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3M

Scotchmate™

Nylon Reclosable Fasteners

Product Selection Guide

March, 2007

Products

3M™ Scotchmate™ Nylon Reclosable Fasteners

Plainbacked Products

<u>Loop</u>	<u>Hook</u>
SJ3401	SJ3402
SJ3418FR	SJ3419FR

Pressure Sensitive Adhesive Products

<u>Unnapped Loop</u>	<u>Napped Loop</u>	<u>Hook</u>
	SJ3518FR	SJ3519FR
	SJ3523	SJ3522
	SJ3527N	SJ3526N
	SJ3571	SJ3572
SJ3529	SJ3531	SJ3530
	SJ3533N	SJ3532N

Product Description

3M™ Scotchmate™ Reclosable Fasteners offer closure alternatives to zippers, screws, snaps, hooks, bolts and more. They offer greater design flexibility, faster product assembly, smoother and cleaner exterior surfaces and improved product performance in many applications. The hook and loop fasteners consist of two strips of nylon fabric which engage to form a quick fastening attachment. Simply pull the strips apart by hand to disengage.

The woven hook backing is covered with flexible self supporting J shaped hooks, about 300 hooks per square inch (46/sq. cm.) protruding up from a woven backing. The woven loop backing is covered with thousands of soft, pliable loops, providing for thousands of openings and closings (cycles). The loops can be napped or unnapped providing higher cycle life. The hook and loop are preshrunk to insure maximum dimensional stability and flatness.

These Scotchmate reclosable hook and loop fasteners can be coated on the backside with various pressure sensitive adhesives.

Plainbacked Products

3M™ Scotchmate™ Reclosable Fastener SJ3402 Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3401 Loop

Standard Sew-on: These standard products provide a tailored appearance for garments and fabrics. They provide adjustable closure, and are washable and dry cleanable.

3M™ Scotchmate™ Reclosable Fastener SJ3419FR Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3418FR Loop

Flame Resistant Sew-on: Improved flame resistance compared to Scotchmate reclosable fasteners SJ3402/01 hook and loop, meets F.A.R. 25.853 paragraph (a)(1)(i) and (a)(1)(ii). These are 60 and 12 second vertical burn tests, respectively.

3M™ Scotchmate™ Nylon Reclosable Fasteners

Product Description (continued)

Pressure Sensitive Adhesive (PSA) Products

These products allow hook and loop fasteners to be attached to substrates with the convenience and ease of adhesive attachment. Simply peel off the liner and press in place.

3M™ Scotchmate™ Reclosable Fastener SJ3526N Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3527N Loop

General Purpose Rubber PSA: Suitable for indoor applications requiring higher temperature performance than 3M™ Scotchmate™ Reclosable Fasteners SJ3529/31 and SJ3500. These general purpose products offer high adhesive bond to a wide variety of materials, especially low surface energy materials such as polyethylene and polypropylene while providing excellent moisture resistance.

3M™ Scotchmate™ Reclosable Fastener SJ3572 Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3571 Loop

Premium Performance Acrylic PSA: For many static load applications exposed to UV or elevated temperatures. Provides reliable performance over a wide range of temperature and environmental extremes.

3M™ Scotchmate™ Reclosable Fastener SJ3522 Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3523 Loop

Plasticizer Resistant Acrylic PSA: A unique pressure sensitive adhesive which resists adhesive softening or oozing caused by most plasticizer oils in flexible vinyl and similar materials. This offers convenient attachment to many flexible, plasticized vinyls.

3M™ Scotchmate™ Reclosable Fastener SJ3519FR Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3518FR Loop

Flame Resistant Synthetic Rubber PSA: A high performance flame resistant adhesive, enabling these hook and loop fasteners to meet the requirements of F.A.R. 25.853 paragraph (a)(1)(i) and (a)(1)(ii). These are 60 and 12 second vertical burn tests, respectively.

3M™ Scotchmate™ Reclosable Fastener SJ3530 Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3531 Napped Loop • 3M™ Scotchmate™ Reclosable Fastener SJ3529 Unnapped Loop

High Tack Synthetic Rubber PSA: Suitable for many indoor applications, especially to low surface energy materials such as polyethylene and polypropylene.

3M™ Scotchmate™ Reclosable Fastener SJ3532N Hook • 3M™ Scotchmate™ Reclosable Fastener SJ3533N Loop

General Purpose Synthetic Rubber PSA: Suitable for many indoor applications, especially to low surface energy materials such as polyethylene and polypropylene.

3M™ Scotchmate™ Nylon Reclosable Fasteners

Product Description and Availability

3M™ Scotchmate™ Nylon Reclosable Fasteners								
	Plainbacked		Pressure Sensitive Adhesive Coated					
Hook: Loop: Unnapped Loop:	SJ3402 SJ3401	SJ3419FR SJ3418FR	SJ3526N SJ3527N	SJ3519FR SJ3518FR	SJ3530 SJ3531 SJ3529	SJ3532N SJ3533N	SJ3572 SJ3571	SJ3522 SJ3523
Adhesive Type:	None	None	Rubber ^a	Rubber ^a	Rubber ^a	Rubber ^a	Acrylic	Acrylic
Liner on Adhesive ^b :	None	None PE & Red 3M Logo	White PE & Red 3M Logo	White PE	Yellow PE	Yellow 3.5 mil PP & White 3M Logo	Clear PE	Clear
Standard Widths, Inches (mm) ^c : ± 1/16 in. (1.6 mm)								
1/2 (13)	✓	✓	✓	–	✓	–	✓	✓
5/8 (16)	✓	✓	✓	✓	✓	✓	✓	✓
11/16 (17.5)	–	–	✓	–	–	–	–	–
3/4 (19)	✓	✓	✓	✓	✓	✓	✓	✓
1 (25)	✓	✓	✓	✓	✓	✓	✓	✓
1 1/4 (32)	–	–	✓	–	✓	–	✓	–
1 1/2 (38)	✓	✓	✓	✓	✓	✓	✓	✓
2 (51)	✓	✓	✓	✓	✓	✓	✓	✓
2 1/2 (63.5)	–	–	–	–	–	–	✓	–
3 (76)	✓	–	–	–	–	–	✓	✓
4 (102)	✓	✓	✓	–	✓	–	✓	✓
Standard Colors ^d :	Black Beige White	Black Beige	Black Beige White	Black Beige White	Black Beige White	Black Beige White	Black Beige White	Black Beige White
Standard Roll Length ^e , yds. (m):	50 (45.7)	50 (45.7)	50 (45.7)	50 (45.7)	50 (45.7)	50 (45.7)	50 (45.7)	50 (45.7)
Fabricated Forms Available:	Cut Pieces	Cut Pieces	Cut Pieces	Cut Pieces	Cut Pieces	Cut Pieces	Cut Pieces	Cut Pieces
Shelf Life ^f :	2 Years	2 Years	1.5 Years	1.5 Years	1.5 Years	1.5 Years	2 Years	2 Years

a. All of our rubber adhesives contain synthetic rubber with no added latex.

b. PP: Polypropylene; PE: Polyethylene.

c. Not all widths for all products or colors may be available. Contact your 3M sales representative or 3M authorized distributor for widths not listed.

d. Slight tan or yellow may be observed on white with rubber based adhesives. All products are available in additional non-standard colors. Contact your 3M sales representative or 3M authorized distributor for pricing minimum quantities and lead times.

e. Under packaging conditions 70°F (21°C) and 50% R.H.

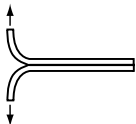
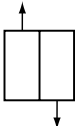
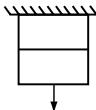
f. From date of manufacture, when stored in original packaging at 60° to 80°F (16° to 27°C and 40 to 60% relative humidity).

3M™ Scotchmate™ Nylon Reclosable Fasteners

Typical Closure Performance Characteristics

Note: The following technical information and data was collected under controlled laboratory conditions and should be considered representative or typical only and should not be used for specification purposes.

3M™ Scotchmate™ Reclosable Fasteners derive their strength from the area of engagement as well as closure pressure. Vibration or side to side movement tends to improve closure performance. Closure characteristics are indicated by typical values.

Closure Performance for plainback products ^a	Typical
Dynamic T-Peel, lb./inch width (grams/cm width); ASTM D5170:	2.6 (466)
	
Dynamic Shear, pounds force/square inch (Newtons/cm ²); ASTM D5169:	10 (6.9)
	
Dynamic Tensile, pounds force/square inch (Newtons/cm ²):	8 (5.5)
	

a. 3M™ Scotchmate™ Reclosable Fastener Hook and Loop Products were disengaged at a rate of 12" (305 mm)/minute.

Attachment Techniques

The following information is intended to assist the designer considering the use of 3M™ Scotchmate™ Reclosable Fasteners. Final product performance depends on actual conditions, including the fastener selected, the conditions in which the fastener is applied and the time and environmental conditions in which it is expected to perform. Because many of these factors are uniquely within the user's knowledge and control, it is required that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application and desired end use.

As a general rule, four square inches of Scotchmate reclosable fastener area per pound of static 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.

There are typically six different methods for attaching Scotchmate reclosable fasteners to various surfaces. For complete details on techniques and options for attaching fasteners, please see Attachment of 3M™ Scotchmate™ and Dual Lock™ Reclosable Fasteners technical bulletin (70-0709-3929-6). The most important techniques for these Scotchmate reclosable fastener products are summarized on page 5.

3M™ Scotchmate™ Nylon Reclosable Fasteners

Attachment Techniques (continued)

Pressure Sensitive Adhesive attachment: The 3M™ Scotchmate™ Reclosable Fasteners and adherend surfaces should have equilibrated for a minimum of 1 hour at temperatures of 68°F (20°C) or greater before application. These adhesive backed Scotchmate reclosable fasteners should be applied to surfaces that are smooth, dry and free of oils, mold release agents or other surface contaminants.

The adherend should be cleaned to remove any surface contaminants with an appropriate cleaning method for the customer's substrate, type and quantity of surface contaminants that need to be removed. **Note:** Follow the manufacturer's precautions and directions for use of the cleaning method(s) chosen.

After the adherend is clean, the liner is removed from the fastener and without touching the adhesive, the Scotchmate reclosable fastener is applied to the surface using firm roller pressure to help ensure complete adhesive contact to substrate. Adhesive bond strength increases with time, as the adhesive flows into the substrate structure. Handling strength is achieved immediately. Approximately 50% of ultimate bond strength is achieved at room temperature in the first 20 minutes, 90% after about 24 hours and 100% after about 72 hours for acrylic adhesives. For the rubber based adhesives, 100% bond strength is obtained in about 24 hours.

Heat (Press) Bonding: 3M™ Scotchmate™ Reclosable Fasteners SJ3526N, SJ3530, SJ3519FR and SJ3532N hook and SJ3527N, SJ3529, SJ3518FR, SJ3531 and SJ3533N loop can be attached to many fabric and foam articles with a technique called press bonding. The Scotchmate reclosable fastener is adhered to the article, as indicated above, and bond strength is increased by typically applying heat and pressure to the adhesive side of the Scotchmate reclosable fastener through the fabric or foam article. Equipment can range from a simple household laundry iron to commercial press units. Product performance will depend on the nature of the fabric or foam and other conditions within any specific application. For this reason it is essential that the user evaluate the Scotchmate reclosable fastener product to determine if it is fit for a particular purpose and suitable for the user's method of application.

Typical press bonding conditions:

Bonding Temperature:	250 to 425°F (121 to 218°C)
Bonding Pressure:	30 to 100 psi (207 to 690 kPa)
Bonding Time:	3 to 30 seconds

Mechanical Attachment: The bond strength can be increased by mechanically attaching it to difficult to adhere to surfaces such as textured plastics and wood by using staples. Alternatively wood products can be sealed and pressure sensitive adhesive backed fastener applied as discussed above.

Sewing

3M™ Scotchmate™ Plainbacked Reclosable Fasteners can be attached with manual or semi-automatic sewing machines, generally utilizing the same thread used in the garment or fabric. Six to ten stitches per inch (25.4 mm) is suggested. These products are washable and dry cleanable.

Ultrasonic Bonding

Scotchmate plainbacked reclosable fasteners can be bonded to themselves or other nylon fabrics with ultrasonic sealing equipment. This method can be used to provide straps and other fabricated forms.

3M™ Scotchmate™ Nylon Reclosable Fasteners

General Information

3M™ Scotchmate™ Pressure Sensitive Reclosable Fasteners can be bonded to a wide variety of materials. Some are listed below. Because product performance will depend on actual conditions within any specific application, it is essential that the user evaluate the Scotchmate product to determine if it is fit for a particular purpose and suitable for the user's method of application.

3M™ Scotchmate™ Reclosable Fasteners						
Hook:	SJ3526N	SJ3572	SJ3522	SJ3519FR	SJ3530	SJ3532N
Loop:	SJ3527N	SJ3571	SJ3523	SJ3518FR	SJ3531	SJ3533N
Unnapped Loop:					SJ3529	
Bare Metals:	✓	✓	✓	✓	✓	✓
Painted Metals:	✓	✓	✓	✓	✓	✓
Powder Paint:	✓	—	—	✓	✓	✓
Fiberglass:	✓	—	—	✓	✓	✓
Structural Composites:	✓	—	—	✓	✓	✓
Glass:	✓	✓	✓	✓	✓	✓
Sealed Wood:	✓	✓	✓	✓	✓	✓
Plastics —						
ABS:	✓	✓	✓	✓	✓	✓
Acrylic:	✓	✓	✓	✓	✓	✓
Polycarbonate:	✓	✓	✓	✓	✓	✓
Polystyrene	✓	✓	✓	✓	✓	✓
Rigid Vinyl:	✓	✓	✓	✓	✓	✓
Plasticized Vinyl ^a :	—	—	✓	—	—	—
Polypropylene:	✓	—	—	✓	✓	✓
Polyethylene:	✓	—	—	✓	✓	✓

a. When attaching to plasticized vinyl (flexible PVC), evaluation for plasticizer migration is recommended. Adhere the fastener to the vinyl and age for seven days at 158°F (70°C) and inspect for signs of migration of plasticizer oils indicated by softness or oozing of the adhesive.

Choosing Polyester or Nylon Reclosable Fasteners

3M™ Scotchmate™ Reclosable Fasteners are available in polyester or nylon hook and loop configurations. There are performance and use differences that may be experienced when using these products. The following table lists the differences between the two types of fasteners to aid in selecting the best fastener material for the customers final product.

	Nylon	Polyester*
Cycle Life	5,000	1,000
Moisture Gain (wt%)	<10	<1
Dynamic Closure Tensile (lb _F /sq. in)	7.5	10
Dynamic Closure Shear (lb _F /sq. in)	4.8	18
Wet Strength	Loses strength	Retains strength
Resistance to Sunlight	Fair UV resistance (esp. the loop)	Hook - Fair Loop - Good Very good
Combustion Gases	Polyester may produce less toxic off gases under certain flammability conditions.	

*Please refer to our 3M™ Scotchmate™ Polyester Reclosable Fastener Product Selection Guide to review available polyester hook and loop products.

3M™ Scotchmate™ Nylon Reclosable Fasteners

Certification/ Recognition

MSDS: 3M has not prepared a MSDS for this product which is not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

Military Spec. MIL-F-21840G: All of our nylon hook products described in this publication meet the physical requirements of MIL-F-21840G, Type II Class 1. All of our loop products described in this publication except 3M™ Scotchmate™ Reclosable Fastener SJ3529, meet the physical requirements of MIL-F-21840G, Class 1 or Class 5.

GM 2743M Type II: SJ3571 and SJ3572 meet the requirements of GM2743GM Type II.

Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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ISO 9001:2000 - ISO/TS 16949:2002

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Industrial Business Industrial Adhesives and Tapes Division

3M Center, Building 21-1W-10, 900 Bush Avenue
St. Paul, MN 55144-1000
800-362-3550 • 877-369-2923 (fax)
www.3M.com/industrial



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