Dual Lock™ Reclosable Fasteners - Piece Parts

Technical Data Sheet

April 2015

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™ 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 is desired. Some examples of applications include:

- Vehicle headliners
- Attaching accessories and equipment
- Attaching window and door trim panels
- Vibration and sound dampening control
- CHMSL -- Center Hight Mount Stop Lamp -- cover plates
- Center console flanges
- Interior trim
- Sunroof rings

Dual Lock™ Reclosable Fasteners provide a firm 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.

Physical Properties

Material	Polyolefin
Color	Black
Environmental Stability	Excellent moisture resistance Recommended temperature range is -20°F to 220°F (-29°C to 104°C)
Flammability	Should be tested as a composite with the attached component for FMVSS 302 certification
Thickness	• Varies based on part and application. • There are two different measurements that should be considered for your application – the individual thickness of a product and the engaged thickness of the two part system. • The individual thickness is listed under "Product Thickness Code" next to the specific product number listed in this selection guide. The product thickness code is the thickness of the additional layer added to the plain- backed version of Dual Lock™ Reclosable Fasteners. • Plain-backed Dual Lock™ Reclosable fasteners have a thickness of 0.101 inches (2.57 mm).

Product Features

Easy Alignment of Parts:	Designed to eliminate concerns about misalignment and premature or incomplete engagement while providing easy and firm engagement from any direction.
Reclosability:	Can be opened and re-closed in high cycle applications. Cycle life is the number of cycles (openings and closings) that the fastener is subjected to while maintaining 50% or greater of the peel values. The cycle life is 1000.
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, allowing for the ability to be attached to a variety of surface, using different methods.
Adjustable Engagement and Disengagement Forces:	• Provides a range of engagement and disengagement forces that can be achieved by combining the different stem densities. • Provides adjustable and proportional engagement and disengagement forces to the engaged area of the fastener.

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)

3M™ Dual Lock™ Reclosable Fasteners

Pop-In Piece Parts

General Description

3M™ Dual Lock™ Reclosable Fasteners Pop-In Parts attach without the use of pressure sensitive adhesive, and come with a variety of bases that can be inserted or slid into holes of precise dimension.

They are easy to install and require no special equipment or skills. Pop-ins are a good alternative to pressure sensitive adhesive backed Dual Lock™ reclosable fasteners where there are constraints related to the surface characteristics, material type, temperature and dwell time.

Design Considerations and Suggestions

Selection of the Pop-in part should be made based on the following considerations:

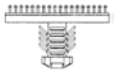
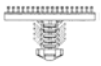
1. Dual Lock reclosable fastener strength is proportional to the fastening contact area.
2. Whenever possible, design one side of the Dual Lock reclosable fasteners to be larger than the mating side. This will allow for variability or mismatch in Dual Lock reclosable fastener alignment positions, and ensure 100% fastening area contact. Another approach would be to design two rectangular shaped fasteners so that they can be engaged in a cross-web/perpendicular pattern.
3. Dual Lock reclosable fastener disengagement strength/performance is strongest in direct tensile.
4. Cleavage mode disengagement greatly reduces the fastening strength.
5. Standard part drawings are available for all Dual Lock reclosable fastener piece parts. These part drawings define key dimensions which should be used for design purposes.
6. Target Disengagement Strength for part/application (Dual Lock reclosable fasteners combination and fastening area).
7. Pop-in pull-out strength must exceed the Dual Lock reclosable fasteners target disengagement strength for the Dual Lock reclosable fasteners combination. The target for the Pop-in pull-out strength should be 150% of the target disengagement strength. If the target disengagement strength for the selected fastener combination and area is 43 lb/f, then the pull-out strength for the piece part should be a minimum of 64.5 lb/f.
8. Sheet metal or panel thickness and range
9. Hole size
10. Gap behind the sheet metal for post protrusion, etc.
11. Burr on die punched hole – the burr on a hole affects the effective panel thickness which will have an effect on the performance of Pop-ins.
12. Stack-up height can be increased for Tree Style Pop-ins with the addition of a foam washer.

Part Portfolio: Referenced by Product Number

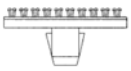
General Information			General Measurements (mm)				Slide-In Measurements (mm)			Die-Cut (Screw-In PP) Measurements (mm)				Pop-In (Round, Rectangular and Key Slot Hole) Measurements (mm)						
														All					Key Slot Hole	
Product	Product Line	Stem Density	Width	Length	Diameter	Thickness	Dual Lock Width	Flange Width	Flange Thickness	OD Hole Size	ID Hole Size	# Holes	Hole Spacing	Post Length	Panel Thickness Range	Target Hole Diameter Range	Target Hole Width Range	Target Hole Length Range	Hole Size	Slot Size
SJ3209	Pop in	250	26	26										12.3	0.8 - 4.7	7.9 - 8.4				
SJ3215	Slide in	400	31	12.7		5.1	25.4	2.8	1.25											
SJ3219	Slide in	250	30.73	25.4		5.97	25.6	2.56	1.32											
SJ3220	Pop in	400	20	20										5.6	3.1 - 3.4				18.6	3.8
SJ3221	Pop in	250	20	20										5	2.5 - 2.8				18.6	3.75
SJ3222	Pop in	250	26	26										12.5	0.8 - 3.0	7.0 - 7.5				
SJ3224	Pop in	400	26	26										12.5	0.8 - 3.0	7.0 - 7.5				
SJ3226	Pop in	170	26	26										9.1	0.71 - 1.0		6.25 - 6.53	9.75 - 10.03		
SJ3227	Slide in	250	25.4	16		5.08	19.4	3	2											
SJ3228	Slide in	400	20	20		5.08	14	3	2											
SJ3229	Slide in	250	25.4	25.4		5.08	19.4	3	2											
SJ3235	Die-cut	400			20.6	5.1				9	4.1									
SJ3238	Die-cut	250			28.5	5.96														
SJ3239	Slide in	400	30.73	25.4		5.97	25.6	2.56	1.32											
SJ3248	Slide in	250	28	25.4		5.35	20	4	1.32											
SJ3249	Slide in	400	28	25.4		5.35	20	4	1.32											
SJ3250	Die-cut	400	20.5	28		5.08				8.33	4.22	1	Center							
SJ3251	Die-cut	250			28.5	5.96				9.53	4.93									
SJ3252	Die-cut	400	38.1	38.1		5.08				8.33	4.22	2	25							
SJ3260	Slide in	400	20	70		5.08	14	3	2											
SJ3261	Die-cut	400	38.1	38.1		5.08				7.5	3.6	2	25							
SJ3263	Die-cut	250			20.6	5.1				7.9	4.1									
SJ3264	Pop in	250	26	26										8	0.8					
SJ3267	Pop in	250	26	26										12.74						
SJ3268	Pop in	400	26	26										13.25	0.8 - 4.70	8.0 - 8.5				
SJ3272	Pop in	170	26	26										13.25	0.8 - 4.70	8.0 - 8.5				
SJ3273	Pop in	250	26	26										13.25	0.8 - 4.70	8.0 - 8.5				
SJ3274	Pop in	400	26	26										13.25	0.8 - 4.70	8.0 - 8.5				
SJ3277	Pop in	170	26	26										5.7	2.75 - 3.1				14.6	3.65
SJ3278	Pop in	250	26	26										5.7	2.75 - 3.1				14.6	3.65
SJ3279	Pop in	400	26	26										5.7	2.75 - 3.1				14.6	3.65
SJ3285	Pop in	250	20	20										2.5					14	
SJ3286	Pop in	400	20	20										2.5					14	
SJ3290	Slide in	400	18	25.4		5.35	10	4	2.31											
SJ3463	Die-cut	400			20.6	5.1				7.9	4.1									
SJ3465	Die-cut	400			14.3	5.1				7.9	4.1									
SJ3700	Slide in	170	20	20		5.08	14	3	2											
SJ3704	Pop in	250	26	26										9.1	1.3 - 1.59		6.25 - 6.53	9.75 - 10.03		
SJ3705	Pop in	250	20	20										5.6	3.1 - 3.4				18.6	3.8
SJ3708	Pop in	400	26	26										9.1	1.77 - 1.88		6.25 - 6.53	9.75 - 10.03		
SJ3711	Pop in	400	26	26										9.1	0.71 - 1.0		6.25 - 6.53	9.75 - 10.03		
SJ3713	Pop in	400	26	26										9.1	1.3 - 1.59		6.25 - 6.53	9.75 - 10.03		
SJ3715	Pop in	400	26	26										8.5	0.86 - 1.0	9.9 - 10.3				
SJ3717	Slide in	400	31	25.4		5.08	25.4	2.8	1.32											
SJ3719	Pop in	250	26	26										9.1	0.71 - 1.0		6.25 - 6.53	9.75 - 10.03		
SJ3731	Pop in	400	20	20										5	2.5 - 2.8				18.6	3.75
SJ3736	Slide in	170	31	25.4		5.08	25.4	2.8	1.25											
SJ3743	Pop in	170	20	20										5.6	3.1 - 3.4				18.6	3.8
SJ3748	Pop in	400	26	26										17	0.8 - 8.0	7.9 - 8.4				
SJ3749	Pop in	400	26	26										12.3	0.8 - 4.7	7.9 - 8.4				
SJ3750	Slide in	400	32	50		5.45	25.15	3.42	1.25											
SJ3755	Die-cut	250			28.5	5.96				7.9	4.1									
SJ3762	Die-cut	400			28.5	5.1				7.9	4.1									
SJ3763	Die-cut	400			20.6	5.1				7.9	4.1									
SJ3767	Die-cut	400	38.1	38.1		4.7				7.5	3.6	2	25							
SJ3792	Slide in	250	31	25.4		5.08	25.4	2.8	1.25											
SJ3802	Slide in	250	28	50		5.35	20	4	1.32											
SJ3803	Slide in	250	20	40		5.08	15	2.5	1.25											
SJ3804	Pop in	170	26	26														0.7 - 1.2		
SJ3805	Pop in	250	26	26														0.7 - 1.2		
SJ3806	Pop in	400	26	26														0.7 - 1.2		
SJ3807	Pop in	400	26	20														0.7 - 1.2		
SJ3808	Pop in	250	26	20														0.7 - 1.2		
SJ3810	Pop in	250	26	26																
SJ3811	Pop in	400	26	26																
SJ3825	Pop in	170	26	26													8.6	0.71 - 1.0		
SJ3826	Pop in	250	26	26													8.6	0.71 - 1.0		
SJ3827	Pop in	400	26	26													8.6	0.71 - 1.0		
SJ3848	Pop in	250	26	26																

Product Information and Physical Properties

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

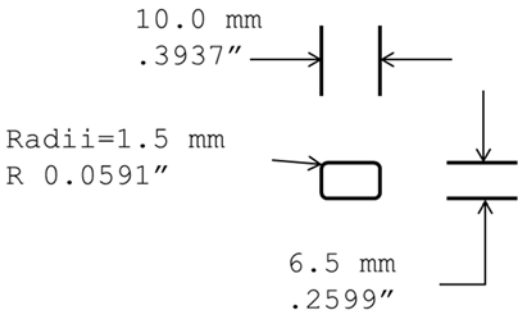
Part Portfolio: Pop-In Designed for Round Holes										
				Design Information				Product Numbers		
Pop-In Type/Design	Target Hole Size (Range)	Post Length	Panel Thickness Range	Typical Performance: Insertion Force Panel Thickness/Hole Size	Typical Performance: Pull-Out Force	Product Thickness Code	Stem Area (in^2)	Type 170	Type 250	Type 400
	7.1 mm (7.0 – 7.5 mm)	12.5 mm	0.8 mm – 3.0 mm	7.14 mm hole 0.71 mm panel: 10.9 lbs 0.86 mm panel: 11.6 lbs 1.17 mm panel: 13.4 lbs 1.55 mm panel: 14.7 lbs 2.97 mm panel: 11.1 lbs	54 lbs 56 lbs 50 lbs 68 lbs 40 lbs	104	26 mm x 26 mm (1.04)	S.O.	SJ3222	SJ3224 S.O.
				1.2 mm panel 7.0 mm hole: 24.3 lbs 7.14 mm hole: 13.4 lbs 7.5 mm hole: 8.7 lbs	81 lbs 50 lbs 50 lbs					
	8.2 mm (7.9 – 8.4 mm)	12.3 mm	0.8 mm – 4.7 mm	7.9 mm hole 0.8 mm panel: 42.6 lbs 1.56 mm panel: 48.7 lbs 4.7 mm panel: 48.5 lbs	101 lbs 136 lbs 68 lbs	104	26 mm x 26 mm (1.04)	S.O.	SJ3209	SJ3749 S.O.
				0.8 mm panel 7.9 mm hole: 38.9 lbs 8.03 mm hole: 22.9 lbs 8.2 mm hole: 21.2 lbs 8.33 mm hole: 22.4 lbs 8.43 mm hole: 22.8 lbs 8.5 mm hole: 11.9 lbs	97 lbs 88 lbs 78 lbs 66 lbs 76 lbs 60 lbs				
	8.2 mm (7.9 – 8.4 mm)	17.0 mm	0.8 mm – 8.0 mm	7.9 mm hole 0.8 mm panel: 31.7 lbs 1.56 mm panel: 34.6 lbs 4.7 mm panel: 38.3 lbs	85 lbs 94 lbs 96 lbs	104	26 mm x 26 mm (1.04)	S.O.	S.O.	SJ3748
				0.8 mm panel 7.9 mm hole: 29.5 lbs 8.03 mm hole: 22.2 lbs 8.2 mm hole: 14.7 lbs 8.33 mm hole: 11.8 lbs 8.43 mm hole: 9.5 lbs 8.5 mm hole: 9.6 lbs	94 lbs 81 lbs 70 lbs 71 lbs 65 lbs 52 lbs				
	8.33 (8.0 – 8.5 mm)	13.25 mm	0.8 mm – 4.7 mm	8.50 mm hole 0.86 mm panel: 16.8 lbs 1.55 mm panel: 17.3 lbs 2.97 mm panel: 33.4 lbs 4.76 mm panel: 39.9 lbs	83 lbs 61 lbs 72 lbs 57 lbs	104	26 mm x 26 mm (1.04)	Black SJ3266	Black SJ3267	Black SJ3268
				0.864 mm panel 8.03 mm hole: 40.3 lbs 8.2 mm hole: 33.9 lbs 8.33 mm hole: 25.0 lbs 8.43 mm hole: 21.1 lbs 8.5 mm hole: 16.8 lbs 8.6 mm hole: 15.1 lbs	79 lbs 97 lbs 74 lbs 86 lbs 83 lbs 52 lbs			White SJ3272 S.O.	White SJ3273 S.O.	White SJ3274 S.O.

Notes:
1. The "post length" is the measurement from the back of the 3M™ Dual Lock™ Reclosable Fastener base to the tip of the post.
2. Stem type shown on part drawing is an example for the instance when more than one type is available.
3. NA = Not Available
4. S.O. = Special Order (the corresponding parts are available on special order).
5. Minimum order quantities, lead times and pricing are available upon request.

Part Portfolio: Pop-In Designed for Rectangular Holes										
				Design Information				Product Numbers		
Pop-In Type/Design	Target Hole Size Range (mm)	Post Length (mm)	Panel Thickness Range (mm)	Typical Performance: Insertion Force Panel Thickness/Hole Size	Typical Performance: Pull-Out Force	Product Thickness Code	Stem Area (in^2)	Type 170	Type 250	Type 400
	Width: 6.5 (+0.03/-0.25 mm) Length: 10.0 (+0.03/-0.25 mm)	9.1	1.3 – 1.59	6.5mm x 10mm Hole 1.29 mm panel: 13.2 lbs 1.45 mm panel: 11.1 lbs 1.55 mm panel: 14.4 lbs	85 lbs 78 lbs 83 lbs	104	26 mm x 26 mm (1.04)	S.O.	SJ3704	SJ3713
	Width: 6.5 (+0.05/-0.05 mm) Length: 10.0 (+0.00/-0.20 mm)	9.1	0.71 – 1.0	6.5mm x 10mm Hole 0.71 mm panel: 7.9 lbs 0.78 mm panel: 15.0 lbs 0.86 mm panel: 11.5 lbs 1.00 mm panel: 8.4 lbs	75 lbs 82 lbs 73 lbs 79 lbs	104	26 mm x 26 mm (1.04)	SJ3825	SJ3826	SJ3827
	Width: 5.3 (+0.05/-0.05 mm) Length: 21.25 (+0.00/-0.15 mm)	9.1	0.70 – 1.0	0.69 mm panel: 7.0 lbs	121 lbs	104	26 mm x 26 mm (1.04)	SJ3804	SJ3805	SJ3806
	Width: 6.0 (+0.05/-0.05 mm) Length: 21.25 (+0.00/-0.15 mm)		1.0 – 1.2	1.22 mm panel: 7.0 lbs						

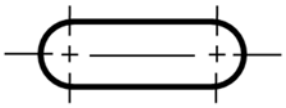
Notes:
1. Some vertical movement may be observed at the low end of the panel thickness range for these parts designed to fit a 6.5 mm x 10 mm rectangular hole.
2. The "post length" is the measurement from the back of the 3M™ Dual Lock™ Reclosable Fastener base to the tip of the post.
3. Stem type shown on part drawing is an example for the instance when more than one type is available.
4. S.O. = Special Order (the corresponding parts are available on special order).
5. Minimum order quantities, lead times and pricing are available upon request.

Hole Dimensions

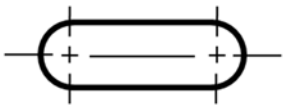


Hole Size Tolerance: +0.03 mm, -0.15 mm
Tolerance for Radii: 0.1 mm

Slot Dimensions



0.70mm – 1.00mm THK SHEET METAL
5.30 ± .05mm X 21.25 +.00/-.15mm SLOT



1.00mm – 1.20mm THK SHEET METAL
6.00 ± .05mm X 21.25 +.00/-.15mm SLOT

Part Portfolio: Pop-In Designed for Key Hole Slots

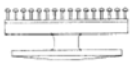
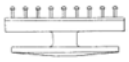
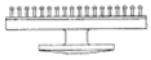
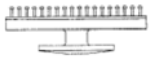
				Design Information				Product Numbers		
				Typical Performance						
Pop-In Type/Design	Target Hole Size (Range)	Post Length	Panel Thickness	Insertion Force Panel Thickness/ Hole Size	Pull-Out Force	Product Thickness Code	Stem Area (in^2)	Type 170	Type 250	Type 400
	Key Hole Slot (See Figure 1)	5.0 mm	2.65 mm	Low – Slide-in Type	~ 92 lbs (stem break strength)	104	20 mm x 20 mm (0.62)	S.O.	SJ3221	SJ3731
	Key Hole Slot (See Figure 2)	5.6 mm	3.25 mm (3.10 mm – 3.4 mm)	Low – Slide-in Type	~ 92 lbs (stem break strength)	104	20 mm x 20 mm (0.62)	SJ3743 S.O.	SJ3705	SJ3220 S.O.
	Key Hole Slot (See Figure 3)	5.7 mm	3.00 mm (2.75 mm x 3.10 mm)	Low – Slide-in Type	~ 92 lbs (stem break strength)	104	26 mm x 26 mm (1.04)	SJ3277 S.O	SJ3278	SJ3279 S.O.
	Key Hole Slot (See Figure 4)	14.0 mm	2.50 mm (2.35 mm – 2.65 mm)	Low – Slide-in Type	~ 92 lbs (stem break strength)	104	20 mm x 20 mm (0.62)	S.O	SJ3285	SJ3286

Figure 1

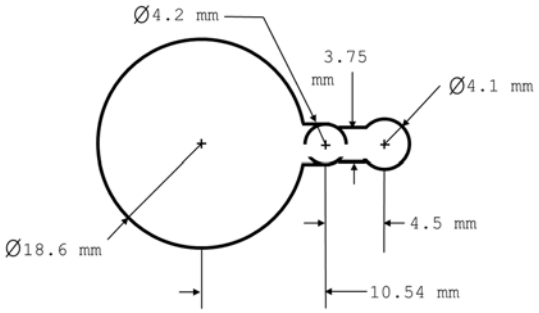


Figure 2

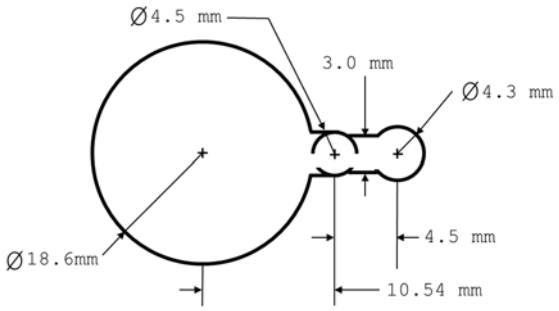


Figure 3

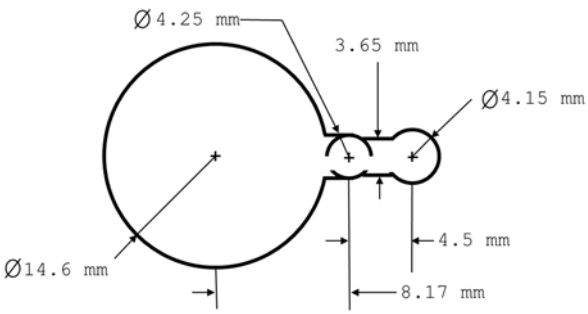
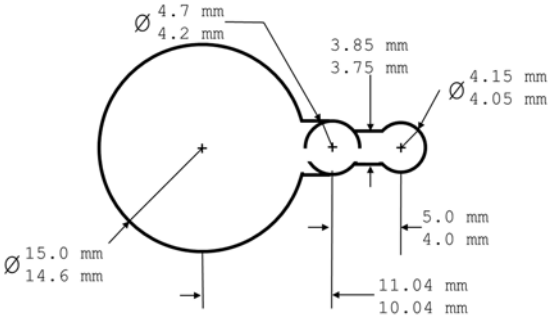


Figure 4



3M™ Dual Lock™ Reclosable Fasteners

Pre-Cut Piece Parts

General Description

3M™ Dual Lock™ Reclosable Fasteners Die-Cut Circles and Die-Cut Rectangular Parts are available in only two stem types: type 250 and type 400. Most pre-cut parts are supplied with a counter sunk hole for easy attachment using pan-head screws, pop rivets, ultrasonically stacked post, etc. The head of the screw or rivet must be recessed below the bottom of the mushroom stems to allow proper engagement of the mushroom heads.

Product Information and Physical Properties

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

Part Portfolio: 3M™ Dual Lock™ Reclosable Fasteners Die-Cut Circles

	Part Dimensions (mm) and Information				Design Information		Product Numbers		
Part Drawing	Diameter	Thickness	OD Hole Size	ID Hole Size	Fastening Area (sq. inch)	Product Thickness Code	Type 170	Type 250	Type 400
	28.5	5.96	9.53	4.93	0.88	134	NA	SJ3251	NA
	28.5	5.96	7.90	4.10	0.91	134	NA	SJ3755	NA
	28.5	5.10	7.90	4.10	0.91	100	NA	S.O.	SJ3762
	20.6	5.10	9.00	4.10	0.42	100	NA	S.O.	SJ3235
	20.6	5.10	7.90	4.10	0.44	100	NA	SJ3263	SJ3763
	14.3	5.10	7.90	4.10	0.17	100	NA	SJ3464	SJ3465 S.O.

Part Portfolio: 3M™ Dual Lock™ Reclosable Fasteners Die-Cut Rectangles

	Part Dimensions (mm) and Information							Design Information		Product Numbers		
Part Drawing	Width (mm)	Length (mm)	Thickness (mm)	# of Holes	OD Hole Size	ID Hole Size	Hole Spacing (mm)	Fastening Area (sq. inch)	Product Thickness Code	Type 170	Type 250	Type 400
	20.5	28.0	5.08	1	8.33	4.22	Center	0.81	99	NA	S.O.	SJ3250
	38.1	38.1	5.08	2	8.33	4.22	25.0	2.08	99	NA	S.O.	SJ3252
	38.1	38.1	5.08	2	7.50	3.60	25.0	2.11	99	NA	S.O.	SJ3261
	38.1	38.1	4.70	2	7.50	3.60	25.0	2.11	84	NA	S.O.	SJ3767

3M™ Dual Lock™ Reclosable Fasteners

Slide-In Piece Parts

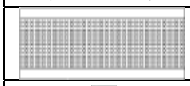
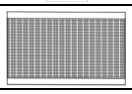
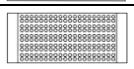
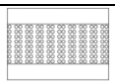
General Description

3M™ Dual Lock™ Reclosable Fasteners Slide-In Parts are available in all three stem patterns: types 170, 250, and 400. The parts are supplied with extended edges on two sides. The parts are easily attached to a rigid substrate having formed or molded retaining bracket. The retaining bracket should be recessed below the bottom of the mushroom stems to allow proper engagement of the mushroom heads. The part is usually designed with a simple ridge to prevent the parts from sliding out.

The key advantage of slide-in parts is that parts can be installed, changed or replaced very easily by just sliding the part in or out of the retaining bracket.

Product Information and Physical Properties

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

Part Portfolio: 3M™ Dual Lock™ Reclosable Fasteners Slide-In Parts										
	Nominal Dimensions					Design Information		Product Numbers		
	Outside Dimensions (mm)	Thickness (mm)	Fastener Dimensions (mm)	Minimum Flange Width (mm)	Flange Thickness (mm)	Fastening Area (sq. inch)	Product Thickness Code	Type 170	Type 250	Type 400
	20.0 x 20.0	5.08	14.0 x 20.0	2.5	2.0	0.43	99	SJ3700	S.O.	SJ3228 S.O.
	25.4 x 25.4	5.08	19.4 x 25.4	2.5	2.0	0.76	99	S.O.	SJ3229	S.O.
	25.4 x 31.0	5.10	25.4 x 25.4	2.0	1.25	1.00	100	SJ3736	SJ3792	SJ3717
	25.4 x 28.0	5.35	20.0 x 25.4	3.5	1.32	0.79	110	S.O.	SJ3248	SJ3249
	40.0 x 20.0	5.08	40.0 x 15.0	2.5	1.25	0.93	100	S.O.	SJ3803	S.O.
	20 x70	5.08	14 x 70	2.5	12.5	1.52	100	S.O.	S.O.	SJ3260
	10 x31	5.08	10 x 25.4	2	12.5	0.39	100	S.O.	SJ3796	S.O.
	16 x 31	5.08	16x 24	3.5	12.5	0.6	110	S.O.	SJ3793	S.O.
	16 x 25.4	5.08	16 x 25.4	2.5	2	0.48	99	S.O.	SJ3227	S.O.
	31 x 50	5.1	25.4 x 50	2	12.5	1.97	100	S.O.	S.O.	SJ3714
	12.7 x 31	5.1	12.7 x 25.4	2	12.5	0.5	100	S.O.	S.O.	SJ3215
	18 x 25.4	5.35	10 x 25.4	3.5	13.2	0.9	110	S.O.	S.O.	SJ3290

Notes: 1. Stem type shown on part drawing is an example for the instance when more than one type is available.
2. S.O. = Special Order (the corresponding parts are available on special order).
3. Minimum order quantities, lead times and pricing are available upon request.

Performance Properties

Performance tests are run using standard test procedures. The values shown are typical values and should not to be used for specification purposes.

Typical Initial System Dynamic Tensile Strength**	3M™ Dual Lock™ Reclosable Fastener engaged to 3M™ Dual Lock™ Reclosable Fastener			
	Type 170 to 250	Type 250 to 250	Type 170 to 400	Type 250 to 400
Initial Engagement: lb_F/in^2 (N/cm2)	13 (9.0)	22 (15.2)	21 (14.5)	31 (21.4)
Initial Disengagement: lb_F/in^2 (N/cm2)	27 (18.5)	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 250	Type 250 to 250	Type 170 to 400	Type 250 to 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 (3.2)	1.9 (3.2)	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)

Typical System Dynamic Tensile Strength	3M™ Dual Lock™ Reclosable Fastener engaged to 3M™ Scotchmate™ Reclosable Loop		
	Type 170	Type 250	Type 400
Initial engagement: lb_F/in^2 (N/cm²)	< 1 (< 0.69)	< 1 (< 0.69)	< 1 (< 0.69)
Initial disengagement: lb_F/in^2 (N/cm²)	33 (22.8)	35 (24.1)	39 (26.9)

Notes: 1. Typical system performance properties at 72°F (22°C) at 50% RH attached to Aluminum panels and a 12 inches/minute crosshead speed.
2. Dual Lock engagement/disengagement properties can be influenced by the rigidity of the mounting substrate.

Temperature Performance

Typical test results show that all suggested combinations of 3M™ Dual Lock™ Reclosable Fastener types will support in static tensile or shear loads up to 1.0 kg/in2 (2.2 lb/in2) across a temperature range of -20°F to 200°F (-12°C to 93.3°C).

Note: Test data refers to the Dual Lock Reclosable Fastener engagement to itself. The type of attachment system used can affect the performance results (i.e. such as the adhesive attachment system).

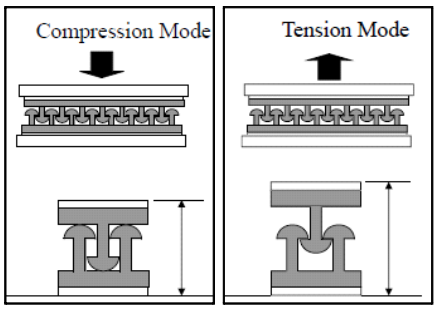
Additional Performance Characteristics

Resistance to Chemicals:	The polypropylene backing, stems and mushroom top should 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.
Resistance to Plasticizers:	Tests should be conducted by the user to evaluate the plasticizer resistance for the chosen application, environmental exposure and duration for the actual application.
Flammability Resistance:	Dual Lock™ reclosable fasteners pass FMVSS 302 flammability tests when attached to a thin metal panel. If you need reclosable fasteners that pass many of the other standard flammability tests (such as FAR 25.853, ASTM E-162, ASTM E-662, BSS-7239, etc.), it is suggested that you refer to IATD's 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 closure 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.
Water or Humidity:	Closure strength should not be affected by prolonged exposure to water or humidity.

Product Thickness Chart

This is a stack-up thickness guide to assist design engineers in selecting 3M™ Dual Lock™ Reclosable Fastener products to meet their gap needs.

Find the product thickness codes of the two parts you want to combine in the previous selection charts. Then find the matching Product Thickness Codes along the two axis of the chart below and follow the row/column to the point where they intersect. Where the row and column intersect is the engaged thickness of the two piece combination of the Dual Lock reclosable fasteners that you chose. There are two thicknesses listed; one is in tension and the other is compression. (as shown in the Dual Lock Stack up Engaged Thickness figures below).



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

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

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 a 3M Technical Service Representative.

Regulatory

IMDS# is a published material entry on www.mdsystem.com

To obtain the IMDS# for a particular 3M™ Dual Lock™ reclosable piece part fastener, please email your request to 3M-imdsrequest@mmm.com

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