referring to the approximate number of stems per square inch. (26, 39, 62 stems per square centimeter) By inter-locking different stem density combinations you can create the strength that suits your application; more total stems give higher strength. The Dual Lock Reclosable fasteners can be mated in the following combinations of increasing closure strength: Type 170 to Type 250, Type 170 to Type 400, Type 250 to Type 250 and Type 250 to Type 400. We do not recommend using the type 170 to 170 because it does not have enough strength for a good connection. We do not recommend using the type 400 to 400 because it is too strong and may cause stems and heads to break off rendering the fastener no longer reclosable.

The 3M Dual Lock Low Profile has one stem density of approximately 705 stems per square inch and they have been designed to interlock to themselves and not with the standard 3M Dual Lock Reclosable Fastener.

These 3M Dual Lock Reclosable Fastener products utilize a variety of pressure sensitive adhesives to cover most application needs. The pressure sensitive adhesive makes the Dual Lock easy to use, simply remove the liner, place the 3M Dual Lock Reclosable Fastener and apply firm consistent pressure to assure good contact with the substrate you are adhering.

Features

- Easy Alignment:** 3M™ Dual Lock™ Fasteners engage in any direction or position. The mushroom stems slide into position until they are engaged by snapping together applying firm pressure, this eliminates concerns about misalignment or spontaneous engagement.
- Positive Locking:** 3M Dual Lock fasteners engage/fasten with an audible snap and detectable movement assuring complete and secure closure.
- Reclosability:** 3M Dual Lock fasteners can be opened and closed for multiple closure applications (high cycle life).
- Blind Attachment:** 3M Dual Lock fasteners can be attached on the backside of substrate (i.e. trim piece) where it will not interrupt the show surface.
- Rattle-Free:** 3M Dual Lock fasteners will not rattle loose.
- Ease of Assembly:** 3M Dual Lock fasteners can be used to attach components before they enter the final assembly plant, reducing the number of parts and the assembly time.
- Adjustable Strength:** By selecting the stem density of 3M Dual Lock fasteners the fastener can be designed to meet the needs of the designer.
- Product Forms:** 3M Dual Lock fasteners come in a variety of forms: Pressure Sensitive, Various Pop-in Stems Designs, Die Cut Shapes, and Slide-In construction.
- Attachment Methods:** The wide varieties of 3M Dual Lock fasteners allow a design engineer flexibility to be able use and attach 3M Dual Lock to just about any substrate or application.

Product Construction

3M™ Dual Lock™ is made from a polyolefin blend and is available in Black or Clear

This information is not intended for setting specification or standards.

Adhesive type	Product number	3M™ Dual Lock™ Reclosable Fastener Approx. Stems/in ² (stems/cm ²)	Dual Lock Color Adhesive Color	Engaged Thickness inches	Thickness Unmated inches +/- 15 %	Liner type thickness	Shelf Life when stored in original packaging at
Rubber Based Adhesive	SJ3540 SJ3541	250 (39) 400 (62)	Black/Black	0.23	0.14	5 mil White silicone treated Polyolefin	18 Months
White Acrylic Adhesive	SJ3550	250 (39)	Black/White	0.23	0.14	4 mil Clear silicone treated Polyolefin with Red printing	24 Months
	SJ3551 SJ3552	400 (62) 170 (26)					24 Months
Clear Acrylic Adhesive	SJ3560	250 (39)	Clear/Clear	0.23	0.14	4 mil Clear silicone treated Polyolefin with Red printing	24 Months
Low Surface Energy Acrylic	SJ4570 Clear	705 (109)	Clear/Clear	0.098	0.065	6.5 mil 86# silicone treated Polycoated Kraft	24 Months

* All thickness values are with the liner removed

**The following technical information and data is intended as a guideline to assist customers in selecting 3M™ Dual Lock™ Reclosable Fasteners for further evaluation.

This technical information is not product release specifications or standards. 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.

Typical Test values for 3M Dual Lock Fastener	Type 170 to 250	Type170 to 400	Type 250 to 250	Type 250 to 400	SJ4570 (to itself) Low Profile to Low Profile
Dynamic Tensile LbsF/in ² (N/cm ²) Engage	13 (9)	21 (14.5)	22 (15.2)	31 (21.4)	60
Disengage	27 (18.5)	43 (29.6)	43 (29.6)	(41.4)	27 (18.5) 40 (27.5)
Dynamic Shear Lbs/in ²	14 (9.8)	21 (14.5)	22 (15)	59 (41.3)	41 (28.2)
Cleavage Strength Lbs/inch width (N/cm width) Rigid backed from Rigid backed	12 (21)	20 (35)	24 (42)	32 (56)	4 (7.1)
"T" Peel Lbs/inch width (N/cm width) Flexible from flexible	0.7 (1.2)	1.4 (2.5)	1.9 (3.3)	1.5 (2.6)	0.5 (.9)
90° Peel lbs/inch width (N/cm width) Flexible from rigid	1.8 (3.2)	3.1 (5.4)	4.1 (7.2)	4.6 (8.1)	1.7 (2.9)
Cycle life # of closures before losing 50% of original strength	1000	1000	1000	1000	150

****Tests were run at 12 inches per minute****

3M™ Dual Lock™ Reclosable Fasteners

Product performance

This guide should assist you in determining which product will adhere best to your

Product Adhesive Type	Low Surface Energy (mJ/m ²)		Medium Surface Energy (mJ/m ²)			High Surface Energy (mJ/m ²)		Temp Res. F/C
	Polypropylene (29)	Polyethylene (31)	Acrylic (38)	PC (42)	ABS (42)	Aluminum (840)	Stainless Steel (700-1100)	
SJ3560 Clear Acrylic			X	X	X	X	X	220/104
SJ3550 SJ3551/SJ3552 Acrylic			X	X	X	X	X	200/93
SJ4570 Clear Acrylic	X	X	X	X	X	X	X	158/70
SJ3540 Rubber	X	X	X	X	X	X	X	100/38
X-substrates that will typically adhere to without the use of primer								

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Design Considerations:

As a general rule, four square inches of fastener area per pound of static tensile or shear 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.

Type 250 3M Dual Lock Reclosable fasteners less than 0.75" (19 mm) width should not be engaged to other type 250 3M Dual Lock Reclosable Fasteners of the same width as low disengagement values may occur.

Whenever possible design one side of the 3M Dual Lock Reclosable Fastener to be larger than the mating side. This will allow for variability or mismatch in 3M Dual Lock Reclosable Fastener alignment positions, and assure 100% fastening area contact. Another approach would be to design two rectangular shaped fasteners pieces so that they can be engaged in a cross web/perpendicular pattern.

The 3M Dual Lock Fastener Strength is proportional to the fastened contact area. (Use more 3M Dual Lock Reclosable Fastener to achieve higher fastening strength)

Final product performance depends upon a combination of factors: the substrate and its surface characteristics, the fastener selected, the application method and conditions, the time and environmental conditions required for the application. Because these factors are unique to each application, the user must evaluate 3M Dual Lock Reclosable Fasteners and do any testing required to determine if 3M Dual Lock Reclosable Fastener is suitable for the user's desired end use.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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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