

DECIDAMP® TILE

vibration damping tile

Decidamp® Tile is a high performance structural damping product, engineered to reduce vibrational resonances in thick panel constructions. It was developed to meet market requirements in the industrial, marine, rail and heavy vehicle industries.

Decidamp Tiles are formulated using a blend of new generation polymer compounds which provide exceptional damping over a broad temperature range of 10 to 50°C. The tiles are designed to comply with Class 2 & 3 Navy damping tile specifications of MIL-PRF-23653D.

Structures from materials such as steels, fibreglass and alloys, that have minimal internal damping properties, resonate at their natural frequencies and vibrate on impact. Decidamp tiles are one of the most effective forms of extensional damping materials that can be easily bonded to vibrating surfaces to reduce impact-generated noise and resonant vibration at its source. Being specifically engineered to reduce vibration in heavy gauge structures, the semi-rigid tiles have a unique combination of good mechanical strength and visco-elastic properties that enable them to absorb large amounts of mechanical energy from vibrating structures. The tiles dissipate the vibrational energy through the structure thereby reducing radiated noise-levels.

Decidamp tiles can be installed using Pyrotek's 'Decidamp® DC30' - which is a two-part polyurethane system. The acoustic and non-slumping properties of the adhesive allows the damping tiles to be installed without the use of mechanical aids such as screws or pins, while adding to the acoustic performance of the damped system. In certain applications, a military specified epoxy adhesive such as Lord Corporation's 306 or ITW's Phillybond TA-30 adhesives may be preferred.



applications

- Marine vessels in shipboard applications such as bulkheads, hull construction, tank tops, engine bed girders and the structure above props
- Military armoured vehicles, personnel carriers
- Rail cars
- Heavy vehicles: buses, trucks, tractors
- Industrial: heavy machinery, mining equipment, salvage equipment, hoppers and chutes can have radiated noise reduced and maintenance periods extended.
- Large structures: power generators, oil rigs, I beams

features

- Exceptional structural damping material with high mechanical strength
- Designed to dampen substrates up to 20mm in thickness
- Good thermal, chemical and flame resistance properties
- Reduces vibrational resonances and impact-induced noise
- Reduces airborne noise - Increases transmission loss
- Complies to UL 94 V-0 and FMVSS302 to meet low flame spread requirements
- Conforms to flame retardance criteria defined in MIL-PRF-23653D
- Can be installed on metal structures in accordance with MIL-STD-2148 by using a two-component epoxy adhesive from the Qualified Products List QPL-24456.
- Non-conductive, eliminating galvanic corrosion
- Easy to apply, mould and cut into various shapes
- Compatible with most adhesive systems
- Available in various thicknesses and custom dimensions

SPECIFICATIONS

Packaging	Tile size: 308 x 308 mm (12 x 12")
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PRODUCT SPECIFICATIONS

Thickness* (mm)	Weight** (kg)/m ²	Tile size* (mm)	Operating temperature range (°C)	Minimum application temp. (°C)	Adhesion strength (Pyrotek tile adhesive)
3.1 mm (1/8")	4.5 kg/m ² (0.9 lb/ft ²)	308 x 308 mm (12 x 12")	10-50 °C (50 -122 °F) (Continuous) 110 °C (230 °F) (Intermittent)	15 °C (59 °F)	100 °C (212 °F)
6.3 mm (1/4")	9.5 kg/m ² (2 lb/ft ²)	308 x 308 mm (12 x 12")			
9.5 mm (3/8")	13.2 kg/m ² (2.7 lb/ft ²)	308 x 308 mm (12 x 12")			
12.5 mm (1/2")	18.8 kg/m ² (3.8 lb/ft ²)	308 x 308 mm (12 x 12")			
15 mm (5/8")	21.9 kg/m ² (4.4 lb/ft ²)	308 x 308 mm (12 x 12")			

Tolerances: *Nominal dimensions (+/-10%); **Weight (-0/+4%)

FLAMMABILITY PROPERTIES

Test method	Index	Results	Report No.	Description
ASTM D635-10	Linear Burn rate - mm/min	Self Extinguishing No burn rate	Report No. 01.17791.04.026	Standard test method for rate of burning and/or extent of time of burn of plastics in horizontal positions as outlined in MIL-PRF-23653D
UL94	After flame, burn rate and flaming drops	V-0	Report No. 18613-PH1	Vertical burn test for plastic materials.
FMVSS-302	Burn rate - mm/min	Self extinguishing	Report No. 18613-PH2	Automotive burn rate test.

CHEMICAL RESISTANCE (REPORT NO. 20013-PH - TESTED TO ASTM D543 / ISO 175)

Chemical	Distilled water	Seawater	Mineral oil	Kerosene	Gasoline	Sulfuric acid (2M)
Exposure rating	Excellent	Excellent	Excellent	Very good	Very good	Excellent
Weight change (+/-)	< 0.1%	< 0.1%	< 0.3%	< 0.5%	< 0.3%	< 0.1%

APPLICATION GUIDE

Substrate	Tile thickness
Steel	≥ 2/3 x T*
Aluminium	≥ 1/3 x T*
FRP (laminated)	≥ 1/4 x T*
FRP (composite)	≥ 1 x thickness of fibreglass layer

*T: Substrate Thickness

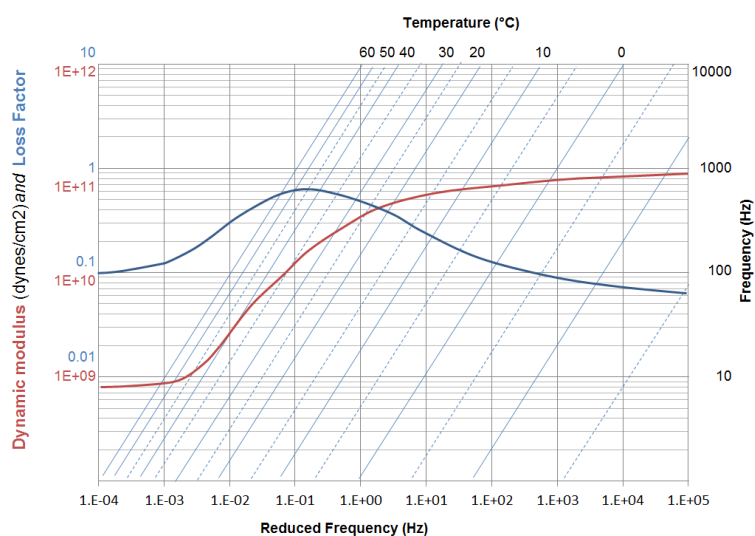


SYSTEM LOSS FACTOR

Tested to ISO 6721-3:1994 (Report No. 19313-PH)

THICKNESS DECIDAMP/SUBSTRATE 2:1			
Temp °C	Steel	Aluminium	FRP
-20	0,03	0,06	0,09
-10	0,04	0,09	0,13
0	0,07	0,13	0,20
10	0,11	0,21	0,32
20	0,23	0,46	0,68
30	0,25	0,50	0,76
40	0,19	0,38	0,57
50	0,10	0,20	0,31
60	0,05	0,10	0,15
Max. estimated noise reduction on a large panel (dB)	24	27	29

THICKNESS DECIDAMP/SUBSTRATE 1:1			
Temp °C	Steel	Aluminium	FRP
-20	0,02	0,03	0,05
-10	0,02	0,04	0,07
0	0,03	0,07	0,10
10	0,05	0,11	0,16
20	0,11	0,23	0,34
30	0,13	0,25	0,38
40	0,10	0,19	0,29
50	0,05	0,10	0,15
60	0,03	0,05	0,08
Max. estimated noise reduction on a large panel (dB)	21	24	26



Reduced Frequency Nomogram (Report No. 19313-PH);

How to read a reduced frequency nomogram:

1. Start by selecting the frequency (Hz) on the right-hand vertical axis.
2. Follow this value horizontally to the left to where the diagonal temperature isotherm intersects.
3. Draw a vertical line through the frequency and isotherm intersection, find the point where this line intersects the modulus and loss factor curves.
4. Draw horizontal lines from these points to the left-hand vertical axis to read the values.