## **3M Vibration Damping Tapes** 434 • 435 • 436

Product Description	3M <sup>TM</sup> Vibration Damping Tapes are low temperature 3M <sup>TM</sup> Viscoelastic Damping Polymers coated on a dead soft aluminum foil constraining layer. They have pressure sensitive properties and are furnished in roll form and designed for direct, pressure sensitive application to metal and composite panels for vibration damping purposes. The combination of the low temperature 3M viscoelastic polymers and a aluminum constraining layer has proven to be an unique construction with exceptional ability to damp resonant vibrations in the temperature range of -76° to +68°F (-60° to +20°C).				
Product Construction	Product	Liner	Aluminum	Damping Polyme	
	3M <sup>™</sup> Vibration Damping Tape 434	Polyethyle (Blue)	ne 5.5 mils (0.14 mm) (Dead Soft Aluminum Foil)	2.0 mils (0.05 mm) Synthetic	
	3M <sup>™</sup> Vibration Damping Tape 435	Polyethyle (Blue)	ne 8.0 mils (0.20 mm) (Dead Soft Aluminum Foil)	5.5 mils (0.14 mm) Synthetic	
	3M <sup>™</sup> Vibration Damping Tape 436	Polyethyle (Blue)	ne 12.0 mils (0.30 mm) (Dead Soft Aluminum Foil)	5.5 mils (0.14 mm) Synthetic	
Typical Physical Properties	Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. ASTM Test Metho				
	Adhesion to Steel:		65 oz./in. width (724 gm/cm width)	D-3330	
	Tensile Strength:		50 lbs/in (875 N/100 mm)	D-3759	
	-		12%		
	Elongation at Break:				
	Total Tape Thickness: 3M tape 434 3M tape 435 3M tape 436		7.5 mils (0.19 mm) 13.5 mils (0.34 mm) 17.5 mils (0.45 mm)	D-3652	
	Total Tape Thickness: 3M tape 434 3M tape 435	n Rate:	13.5 mils (0.34 mm)	D-3652 D-3833	
	Total Tape Thickness: 3M tape 434 3M tape 435 3M tape 436	n Rate:	13.5 mils (0.34 mm) 17.5 mils (0.45 mm)		
	Total Tape Thickness: 3M tape 434 3M tape 435 3M tape 436 Water Vapor Transmission Weight: 3M tape 434 3M tape 435	n Rate:	13.5 mils (0.34 mm) 17.5 mils (0.45 mm) 0.1 gm./100 in. <sup>2</sup> /24 hour/mil 0.090 lb./ft. <sup>2</sup> (0.44 Kg/m <sup>2</sup> ) 0.138 lb./ft. <sup>2</sup> (0.675 Kg/m <sup>2</sup> )		

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

Dynamic Mechanical Properties of 3M<sup>TM</sup> Viscoelastic Damping Polymer Type 830 (Without Foil)



#### Note Regarding Dynamic Mechanical Properties:

The shear storage modulus (G') and loss factor of a viscoelastic adhesive are two parameters used to partially define the damping performance when used in the form of a constrained layer damping treatment. The above curves illustrate these data as a function of frequency and temperature in the form of a reduced temperature nomograph.

While the damping performance of a constrained layer damping treatment depends largely on the dynamic mechanical properties of the viscoelastic adhesive alone, it is also dependent on other parameters. Namely the geometry, stiffness, mass and mode shape of the combination of the damper and the structure to which it is applied will also affect the damping performance.

To determine the dynamic mechanical properties at the desired temperature and frequency proceed as follows:

- 1. Locate the desired frequency on the right vertical scale.
- 2. Follow the chosen frequency horizontally to the desired temperature isotherm.
- 3. From the intersect, move vertically up and/or down until crossing both the modulus and loss factor curves.
- 4. Read the shear storage modulus and loss factor values from the left vertical scale.

#### **Features**

- Pressure sensitive construction for easy application.
- Excellent aging qualities of the 3M viscoelastic damping polymer type 830 provide long term performance and has excellent resistance to most hydrocarbon and/or aircraft type solvents.
- Wide temperature range for damping. Usable from -76° to 68°F (-60° to 120°C) at 100 Hz plus higher temperatures at higher frequencies.
- These linered products offer the user die-cut capability.

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Applications	<ul> <li>For lower temperature aerospace and industrial applications.</li> <li>Reduce unwanted resonant noise, vibration and fatigue in metal panels and support structures.</li> <li>Chutes, conveyors, bins, metal shop boxes and tables where metal contact with materials can result in unwanted vibration.</li> </ul>		
Storage	Store under normal conditions of 70°F (21°C) and 50% R.H. in the original carton.		
Shelf Life	To obtain best performance, use this product within 24 months from date of manufacture.		
For Additional Information	To request additional product information or to arrange for sales assistance, call toll free 1-800-362-35 or visit www.3M.com/industrialtape. Address correspondence to: 3M Industrial Adhesives and Tapes Division, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 877-369-2923. In Canad phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.		
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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Limitation of Liability	Except where prohibited by law, 3M and seller will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.		
	(ISO 9001)		
	This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.		

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Printed in U.S.A. ©3M 2013 (11/13)