

Aftermarket Mounting Options

Screws, rivets and clips were once the customary fasteners for aftermarket attachment of automotive moldings and trim. Over time, however, these methods can cause vehicle corrosion and rust. They require a labor-intensive assembly, and can result in loose, rattling parts.

The search for effective alternatives to mechanical fasteners has led to the development of 3M™ Acrylic Foam Tape.

Pressure sensitive adhesive tapes have been used by OEMs for two decades, with increasing application as performance has improved. The early materials for automotive applications were made of neoprene foam. However, neoprene has the potential to oxidize and deteriorate over time. Most importantly, it does not possess the stress distribution properties of acrylic foam tape.

3M introduced its high-performance acrylic materials in the late 1970s. The addition of a closed cell foam core with acrylic adhesive improved resistance to vibration and stress forces caused by flexing, temperature extremes and repeated car washes.

The foam core is designed with unique "stress relaxation" properties. These properties allow it to elongate and relax when stressed. In this way, the stress forces are distributed throughout the tape core and not concentrated at the adhesive bond line.

The tape's foam core also gives it the ability to withstand a wide temperature range by expanding and contracting as necessary. Because the tape is highly conformable, it allows for a better fit by compensating for mismatches between parts and the vehicle.

Tape fastening eliminates the concern for rust development and preserves OEM warranties since corrosion sources such as screws, rivets and clips are unnecessary.

3M faces many challenges in tape development. One such challenge relates to the evolving paints, waxes and plastics used in automobile manufacturing. New materials require that 3M continue to make parallel advancements in the construction of



A wide range of aftermarket trim accessories enjoy the benefits of adhesive fastening.

its tape, ensuring that customers continue to receive the same high level adhesion they have come to expect.

There are several common forces the tape must contend with to perform well in an application, and 3M has conducted extensive testing of its tape in all of these areas. (Figure 1 identifies these forces.)

The first test is called "tensile" or "pluck." Tensile testing measures a tape's holding force when two parts are pulled directly apart from one another.

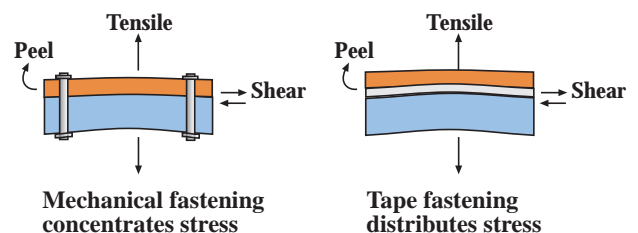
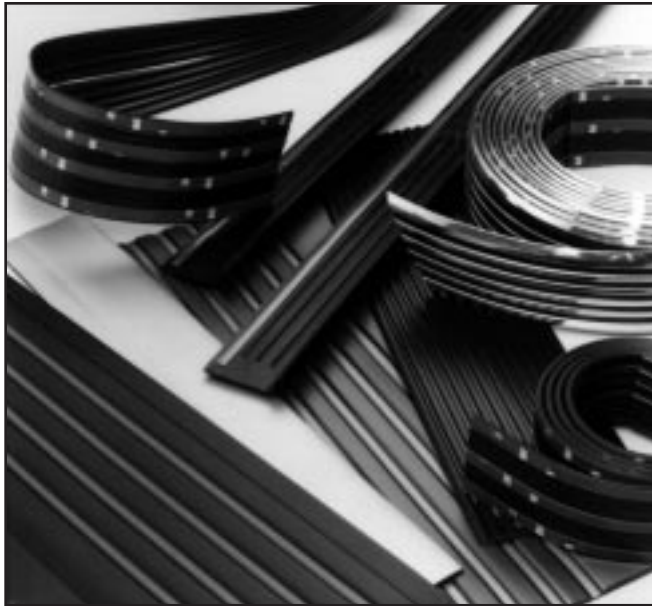


Figure 1



One important aftermarket application for Acrylic Foam Tapes soft, flexible plastic and rubber trim.

A second test — "peel" — simulates the action of pulling one end of a molding or trim part away from a vehicle. It represents the actual peeling forces in the application, and can be used to evaluate tape adhesion to any rigid or semi-rigid surface. The tape is typically reinforced with an aluminum backing, and then pulled from the surface at a 90° angle.

A third test is called "static shear." This test measures the weight-holding strength of the foam tape. A steel-to-steel bond is made with the tape, and the test sample is positioned vertically with a weight hanging from the lower surface. Typically this test is run at an elevated temperature.

These tests provide a guideline for assessing the performance of 3M™ Acrylic Foam Tape. 3M has consistently outperformed competitive materials and enjoys a leadership position in both the OEM and professional markets.

3M is also challenged to provide instructive materials regarding proper surface preparation for automotive tape application. It is important that automotive surfaces and aftermarket accessories be correctly prepared before the tape is applied. If a surface is improperly cleaned or primed, the

application may not be successful.

All of these challenges have been met by 3M acrylic foam tape, which is under constant testing, development and refinement to remain current with the changing needs of the automotive aftermarket.

Designed specifically for automotive applications, and approved by original equipment manufacturers (OEMs) worldwide, 3M acrylic foam tape ensures permanent fastening that lasts the lifetime of the vehicle.

*Trim accessory samples provided courtesy of:
Aftermarket Manufactured Accessories - Silverton, OR
Auto Ventshade Company - Lawrenceville, GA
C.O. Tools / Prime Design - Elkhart, IN
Crila Plastic Industries, Ltd. - Knoxville, TN
G.T. Styling - Irvine, CA
Kenco - Middlebury, IN*



**Dale Stewart,
senior technical
service engineer**

TechTip

A question people often ask about 3M™ Acrylic Foam Tape is how it can be removed from painted or metal surfaces.

The tape can be easily removed using 3M™ Scotch-Brite™ Molding Adhesive and Stripe Removal Discs.

These polymer discs are available in both 4- and 6-inch sizes, depending on the substrate and amount of tape being removed.

It is imperative that the disc be run on a tool with proper speed and torque ratings. The required tool speed for a 4-inch disk is 4,000 RPM, and for a 6-inch disc — 2,800 RPM.

Scotch-Brite removal discs are not recommended for use on most plastics (such as PVC) or on acrylics, since the friction can melt these materials.



Automotive Division

3M Center, Building 223-1S-02
St. Paul, Minnesota 55144-1000
Customer Service: 800-362-7183