3M™ Acrylic Foam Tape Series PX5000

Technical Data Sheet

General Description

3M™ Acrylic Foam Tape Series PX5000 tapes are dark gray, double-coated acrylic foam tapes designed for attachment of automotive exterior trim parts without the use of adhesion promotor. 3M Series PX5000 tapes feature an advanced ZX adhesive system on both sides of the tape that offers excellent adhesion to medium surface energy and low surface energy substrates – as well as a variety of automotive clear coat systems.

Capable of bonding to difficult paint systems depending upon the application. Please work with a 3M technical representative to determine viability.

Some typical applications for 3M Series PX5000 tapes include sensor brackets, body side moldings, and pillar garnishes.

Product Features

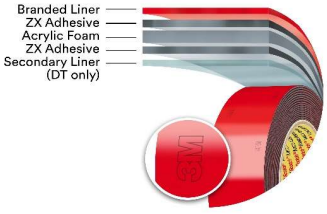
- Excellent primerless adhesion to medium and low surface energy plastics
- High temperature holding power (up to 90°C*) on low surface energy plastics such as thermoplastic olefin (TPO), polypropylene (PP), polypropylene/ethylene propylene diene monomer (PP/EPDM)
- Unique foam core provides stress relaxation when high application loads are encountered, while maintaining tight bond-line aesthetics under normal conditions
- Very good adhesion to easy and medium difficulty paint systems

General 3M™ Acrylic Foam Tape Benefits

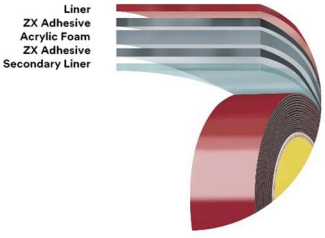
- **Viscoelastic Flexibility:** unique formula for excellent adhesion and stress relaxation qualities that deliver conformability during thermal expansion and in periods of high stress
- **Ease of Use:** tape can be die-cut into intricate shapes allowing for easy peel and stick bonding - enabling attachment in areas where mechanical attachment is difficult or impossible
- **Design Freedom:** enables easy differentiation of vehicle models by providing flexibility to respond quickly to changes in design and materials, allowing for easy installation of dealer installed accessories

* Applications demanding greater than 80°C holding require additional testing.

Product Construction



PX5000 / PX5000F / PX5000DT



PX5000T

* PX5000F is the European Number for PX5000

Physical Properties

	PX5005	PX5008	PX5011	PX5015
Thickness Range	0.51 mm (0.020 in) +/- 0.08 mm (0.003 in)	0.76 mm (0.030 in) +/- 0.08 mm (0.003 in)	1.14 mm (0.045 in) +/- 0.10 mm (0.004 in)	1.52 mm (0.060 in) +/- 0.15 mm (0.006 in)
Density Range	688 kg/m^3 (43 lb/ft^3) +/- 56 kg/m^3 (3.5 lb/ft^3)	688 kg/m^3 (43 lb/ft^3) +/- 56 kg/m^3 (3.5 lb/ft^3)	688 kg/m^3 (43 lb/ft^3) +/- 56 kg/m^3 (3.5 lb/ft^3)	688 kg/m^3 (43 lb/ft^3) +/- 56 kg/m^3 (3.5 lb/ft^3)
Color Range	32 +/- 5 L units	32 +/- 5 L units	32 +/- 5 L units	45 +/- 5 L units
Roll Widths	• Available in the following standard widths: o Millimeter widths rounded to the nearest whole number and 1/8 inch increments starting with 1/4 inch o Minimum widths: 4 mm Levelwound, 5 mm Planetary (Standard versions) • Width tolerance: o +/- 0.4 mm for planetary rolls up to 18 mm wide and level wound rolls o +/- 0.8 mm for planetary rolls wider than 18 mm			
Core	Dark Gray, Acrylic Foam			
Adhesive	• ZX pressure sensitive adhesive with robust adhesion to LSE plastics without using primer on both sides of the tape			
Liner	• PX5000/PX5000F: 3M Branded, red polyethylene, ~~2-sided~~ silicone-coated on both sides for easy release • PX5000DT: 3M Branded, red polyethylene, 1-sided silicone-coated liner on Planetary Rolls that enables heat-bond tabbing • PX5000T: Brick polyethylene, 1-sided silicone-coated liner on Levelwound Rolls that enables heat-bond tabbing			
Tabbing	• An extended liner tab is recommended • Tape available with tabbable liner options: 3M™ Acrylic Foam Tape PX5000T and PX5000DT Series • Heat-bond tabbing: 3M™ Tabbing Tapes 5081 and 5400 for T-liner versions • PSA Tabbing: 3M™ Tabbing and Splicing Tape 5699 for silicone liners, 3M™ Tabbing Tape 5300 for non-silicone liners			
Splices	• Number of splices depends on order quantity or roll length • Level wound rolls have an average of 3 to 4 splices • Smaller order quantities (smaller than one jumbo) rolls could contain up to 14 splices			

Performance Properties

Typical performance of 3M™ Acrylic Foam Tape Series PX5000 is shown below. Peel and shear values depend on plastic substrate characteristics and/or paint composition. These values are for reference only.

Note: Care should be taken to make sure the surface is clean and dry prior to application of the tape. After adhesion build, the ZX adhesive is durable to typical automotive environmental conditions and chemicals and provides a robust attachment solution. For more details and application guidance, please contact your 3M Technical Representative.

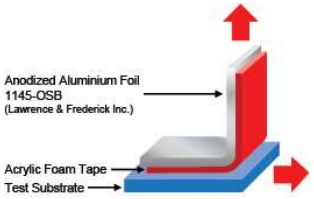
When using solvents, extinguish all ignition sources, including pilot lights and follow the manufacturer's precautions and directions for use.

Performance Data

Test Substrates:

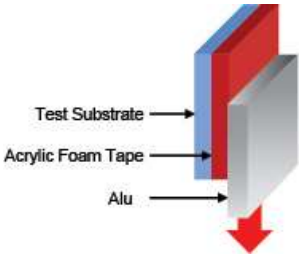
- Non-liner side of tape: TPO, PP, PP/EPDM – Performance across full range of TPO, PP, PP/EPDM dependent upon material grade, surface, etc.
- Liner-side of tape: TPO, PP, PP/EPDM – Performance across full range of TPO, PP, PP/EPDM dependent upon material grade, surface, etc. Can also be used on automotive paint surfaces- Performance across full range of clear coats is dependent upon clear coat chemistries
- Adhesion Promoter was not used

90° Peel



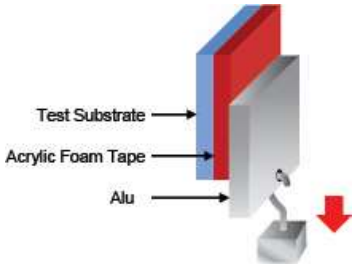
	3M AFT PX5000 Series Non-Liner Side	3M AFT PX5000 Series Liner Side
Sample Size	12.5mm wide peel sample	
Dwell	24 hours @ 22C, 50% RH	
Load/Conditions	300mm/minute	
Failure Mode	Cohesive (Foam Split)	Cohesive (Foam Split)

Dynamic Shear



	3M AFT PX5000 Series Non-Liner Side	3M AFT PX5000 Series Liner Side
Sample Size	25 mm x 25 mm	
Dwell	24 hours @ 22C, 50% RH	
Load/Conditions	50 mm/min @ 80C	
Failure Mode	Cohesive (Foam Split)	Cohesive (Foam Split)

Static Shear



	3M AFT PX5000 Series Non-Liner Side	3M AFT PX5000 Series Liner Side
Sample Size	25 mm x 25 mm	
Dwell	22C, 50% RH	
Load/Conditions	500g @ 80C for 10,000 minutes	
Failure Mode	Pass (No Failure)	Pass (No Failure)

Performance to Automotive Clear Coat

With regard to clear coat performance, the 3M™ Acrylic Foam Tape Series PX5000 tapes will offer a general performance increase over existing AR7 products on most automotive clear coats – especially on more difficult clear coats. Work with your 3M Application Engineer to develop testing specific to the requirements of your applications and clear coats to understand how the ZX adhesive system can perform.

Application Guidelines

The following are recommended for successful tape applications:

- **Clean surface**. Remove all contaminants so that the bonding surface is free of dust, mold release, condensation, etc.
- **Appropriate pressurization**. Pressure is needed to provide intimate contact between the tape and bonding surface. 3M recommends 15 psi momentary pressure on the bond line. This is a guideline and required pressure levels will be impacted by substrate hardness.
- **Avoid air entrapment**. Tape should be laminated and pressurized in one operation; from one end to the other.
- **Avoid excessive tape stretch**. During tape application, do not exceed 4% stretch. Stretch can be influenced by tension, speed and roller diameter.
- **Appropriate temperature**. Optimum component and 3M tape application temperature is 60°F to 110°F.

Shelf Life

Two years from date of manufacture when stored at 4°C - 38°C (40°F - 100°F) and 0 - 95% relative humidity. Optimum storage conditions are 22°C (72°F) and 50% relative humidity.

Regulatory Information

Please refer to the product label and Safety Data Sheet (SDS) for health and safety information before using. Observe proper handling precautions as outlined in the SDS, which is available on request or at www.3M.com/msds.

The product is published as a material entry and is available for access on www.mdsystem.com. For product IMDS ID number, email requests to 3M-IMDSrequest@mmm.com.

Contact Information

The information provided in this technical document is intended as a guide for this product. For more information or help in selecting a 3M product for an application, please contact your 3M application engineer or call product application support at 1-800-328-1684.

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