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Dual Lock™

Fastening System

Product Data Sheet

Updated : April 1999
 Supersedes : June 1995

Product Description

Dual Lock™ fastener is a reclosable fastening system where mushroom shaped stems interlock with one another when pressed together.

Available in 25mm black or clear, plain backed or with rubber or acrylic self-adhesive backing, giving 1000+ closures.

Product Number	Backing Attachment	Operating Temperature	Features
SJ3440, Type 250 stems SJ3441, Type 400 stems SJ3442 Type 170 stems	Plain-backed. Sew on or staple.	-20°F - 158°F continuous -20°F - 200°F intermittent	Wash or dry clean.
SJ3540, Type 250 stems SJ3541 Type 400 stems SJ3542 Type 170 stems	Pressure sensitive rubber adhesive	-20°F - 158°F continuous -20°F - 120°F intermittent with no static load.	General purpose. Bonds to most surfaces.
SJ3550, Type 250 stems SJ3551 Type 400 stems SJ3552 Type 170 stems	Pressure sensitive very high bond VHB™ acrylic adhesive.	-20°F - 158°F continuous -20°F - 200°F intermittent	High performance for aircraft, automotive, business equipment, electronics. Resists harsh wet/dry, Hot/cold cycles.
SJ3560 Type 250 stems	Clear, pressure sensitive very high bond VHB™ acrylic adhesive.	-20°F - 158°F continuous -20°F - 200° intermittent	UV Resistant. Plasticiser Resistant.

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Performance Characteristics

Dynamic Performance : Closure		Combination of Types						
Property	Surface	170 to 400	250 to 250		250 to 400	400 to 400	170 to loop	250 to loop
			<u>Clear</u>	<u>Black</u>				
Tensile disengagement Lbs/sq.in. (kPa)	Rigid to Rigid	32 (221)	38 (262)	30 (207)	47 (324)	55 (380)		
Peel Strength Lbs/sq.in. (N.100mm)	Rigid to Flexible						10 (175)	8 (140)

Fastener combinations were mated, then disengaged at a rate of 12 inches (305mm)/minute. Tests were conducted under controlled laboratory conditions at 72°F (22°C). 50% R.H.

Static Performance : Closure		Combination of Types			
Property	Temperatures	170 to 400	250 to 250	250 to 400	400 to 400
Static Shear. Gram/sq.in. will hold listed weight for 10,000 minutes.	-20°F (-29°C)	1,000	1,000	1,000	1,000
	72°F (22°C)	1,000	1,000	1,000	1,000
	200°F (93°C)	500	500	500	500
Static Tensile. Gram/sq.in. will hold listed weight for 10,000 minutes.	-20°F (-29°C)	1,000	1,000	1,000	1,000
	72°F (22°C)	1,000	1,000	1,000	1,000
	200°F (93°C)	500	500	500	500

Fasteners were attached to metal panels and engaged in the combinations listed. Tests were conducted at the temperatures and gram loadings listed. Tests were discontinued after 10,000 minutes (7 days).

Static Performance : Adhesive Bond				
Property	Temperatures	SJ3540/41/42	SJ3550/51/52	SJ3560
Static Shear. Gram/sq.in. will hold listed weight for 10,000 minutes.	-20°F (-29°C)	1,000	1,000	1,000
	72°F (22°C)	1,000	1,000	1,000
	120°F (49°C)	500	1,000	1,000
	200°F (93°C)	-	500	500
Static Tensile. Gram/sq.in. will hold listed weight for 10,000 minutes.	-20°F (-29°C)	1,000	1,000	1,000
	72°F (22°C)	1,000	1,000	1,000
	120°F (49°C)	500	1,000	1,000
	200°F (93°C)	-	500	500

Fasteners were attached to aluminium and stainless steel panels and engaged in the combinations listed. Tests were conducted at the temperatures and gram loadings listed. Tests were discontinued after 10,000 minutes (7 days).

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

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Physical Properties

Not for specification purposes

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	Plain-Backed			Pressure Sensitive Adhesive-Backed						
Properties	SJ3440	SJ3441	SJ3442	SJ3540	SJ3541	SJ3542	SJ3550	SJ3551	SJ3552	SJ3560
Weight g/25mm x 25mm	0.5	0.5	0.4	0.7	0.7	0.6	0.9	0.9	0.9	1.1
Colours	Black	Black	Black	Black	Black	Black	Black	Black White Adhesive	Black White Adhesive	Clear Clear Adhesive
Liner	None	None	None	White Poly- ethylene	White Poly- ethylene	White Poly- ethylene	Red Poly- ethylene	Red Poly- ethylene	Red Poly- ethylene	Red Poly- ethylene
Preferred Mating Fasteners	SJ3440 SJ3540 SJ3550	SJ3442 SJ3542 SJ3552	SJ3441 SJ3541 SJ3551 Scotch- mate loop	SJ3440 SJ3540 SJ3550	SJ3442 SJ3542 SJ3552	SJ3441 SJ3541 SJ3551 Scotch- mate loop	SJ3440 SJ3540 SJ3550	SJ3442 SJ3542 SJ3552	SJ3441 SJ3541 SJ3551 Scotch- mate loop	SJ3560
Engaged Thickness mm SJ3440 SJ3540 SJ3550 SJ3560 SJ3441 SJ3541 SJ3551 SJ3442 SJ3542 SJ3552 Scotchmate plain loop PSA	4.1		4.1 4.8 4.8	5.8		4.1 4.8 4.8	5.8	4.6 5.6 4.8 5.8 5.8	4.6 4.8 5.8 5.8	5.8
Shelf Life *	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year

* 12 months from date of despatch by 3M when stored in original packaging at 70°F (21°C).

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Attachment/Application	<p>Pressure-sensitive: Apply above 20°C. Surface must be clean, dry and free from oil. Allow 48 hours (SJ3541/2) or 72 hours (SJ3551/2) for maximum bond strength. Improved resistance to edge peel can be provided by recessing the Dual Lock fastener, or by rounding the corners. In some exceptional cases (contamination by mould release, rough or porous surfaces etc) it may be necessary to sand or abrade the surface, or use an adhesive primer to optimise bond performance.</p>	<p>Mechanical Attachment: Staples or other methods of mechanical attachment may be used either alone (SJ3441/2) or in conjunction with the pressure sensitive adhesive (SJ3541/2, SJ3551/2) to give additional holding strength, particularly at elevated temperatures or on rough or porous surfaces.</p> <p>Ultrasonic Sealing: May be used to permanently fuse non-adhesive products (SJ3441/2) to themselves or polypropylene surfaces in about one second.</p>	<p>Sewing: Use extra strong nylon, cotton-covered polyester, or waxed cotton thread as for buttons, carpets, or very heavy fabrics. Sew along all edges with a two-thread lock stitch, using 6-8 stitches per inch, or use a box stitch.</p>
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Product Information

Backing/Substrate Selection

	Plain-Backed			Pressure-Sensitive Adhesive Backed						
	Sew-On									
Substrates	SJ3440	SJ3441	SJ3442	SJ3540	SJ3541	SJ3542	SJ3550	SJ3551	SJ3552	SJ3560
Bare Metal				✓	✓	✓	✓	✓	✓	✓
Painted Metal				✓	✓	✓	✓	✓	✓	✓
Finished Wood				✓	✓	✓	✓	✓	✓	✓
Plastics : ABS				✓	✓	✓	✓	✓	✓	✓
Polystyrene				✓	✓	✓	✓	✓	✓	✓
Acrylic				✓	✓	✓	✓	✓	✓	✓
Polyethylene				✓	✓	✓				
Polypropylene	✓	✓	✓	✓	✓	✓				
Polycarbonate				✓	✓	✓	✓	✓	✓	✓
Rigid Vinyl				✓	✓	✓	✓	✓	✓	✓
Plasticised Vinyl	✓	✓	✓				✓	✓	✓	✓

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Product Information	Backing/Substrate Selection									
	Plain-Backed Sew-On			Pressure-Sensitive Adhesive Backed						
Fabrics	✓	✓	✓							
Leather	✓	✓	✓							
Paper, cardboard				✓	✓	✓	✓	✓	✓	✓
Rubber	✓	✓	✓							
Glass				✓	✓	✓	✓	✓	✓	✓
Painted Concrete				✓	✓	✓	✓	✓	✓	✓

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes.
 Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.
 This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



Tapes & Adhesives

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3M United Kingdom PLC
 3M House,
 28 Great Jackson Street

Customer Service :
 Tel : 3MUKP110161 236 8500

3M Ireland
 3M House, Adelphi Centre,
 Upper Georges Street

Customer Service :
 Tel : (01) 280 3555

