English-US

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Technical Data Sheet

3M™ Dual Lock™ Reclosable Fastener SJ3560

Product Details

Regulatory Info/SDS

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.

The standard Dual Lock fasteners are available in three different stem densities (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 rip out rendering the fastener no longer reclosable.

The Dual Lock Low Profile has one stem density of approximately 705 stems per square inch and they interlock to themselves. The low profile products are not intended to mate to the standard size Dual Lock.

There are a variety of pressure sensitive adhesives available with Dual Lock to cover most application needs. The pressure sensitive adhesive makes the Dual Lock easy to use, simply remove the liner, place the Dual Lock and apply firm consistent pressure to assure good contact with the substrate you are adhering. We also offer non-adhesive backed Dual Lock for applications where the PSA does not meet your needs.

Product Features

•Easy Alignment: 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: Dual Lock fasteners engage/fasten with an audible snap and detectable movement assuring complete and secure closure.
•Reclosability: Dual Lock fasteners can be opened and closed for multiple closure applications (high cycle life).
•Blind Attachment: 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: Dual Lock fasteners will not rattle loose.
•Ease of Assembly: 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. No tools are required.
•Adjustable Strength: By selecting different combinations of the various stem densities of the Dual Lock the fastener can be designed to meet the strength needs of the designer.
•Product Forms: Dual Lock fasteners come in a variety of forms: Backed with Pressure Sensitive adhesive, Non-woven, Rigid backed, Die Cut Shapes, and low profile.
•Attachment Methods: The wide varieties of Dual Lock fasteners allow a design engineer flexibility to be able use and attach Dual Lock to just about any substrate or application. Peel and stick pressure sensitive adhesive backed is quick and easy yet strong and secure. Non-woven backed can be used with a variety of adhesive choices such as hot melt, liquid, epoxies, sealants, etc. We have parts that can be attached with a screw or rivet; rigid and plain backed for developing your own special device.

General Information

Pressure Sensitive Adhesive backed product
Product Family: Acrylic PSA VHB firm type backing for medium to high surface energy attachment

Technical Information Note

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

Typical Physical Properties

Attribute Name	Value
Color	Clear
Adhesive Type	Acrylic (Clear)
Stems	39 Stems/cm² (250 Stems/in²)
Thickness	3.51 mm (138 mil)
Engaged Thickness	5.74 mm (226 mil) [1]
Liner	Silicone treated Polyolefin with Red printing
Primary Liner Color	Clear
Liner Thickness	0.1 mm (4 mil)

[1] Thickness depends upon the amount of compression load on the pieces.

Typical Performance Characteristics

90° Peel Adhesion

Temperature: 22 °C (72 °F)
Backing: Flexible from Rigid

Substrate	Value
Type 170 to 250	3.2 N/cm (1.8 lb/in width) [1]
Type 170 to 400	5.4 N/cm (3.1 lb/in width) [1]
Type 250 to 250	8.1 N/cm (4.1 lb/in width) [1]
Type 250 to 400	8.1 N/cm (4.6 lb/in width) [1]

[1] 12 in/min (300 mm/min)

Overlap Shear Strength

Substrate	Value
Type 170 to 250	9.8 N/cm² (14 lb/in²)
Type 170 to 400	15 N/cm² (21 lb/in²)
Type 250 to 250	15 N/cm² (22 lb/in²)
Type 250 to 400	41 N/cm² (59 lb/in²)

T-Peel Adhesion

Substrate	Value
Type 170 to 250	1.2 N/cm (0.7 lb/in width) [1]
Type 170 to 400	2.5 N/cm (1.4 lb/in width) [1]
Type 250 to 250	3.3 N/cm (1.9 lb/in width) [1]
Type 250 to 400	2.6 N/cm (1.5 lb/in width) [1]

[1] Flexible from Flexible

Attribute Name	Substrate	Value
Dynamic Tensile (Disengage)	Type 170 to 250	19 N/cm² (27 lb/in²)
Dynamic Tensile (Disengage)	Type 170 to 400	30 N/cm² (43 lb/in²)
Dynamic Tensile (Disengage)	Type 250 to 250	30 N/cm² (43 lb/in²)
Dynamic Tensile (Disengage)	Type 250 to 400	41 N/cm² (60 lb/in²)
Dynamic Tensile (Engage)	Low Profile to Low Profile	19 N/cm² (27 lb/in²)
Dynamic Tensile (Engage)	Type 170 to 250	9 N/cm² (13 lb/in²)
Dynamic Tensile (Engage)	Type 170 to 400	15 N/cm² (21 lb/in²)

Attribute Name	Substrate	Value
Dynamic Tensile (Engage)	Type 250 to 250	15 N/cm² (22 lb/in²)
Dynamic Tensile (Engage)	Type 250 to 400	21 N/cm² (31 lb/in²)

Attribute Name	Value
Long Term Temperature Resistance	104 °C (220 °F) [1]

[1] Long Term (day, weeks)

Attribute Name	Substrate	Value
Cleavage Strength	Type 170 to 400	35 N/cm (20 lb/in width) [1]
Cleavage Strength	Type 250 to 250	42 N/cm (24 lb/in width) [1]
Cleavage Strength	Type 250 to 400	56 N/cm (32 lb/in width) [1]
Cleavage Strength	Type 170 to 250	21 N/cm (12 lb/in width) [1]
Cycle Life	Type 170 to 250	1,000 [2]
Cycle Life	Type 170 to 400	1,000 [2]
Cycle Life	Type 250 to 250	1,000 [2]
Cycle Life	Type 250 to 400	1,000 [2]

[1] Rigid backed from Rigid backed
[2] Number of closures before losing 50% of original peel strength

Attribute Name	Value
Note	The following technical information and data is intended as a guideline to assist customers in selecting 3M™ 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 reclosable fasteners under expected use conditions to ensure suitable performance for the intended application. These are typical values which were gathered from testing the PSA backed materials. Similar values can be expected when the Dual Lock is held securely in a rigid fashion. Tests were run at 12 inches per minute

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 Dual Lock Reclosable fasteners less than 0.75" (19 mm) width should not be engaged to other type 250 Dual Lock Reclosable fastener as low disengagement values may occur.
• Whenever possible design one side of the Dual Lock reclosable fasteners to be larger than the mating side. This will allow for variability or mismatch in Dual lock alignment positions, and ensure 100% fastening area contact. Another approach would be to design two rectangular shaped fastener pieces so that they can be engaged in a cross web/perpendicular pattern (crossed).
• Dual Lock strength is proportional to the fastening contact area, and the number of stems in combination used. More stems and more Dual Lock used gives you more strength, less stems combined and using less Dual Lock will give you

less strength.
• Dual Lock disengagement strength/performance is strongest in direct tensile. Peel/cleavage mode is where it is most easily removed.
• 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 Dual Lock and do any testing required to determine Dual Lock's suitability for the user's desired end use.

Industry Specifications

EN 45545 test report for details (ISO 5659-2, ISO 9239-1, ISO 5660-1, ISO 5658-2)

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

Available Sizes

Attribute Name	Value
Standard Roll Length	50 yd

Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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