

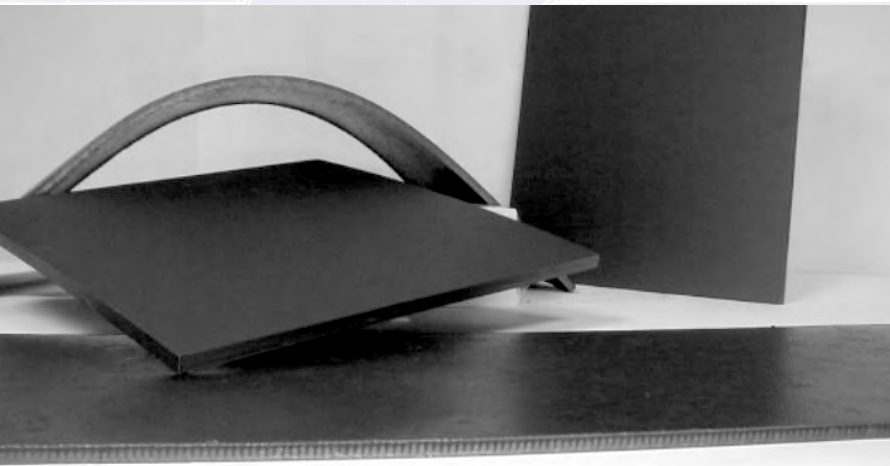


Technical Specifications

# Vibration Damping Tile

ENGINE

SERVICE CHANNEL



## SOUNDOWN Vibration Damping Tiles

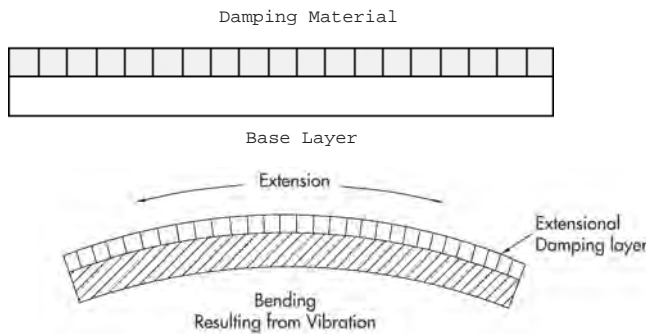
SOUNDOWN Vibration Damping Tiles are an easily applied damping layer for stopping reverberant "ringing" vibration in heavy plate constructions. Structural damping material consumes vibrational energy and transforms it into heat. It dissipates vibrational energy in the structure before it can build up and radiate as sound. Substrates upon which the tiles are commonly installed include: steel, aluminum, and fiberglass laminate. Vibration damping loss factor (n), at 1,000 Hz for the 3/8" tile, exceeds 0.10 on aluminum plate up to 0.40". Even greater damping values are obtained when the material is installed as a "constrained layer" treatment as shown on the bottom diagram to the left.

Damping tiles and sheets are a polymeric product resistant to fuel, water, and fire. The product is optimized for use in the temperature range of 55° to 90° F. All product configurations pass UL-94V and ASTM D-635 flame testing.

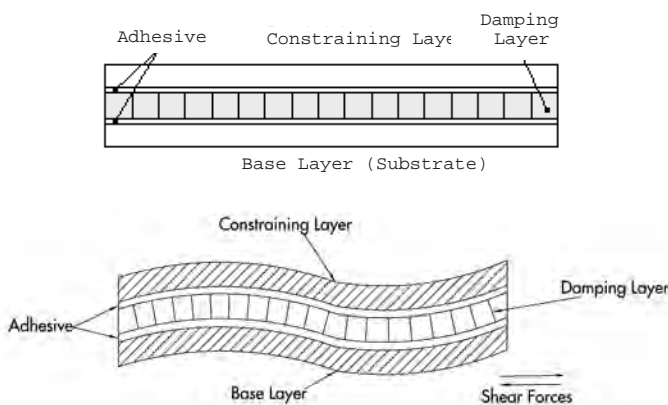
These damping materials are bonded to the treated structure using 100 percent solid epoxy systems such as the TA-30 resin supplied by Sounddown Corp. Our 1/16", 1/8" and 1/4" damping material can also be supplied with pressure sensitive adhesive (PSA) for use on thinner substrates.

Typical shipboard applications include:

- Hull plating (above props or areas affected by wave actions)
- Tank Tops
- Decks or Bulkheads (esp in close proximity to machinery)
- Walking Decks
- Stair Treads
- Thruster Tunnels and adjacent areas



**Above:** a free-layer damping application. This is the most common and easiest form of damping. The vibrational energy is dissipated due to the extension and compression of the damping material due to the vibrational stress of the base layer.



**Above:** a constrained-layer damping application. During vibrational distortion the system flexes creating shear forces on the constraining layer. It is these shear forces that causes the energy to dissipate and turn into heat.



2010.1.A

8" ID (203.2mm) ENGINE EXHAUST PIPE

DUAL-LIFT (0.123m<sup>2</sup>)

<p><b>SOUNDOWN</b> SOUNDOWN CORP. 7748 WEST 3000 WARRIERS, WA 98148 PHONE: 800-829-1006 FAX: 817-617-8201</p>	<b>SOUNDOWN CORPORATION</b>		
	<b>ACOUSTIC INSULATION DETAIL</b>		
<p>DESIGNED BY: R. HERTZ</p> <p>http://www.sounddown.com</p> <p><small>THIS INFORMATION IS THE PROPERTY OF SOUNDOWN CORP. ANY COPYING TRANSMITTAL TO OTHERS AND ANY USE WITHOUT WRITTEN PERMISSION IS PROHIBITED BY THE WRITTEN PERMISSION OF SOUNDOWN CORP.</small></p>	<p>SIZE: A</p> <p>SCALE: NONE</p>	<p>PART NO.: INF1010</p> <p>DATE: 09-09-10</p>	<p>DWG NO.: 1010</p> <p>DRAWN BY: [blank]</p>

# Extensional Damping Material

## The Material

The standard material comes in 12" x 12" tiles for the 3/8" and 5/8" thick or 4.5' wide rolled sheet goods for the thickness of 1/16", 1/8" and 1/4"

## Surface Density

0.4 lbs sq/ft (2.2kg/m<sup>2</sup>)  
 0.9 lbs sq/ft (4.4kg/m<sup>2</sup>)  
 1.9 lbs sq/ft (9.3kg/m<sup>2</sup>)  
 2.7 lbs sq/ft (13.2kg/m<sup>2</sup>)  
 3.6 lbs sq/ft (17.6kg/m<sup>2</sup>)

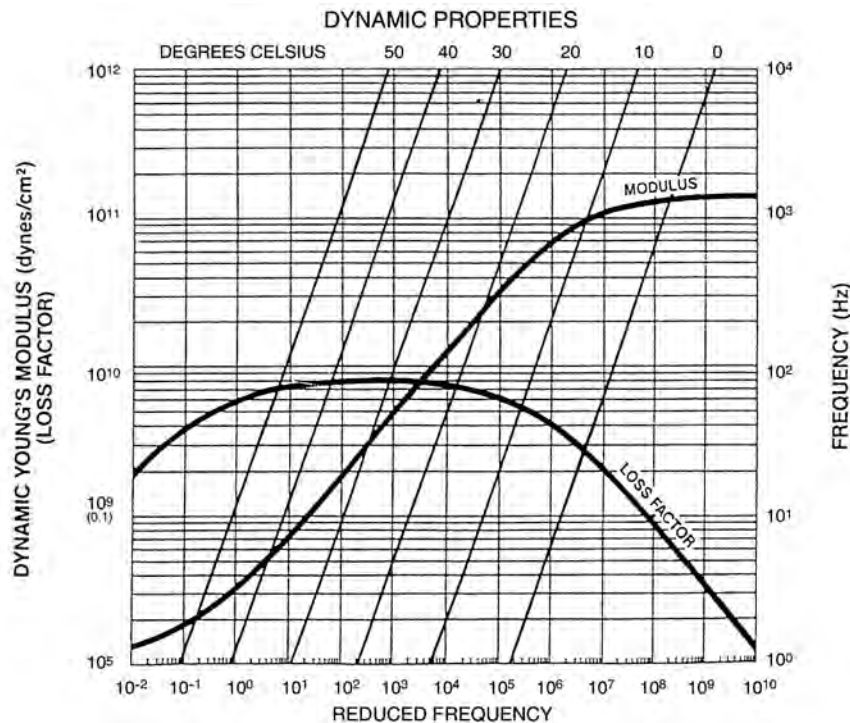
## Thickness

1/6" (1 mm)  
 1/8" (3 mm)  
 1/4" (6 mm)  
 3/8" (9 mm)  
 5/8" (15 mm)

## Typical Physical Properties

<b>Density Nominal</b> Kg / m <sup>3</sup> (lb / ft <sup>3</sup> )	1490 (93)	<b>Tensile Strength</b> Kpa (psi) <b>ASTM D638</b>	13700 (1987)	<b>System Loss Factor At</b> <b>1000 Hz on 62 mil</b> <b>Aluminum</b> <b>Thickness cm (in)</b>  <b>ASTM E756 93</b>	
<b>Flammability</b> <b>UL94</b>	Meets V-O	<b>Elongation (%)</b> <b>ASTM D638</b>	23		
<b>MVSS-302</b>	Meets	<b>Tear Strength</b> kN/m (lbf/in) <b>ASTM D1004-93</b> <b>ASTM D3574</b>	66 (375)	@ 0°C (32°F)	η=.140
<b>Temperature</b> <b>Range</b> °C (°F) <b>Peak Performance</b>	2°C to 46°C (35°F to 115°F)	<b>Recommend Max</b> <b>Intermittent</b>	107°C (225°F)	@ 10°C (50°F)	η=.270
				@ 20°C (68°F)	η=.210
				@ 30°C (86°F)	η=.120

## Typical Acoustic Properties



All statements herein are expression of opinion that we believe to be accurate and reliable, but are presented without guaranty or responsibility on our part.

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