

3M™ Bumpon™ Protective Products

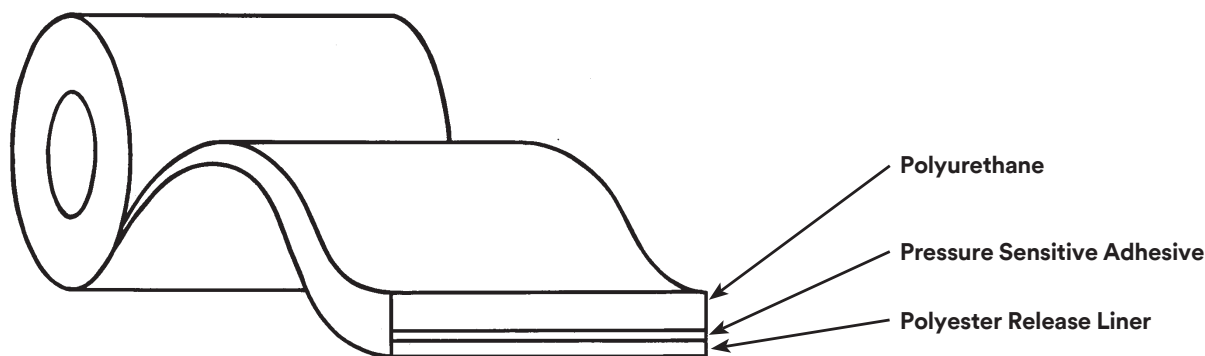
Resilient Rollstock

SJ5200 • SJ5800 • SJ5900 • SJ6000 • SJ6200 Series

Product Description

3M™ Bumpon™ Resilient Rollstock Products are opaque, colored polyurethane materials produced with aggressive pressure-sensitive adhesives.

| 3M™ Bumpon™ Resilient Rollstock Product | Thickness | | Polyurethane Hardness, Shore M | Polyurethane Surface Finish | Adhesive Type |
|---|-----------|-----|--------------------------------|-----------------------------|----------------------------|
| Inches | mm | | | | |
| SJ5216 | 1/16 | 1.6 | 36 (soft foam) | matte | R-25 (synthetic rubber) |
| SJ5208 | 1/8 | 3.2 | 29 (soft foam) | | |
| SJ5832 | 1/32 | 0.8 | 72 | matte | R-30 (natural rubber) |
| SJ5801 | 3/64 | 1.0 | 72 | | |
| SJ5816 | 1/16 | 1.6 | 72 | | |
| SJ5808 | 1/8 | 3.2 | 72 | | |
| SJ5916 | 1/16 | 1.6 | 40 (medium foam) | matte | A-20 (acrylic) |
| SJ5908 | 1/8 | 3.2 | 36 (medium foam) | | |
| SJ5904 | 1/4 | 6.4 | 36 (medium foam) | | |
| SJ6032 | 1/32 | 0.8 | 72 | matte | A-20 (acrylic) |
| SJ6016 | 1/16 | 1.6 | 72 | | |
| SJ6008 | 1/8 | 3.2 | 72 | | |
| SJ6005 | 1/5 | 5.0 | 72 | | |
| SJ6232 | 1/32 | 0.8 | 72 | matte | R-25 (synthetic rubber) |
| SJ6216 | 1/16 | 1.6 | 72 | | |
| SJ6208 | 1/8 | 3.2 | 72 | | |



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Features

- Can be die cut to a variety of shapes and sizes.
- Excellent skid-resistance, high coefficient of friction.
- Excellent resistance to marring or staining.*
- Long aging resiliency – will not crack or harden.*
- Excellent cushioning properties.
- Excellent abrasion resistance.
- Vibration and shock dampening.
- Easy application – pressure-sensitive backing.

*Resulting from a urethane composition.

Application Ideas

- Die cut into circles or squares for use as skid-resistant feet on hand held or desktop computers, calculators, electric housewares, electronic equipment, desk top items and medical devices.
- Die cut for gasket application.
- Skid-resistant surface on floor.
- Cushions or spacers within electronic devices.
- Selective masking for sandblast operation.
- Spacer or stop to prevent surface damage.
- Anti-rattle spacer to fill gaps, dampen noise and reduce vibration.
- Door kick pads.
- Corner protection strips.
- Roll covering for textile industry and other web feed machinery.
- Die cut cushioning stop for cabinetry (3M™ Bumpon™ Resilient Rollstock SJ5200 and SJ5900 Foam).

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Product Construction

| 3M™ Bumpon™ Resilient Rollstock Series | | | | | | | | | | | | | | | | |
|---|---|-----------------------|------------------------|---|------------------------|-----------------------|---|-----------------------|-----------------------|---|------------------------|-----------------------|----------------------|---|------------------------|-----------------------|
| SJ5200 | | | SJ5800 | | | | SJ5900 | | | SJ6000 | | | | SJ6200 | | |
| Elastomer | Polyurethane (foam) | | | Polyurethane (solid) | | | Polyurethane (foam) | | | Polyurethane (solid) | | | | Polyurethane (solid) | | |
| Elastomer Finish | matte | | | matte | | | matte | | | matte | | | | matte | | |
| Release Liner | 4 mil, silicone coated, translucent polyester (PET), with printed 3M logo | | | 4 mil, silicone coated, translucent polyester (PET), with printed 3M logo | | | 4 mil, silicone coated, translucent polyester (PET), with printed 3M logo | | | 4 mil, silicone coated, translucent polyester (PET), with printed 3M logo | | | | 4 mil, silicone coated, translucent polyester (PET), with printed 3M logo | | |
| Adhesive | R-25 (synthetic rubber) | | | R-30 (natural rubber) | | | A-20 (acrylic) | | | A-20 (acrylic) | | | | R-25 (synthetic rubber) | | |
| 3M™ Bumpon™ Resilient Rollstock Product | | | | | | | | | | | | | | | | |
| | SJ5216 | SJ5208 | SJ5832 | SJ5801 | SJ5816 | SJ5808 | SJ5916 | SJ5908 | SJ5904 | SJ6032 | SJ6016 | SJ6008 | SJ6005 | SJ6232 | SJ6216 | SJ6208 |
| Color | Light Brown | Light Brown | Black Brown | Black | Black Brown | Black Brown | Black | Black | Black | Black Brown | Black Brown | Black Brown | White Black | Black | Black | Black |
| Thickness* in. in. (mm) | 1/16 0.062 (1.6) | 1/8 0.125 (3.2) | 1/32 0.031 (0.8) | 3/64 0.039 (1.0) | 1/16 0.062 (1.6) | 1/8 0.125 (3.2) | 1/16 0.062 (1.6) | 1/8 0.125 (3.2) | 1/4 0.250 (6.4) | 1/32 0.031 (0.8) | 1/16 0.062 (1.6) | 1/8 0.125 (3.2) | 1/5 0.20 (5.0) | 1/32 0.031 (0.8) | 1/16 0.062 (1.6) | 1/8 0.125 (3.2) |
| Thickness ± in. Tolerance ± (mm) | 0.010 (0.25) | 0.015 (0.38) | 0.005 (0.13) | 0.006 (0.15) | 0.007 (0.18) | 0.010 (0.25) | 0.010 (0.25) | 0.015 (0.38) | 0.020 (0.50) | 0.005 (0.13) | 0.007 (0.18) | 0.010 (0.25) | 0.012 (0.31) | 0.05 (0.13) | 0.007 (0.18) | 0.010 (0.25) |
| Roll Length yd. | 36 | 36 | 72 | 72 | 36 | 36 | 36 | 36 | 18 | 72 | 36 | 36 | 24 | 72 | 36 | 36 |
| Roll Width** | | | | | | | | | | | | | | | | |
| Standard in. (mm) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) | 4.5 (114.3) |
| Minimum in. (mm) | 0.5 (12.7) | 0.5 (12.7) | 0.5 (12.7) | – (12.7) | 0.5 (12.7) | 1 (25.4) | 0.5 (12.7) | 0.5 (12.7) | 1 (25.4) | 0.5 (12.7) | 0.5 (12.7) | 1 (25.4) | – (25.4) | 0.5 (12.7) | 0.5 (12.7) | 1 (25.4) |
| Maximum in. (mm) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) | 9 (228.6) |
| Slitting ± in. Tolerance ± in. ± (mm) | 1/32 0.031 (0.8) | | 1/32 0.031 (0.8) | | | | 1/32 0.031 (0.8) | | | 1/32 0.031 (0.8) | | | | 1/32 0.031 (0.8) | | |

*Tested in accordance with ASTM D-3767 method, procedure A (3.2 psi) measured without liner.

**Non-standard sizes may be subject to minimum order requirements.

Custom Rollstock Products

Custom Thickness: 3M can customize thickness to your specifications.

Note: The capability range for 3M™ Bumpon™ Resilient Rollstock Series SJ5800, SJ6000, and SJ6200 is 1/32 in. (0.031) minimum and 1/4 in. (0.250) maximum.

The capability range for 3M™ Bumpon™ Resilient Rollstock Series SJ5900 is 1/16 in. (0.062) minimum and 5/16 in. (0.312) maximum.

Custom Color: 3M can match most colors to your specifications.

Note: Special products require a qualifying minimum order quantity, and one-time color matching charge. For more information please contact your local 3M sales rep or distributor.

3M™ Bumpon™ Protective Products

Resilient Rollstock SJ5200 • SJ5800 • SJ5900 • SJ6000 • SJ6200 Series

Typical Physical Properties and Performance Characteristics

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

| Property | Test Method*** | SJ5200 | 3M™ Bumpon™ Resilient Rollstock Series SJ5800 | SJ5900 | SJ6000 | SJ6200 |
|--|---|----------------------------|--|---------------------------------------|------------------------------------|------------------------------------|
| Hardness, Shore M | ASTM-D-2240 | 36 (SJ5216) 29 (SJ5208) | 72 | 40 (SJ5916) 36 (SJ5908, SJ5904) | 72 | 72 |
| Approximate Density, lb/ft ³ (g/cm ³) | | 40 (0.64) | 80 (1.3) | 40 (0.64) | 80 (1.3) | 80 (1.3) |
| Kinetic Coefficient of Friction* | ASTM-D-1894 Stainless Steel Glass Formica® laminate Wood | * * * * | >1 >1 0.9 - 1.4 0.9 - 1.4 | >1 >1 0.8 - 1.4 0.8 - 1.4 | >1 >1 0.9 - 1.4 0.9 - 1.4 | >1 >1 0.9 - 1.4 0.9 - 1.4 |
| * Two important laws of friction applicable to 3M™ Bumpon™ Resilient Rollstock are: (1) Friction is independent of the area of contact between solids. (2) Friction is proportional to the load between solid surfaces. Thus, if the load (weight) is doubled, the force required to cause surface sliding is also doubled. This is expressed mathematically as follows: Sliding force = (kinetic coefficient of friction) x (weight) | | | | | | |
| Abrasion Resistance Taber H 18, 1 kg, g/1000 cycles | ASTM-C-501 | * | 1.7 - 1.9 | 1.8 - 2.0 | 1.7 - 1.9 | 1.7 - 1.9 |
| Tensile, lb/in ² (kPa) | ASTM-D-412, Die A | * | 600 (4140) | 120 (830) | 600 (4140) | 600 (4140) |
| Elongation, % | ASTM-D-412, Die A | * | 100 | 100 | 100 | 100 |
| Compression Set, % | ASTM-D-1056 (50% deflection) ASTM-D-395 (25% deflection) | 8 10 — — | — — 3 4 | 12 14 — — | — — 3 4 | — — 3 4 |
| Dielectric Strength, volts/mil | ASTM-D-1000 | * | 200 | 140 | 200 | 200 |
| Flammability Listing | UL Classification | * | UL94HB | UL94HBF (except SJ5916) | UL94HB | UL94HB |
| Stain Resistance** | 3M - 24 hrs. @ 158°F against white paint, 7 days exposed to UV No staining observed | | | | | |
| Ozone and Oxygen Resistance** | 3M - 30 days @ 50 ppm ozone No visual deterioration | | | | | |
| Solvent and Fuel Resistance** | 3M - 24 hr. immersion 5% Detergent in water 25% Ammonia in water Bleach Hydrochloric Acid (1 normal solution) Diesel Fuel Auto Oil Isopropyl Alcohol Heptane Toluene (Toluol) Lacquer Thinner No apparent effect No apparent effect No apparent effect No apparent effect No apparent effect No apparent effect Slight effect (swelling) Slight effect (swelling) Considerable effect (swelling) Considerable effect (swelling) | | | | | |
| Load Tolerance | The recommended maximum load which Bumpon Resilient Rollstock series SJ5800, SJ6000 and SJ6200 will support is 100 psi (690 kPa) at 70°F (21°C) to 120°F (49°C). | | | | | |
| Environmental Performance | Bumpon Resilient Rollstock is intended for interior applications where resilience and all other physical properties will remain unchanged. When exposed to UV light for extended periods, some discoloration may occur. Bumpon resilient rollstock may be used outdoors in a protected area with some discoloration and chalking possible. | | | | | |

* = Not tested for Bumpon SJ5200 Series (soft foam)

** = Reference test for time periods specified only.

Results may vary for different product application conditions.

*** = When ASTM method is listed, data was collected in accordance with ASTM test method.

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Relative Adhesive Performance Characteristics

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

| 3M™ Bumpon™ Resilient Rollstock | | | |
|--|---------------------------|-------------------------------------|--------------------------------|
| | SJ5800 Series | SJ5900 Series SJ6000 Series | SJ5200 Series SJ6200 Series |
| Adhesive: | Natural Rubber R-30 | Acrylic A-20 | Synthetic Rubber R-25 |
| Adhesion (Peel) Low Surface Energy: High Surface Energy: | Good Good | Poor Good | Excellent Excellent |
| Static Shear 75°F (25°C): 120°F (49°C): 158°F (70°C): | Excellent Fair Poor | Excellent Excellent Excellent | Excellent Good Fair |
| Initial Adhesion Low Surface Energy: High Surface Energy: | Good Good | Poor Fair | Excellent Excellent |
| Solvent Resistance: | Good | Excellent | Good |
| Age Life: | Good | Excellent | Good |

Adhesive Performance

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

The following table on peel adhesion provide representative performance characteristics of the adhesive systems used in the construction of 3M™ Bumpon™ Resilient Rollstock SJ5200, SJ5800, SJ5900, SJ6000, and SJ6200 series products.

90° Peel Adhesion

Peel Force, oz. per 1/2 inch

| 3M™ Bumpon™ Resilient Rollstock | | | |
|---------------------------------|------------------------|--------------------------------|--------------------------------|
| | SJ5800 Series | SJ5900 Series SJ6000 Series | SJ5200 Series SJ6200 Series |
| Substrate: | Natural Rubber R-30 | Acrylic A-20 | Synthetic Rubber R-25 |
| Polypropylene | 25 | 3 | 52 |
| Polystyrene | 25 | 11 | 55 |
| ABS | 25 | 25 | 55 |
| Stainless Steel | 22 | 25 | 55 |
| Aluminum | 22 | 25 | 55 |

3M Test Method TM-2011; 72 hour dwell, 1/2 inch wide samples pulled at 12 inches per minute. Testing completed using Bumpon Resilient Rollstock products SJ5816, SJ6016, and SJ6216.

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Adhesive Description

Natural Rubber (R-30) – Used in the construction of 3M™ Bumpon™ Resilient Rollstock SJ5800 Series products. This high tack adhesive system provides excellent initial adhesion and is designed for providing excellent adhesion to a wide variety of surfaces including many low surface energy surfaces such as polypropylene, polyethylene and powder coated paints. This adhesive system shows reduced shear properties at elevated temperatures.

Acrylic (A-20) – Used in construction of 3M™ Bumpon™ Resilient Rollstock SJ5900 and SJ6000 Series products. This high strength adhesive system provides excellent shear strength properties. The adhesive is designed for providing excellent adhesion to many high surface energy substrates such as metals, ABS, polycarbonate and acrylic. When adhesion is required on low surface energy substrates (ie, polypropylene, polyethylene, etc.) acrylic-based adhesives do not perform as well as rubber-based adhesives.

Synthetic Rubber (R-25) – Used in the construction of 3M™ Bumpon™ Resilient Rollstock SJ6200 Series products. This very high tack adhesive system provides excellent initial adhesion and is designed for providing excellent adhesion to a wide variety of surfaces including many low surface energy surfaces such as polypropylene, polyethylene and powder coated paints. Improved die-cutting performance with new polyester (PET) release liner. This adhesive system shows reduced shear properties at elevated temperatures.

Application Techniques

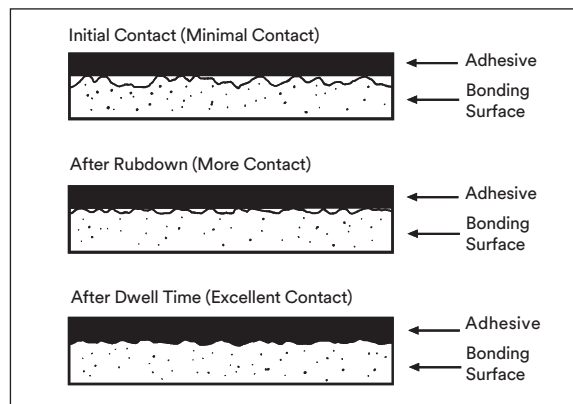
Application Temperature: 40°F (5°C) to 125°F (52°C)

Service Temperature: -30°F (-34°C) to 150°F (66°C)
225°F (107°C) intermittent exposure

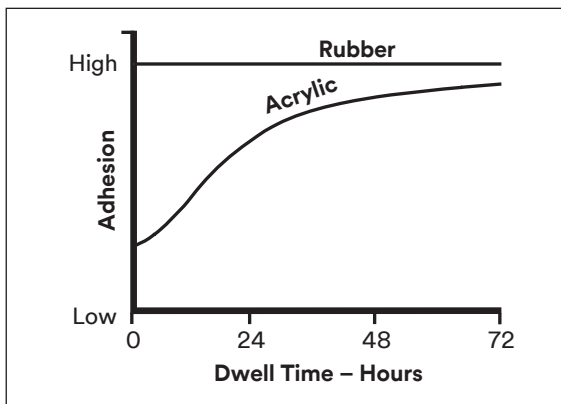
To obtain maximum adhesion, surfaces should be flat, dry, and free of contaminants. Surface contact is essential to adhesive performance. To maximize contact on a substrate:

- Clean surfaces with low strength solvent such as isopropyl alcohol (rubbing alcohol) or heptane.
Note: Be sure to follow the solvent manufacturer's precautions and directions for use when using solvents.
- Apply firm pressure to help increase the cold flow and contact of the adhesive with the substrate.
- Allow time (dwell) to increase the surface contact and adhesion (see illustration below).

Adhesive Surface Contact



Rubber Adhesive vs. Acrylic Adhesive Bond Build-up



Note: Product selection is ultimately the responsibility of the user and should conduct their own tests under actual use and storage conditions to determine whether product is fit for a particular purpose and user's method of application.

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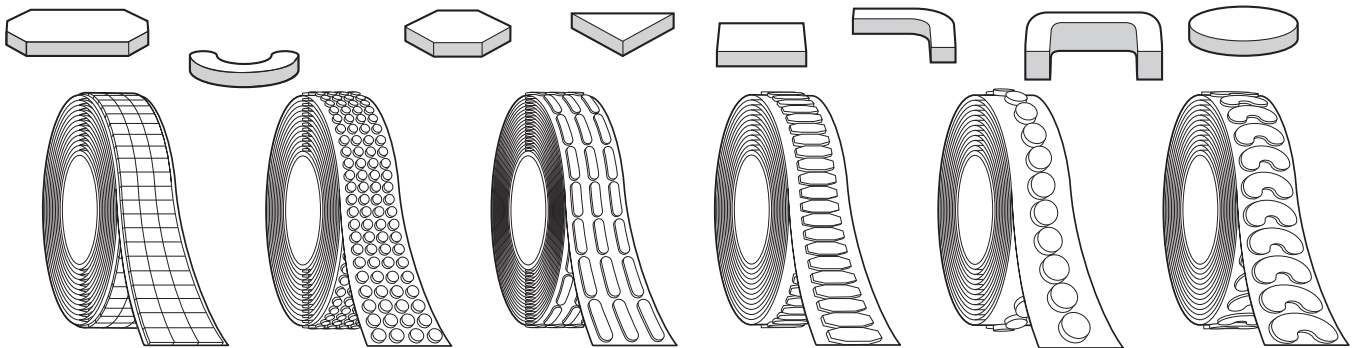
Die Cut Considerations

- Very important that knives be sharp.
- Although rotary die cutting can be used for thicker materials ($\geq 1/16$ inches), distortion in the die cut shape is possible using this die cutting method. Flat bed die cutting is recommended for thicker materials.
- The R-25 (synthetic rubber) adhesive system is very firm (tough). It can be more difficult to die cut versus the R-30 and A-20 adhesive systems. Also, the R-25 adhesive system is inherently stringy; as a result, if the adhesive is not thoroughly cut, the adhesive may have a tendency to string-out when the die cut parts are removed from the release liner quickly or by using a snapping motion. The adhesive string-out will not diminish the performance of the product.
- Some re-welding (tendency of the adhesive system to flow back together after die cutting) is possible with the R-25 adhesive system. Exposure to high temperature (greater than the recommended storage temperature of 60° to 80°F [16° to 27°C]) in combination with time and pressure will increase the tendency of re-welding.

Die Cut Examples

3M™ Bumpon™ Resilient Rollstock Products can be die cut to a variety of shapes and sizes.

The following examples illustrate just a few of the possibilities.



Storage and Shelf Life

The shelf life of 3M™ Bumpon™ Protective Products is 18 months from the date of manufacture when stored in the original packaging materials and stored at 16-27°C (60-80°F) and 50% relative humidity.

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- Подбор аналогов;
- Консультации по применению компонента;
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- Защита от снятия компонента с производства.



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