

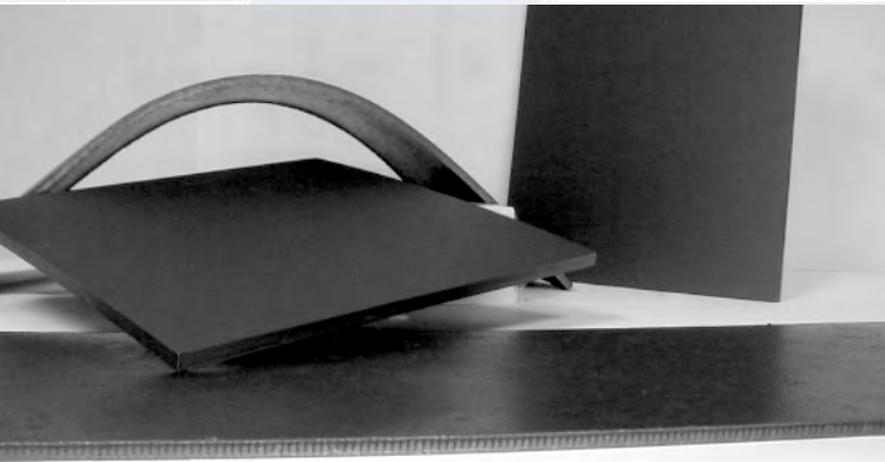


Technical Specifications

Vibration Damping Tile

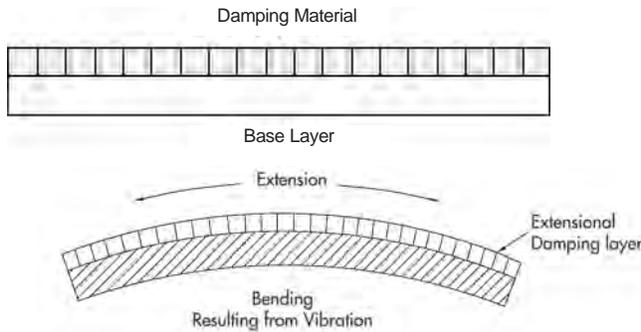
ENGINE

SERVICE CHANNEL



SOUNDOWN Vibration Damping Tiles

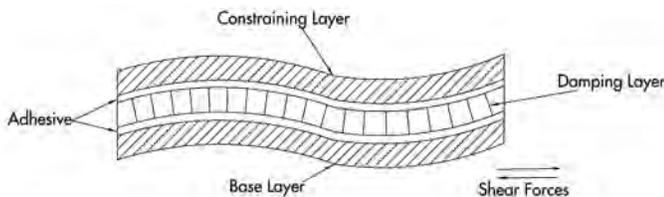
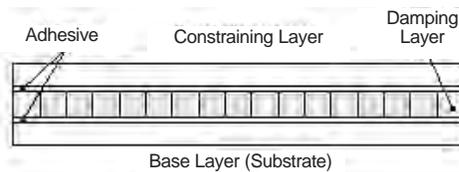
SOUNDOWN Vibration Damping Tiles are an easily applied damping layer for stopping reverberant "ringing" vibration in heavy plate constructions. Structural damping material consumes vibrational energy and transforms it into heat. It dissipates vibrational energy in the structure before it can build up 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.



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.

Damping tiles and sheets are a polymeric product manufactured in accordance with MIL PRF 23653D. Soundown's standard tile and sheet products are Class 2 which are optimized for a temperature range of 55°F to 90°F. For temperature of 35°F to 55°F Class 1 tile are available in 3/8" and 5/8". These products are resistant to fuel, water, and fire. 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 Soundown 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.



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.

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



2010.2.A

8" ID (203.2mm) ENGINE EXHAUST PIPE

DUAL-LIFT (0.123m)

<p>SOUNDOWN SOUNDOWN CORP. 7740 WEST 3000 WARRLEND, WASHINGTON PHONE: 800-829-1006 FAX: 817-631-8201</p>	SOUNDOWN CORPORATION			
	ACOUSTIC INSULATION DETAIL			
<p>DESIGNED BY: R. HEBERTZ</p> <p>http://www.soundown.com</p>	<p>SIZE: A</p> <p>SCALE: NONE</p>	<p>PART NO.:</p> <p>DATE: 09-09-07</p>	<p>REVISED NO.:</p> <p>1010</p>	<p>DATE:</p> <p>09-09-07</p>
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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 ²)
0.9 lbs sq/ft	(4.4kg/m ²)
1.9 lbs sq/ft	(9.3kg/m ²)
2.7 lbs sq/ft	(13.2kg/m ²)
3.6 lbs sq/ft	(17.6kg/m ²)

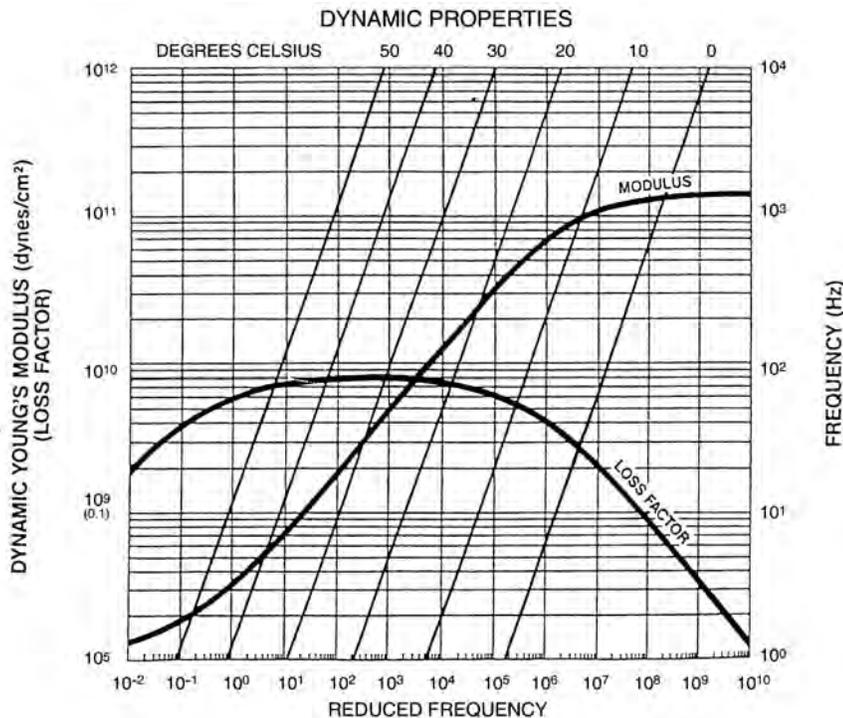
Thickness

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

Typical Physical Properties

Density Nominal Kg / m3 (lb / ft3)	1490 (93)	Tensile Strength Kpa (psi) ASTM D638	13700 (1987)	System Loss Factor At 1000 Hz on 62 mil Aluminum Thickness cm (in) ASTM E756 93	
Flammability UL94	Meets V-O	Elongation (%) ASTM D638	23		
MVSS-302	Meets	Tear Strength kN/m (lbf/in) ASTM D1004-93 ASTM D3574	66 (375)	@ 0°C (32°F)	η=.140
Temperature Range °C (°F) Peak Performance	2°C to 46°C (35°F to 90°F)	Recommend Max Intermittent	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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