

THERMAL- ACOUSTIC CONTROL MATERIALS

NVT InsulFire®

The **NVT INSULFIRE** product range are structural fire protection blankets or sheets certificated under USCG-IMO(SOLAS) using InsulFrax-MB system AMORPHOUS WOOL (AW) or CERAMIC FIBER (CER). These NON-COMBUSTIBLE fire protection systems are offered with a variety of IMO-Approved facings including non-combustible navy cloth (CF), reinforced mylar (WM), 2mil aluminum foil (AF) and perforated fiberglass cloth WP). **TYPICAL PROPERTIES** Melting Point : 1260°C (2300°F) Temperature Grade : 1000°C (1832°F) Loss on Ignition : 0% Surface Burning Characteristics (per ASTM E-84) Flame Spread=0 Smoke Developed=0



Density 96 kg/m³ (6 PCF) & 128 kg/m³ (8 PCF) Facings Available; **Contact NVT**

Size: 25mm x 610mm x 7620mm (1" x 24" x 25LF)

: 38mm x 610mm x 3810mm (1.38" x 24" x 12.5LF)

: 50mm x 610mm x 3810mm (2" x 24" x 12.5LF)

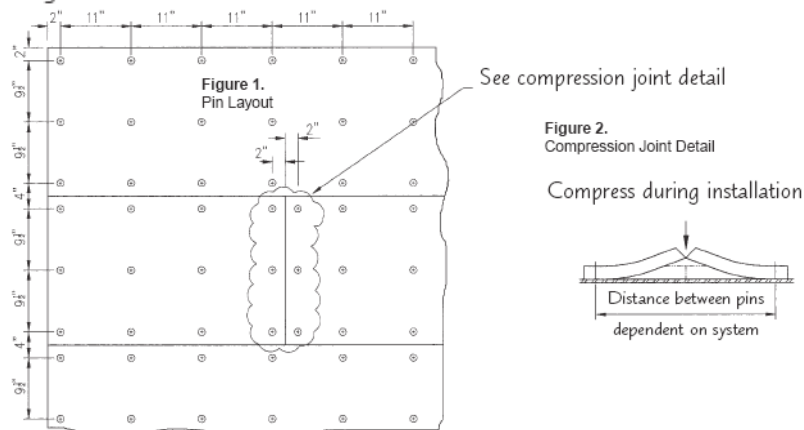
Installation

Insulfrax Marine Blanket is available in a variety of thicknesses and densities. The material parameters chosen depend upon the specific application and the Fire Rating Class required. Refer to the list of U.S. Coast Guard Certifications for details on tested systems and material components. The blanket's flexibility enables it to be easily contoured around beams and fit into tight spaces. No special tools or pre-cutting is required.

For steel bulkheads and decks, mild steel, .118 inch (3mm) CD insulation pins are utilized to permanently attach the blanket to the surface. The pin length should be equal to the total insulation thickness plus 1.0 (25mm) inch. The pins are welded to the steel surface with a standard capacitor discharge welding system. Pin spacing is typically maximum 11 inches (279mm) on center with additional pins located within 2.0 inches (50.8mm) of any material joints or termination points. See Figure 1 for details.

Insulfrax Marine Blanket is impaled over the insulation pins and can be easily cut to the necessary length and width using a straightedge and sharp knife. All blanket butt joints are compressed a minimum 1.18 inches (30mm) during the installation process – e.g., 24 inches (610mm) wide blanket compressed to 22.8 inches (580mm) as shown in Figure 2. In multiple-layer systems, the joint in each layer must be offset by approximately 12 inches (305mm), thus maximizing the thermal integrity of the insulation system. A corresponding round or square speed clip or washer is installed over the pins to permanently attach the blanket in place. Bend over excess pin length to eliminate hazards.

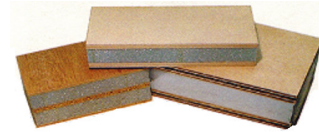
For aluminum bulkheads and decks, a similar pin and washer system is used, except the mild steel pin is supplied with an aluminum base, which is welded to the aluminum surface.



InsulFire® U.S.Coast Guard Certificates of Approval - Structural Insulation under IMO FTP Code

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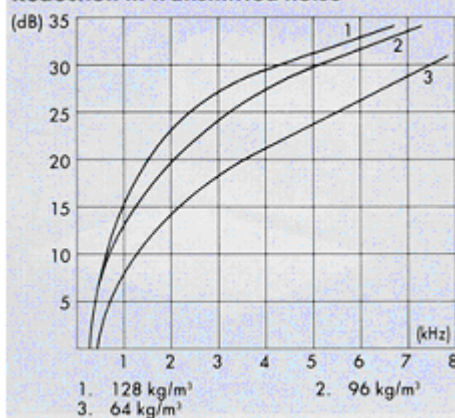
Structure Construction	Test Criteria	Rating Class	Configuration	Plate Thickness	Insulation Thickness*	Insulation Density	No. of Layers	USCG Certification No.	Expiration Date
Noncombustible	IMO FTP Code, Annex 2	N/A	Unfaced, alum. foil faced	N/A	N/A	6pcf, 8pcf	N/A	164.109/23/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-60	Deck	N/A	1.5" (38mm)	6pcf	1	164.107/10/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-30	Deck	N/A	1.0" (25mm)	6pcf	1	164.107/10/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-60	Bulkhead (unrestricted)	N/A	2.5" (1" + 1.5") (25mm +38mm)	8pcf	2	164.107/10/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-30	Bulkhead (unrestricted)	N/A	2.0" (50mm)	6pcf	1	164.107/10/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-60	Bulkhead (restricted)	N/A	1.5" (38mm)	6pcf	1	164.107/11/0	Sept. 27, 2007
Steel	IMO FTP Code, Res.A.754(18)	A-30	Bulkhead (restricted)	N/A	1.0" (25mm)	6pcf	1	164.107/11/0	Sept. 27, 2007
Aluminum	IMO FTP Code, Res.A.754(18)	A-60	Deck	5mm (min.)	2.0" (50mm)	6pcf	1	164.107/12/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-60	Deck	2mm (min.)	2.0" (55mm)	6pcf	1	164.107/12/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-30	Deck	5mm (min.)	1.5" (38mm)	6pcf	1	164.107/12/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-30	Deck	2mm (min.)	2.0" (55mm)	6pcf	1	164.107/12/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-60	Bulkhead (unrestricted)	5mm (min.)	2.0" (55mm) on both sides	6pcf	1 on each Side	164.107/12/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-60	Bulkhead (restricted)	5mm (min.)	2.0" (50.8mm)	6pcf	1	164.107/13/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-60	Bulkhead (restricted)	2mm (min.)	2.0" (55mm) or 1"+1.5" (25+38mm)	6pcf	1 or 2 layer option	164.107/13/0	April 9, 2008
Aluminum	IMO FTP Code, Res.A.754(18)	A-30	Bulkhead (restricted)	5mm (min.)	1.5" (38mm)	6pcf	1	164.107/12/0	April 9, 2008

Fire Resisting Divisions Per IMO for High Speed Craft

Aluminum	IMO MSC.45 (65)	A-60	Bulkhead (unrestricted)	5mm (min.)	2.0" (55mm) on both sides	6pcf	1 on each side	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-60	Bulkhead (restricted)	5mm (min.)	2.0" (50.8mm)	6pcf	1	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-60	Bulkhead (restricted)	2mm (min.)	2.0" (55mm) or 1"+1.5" (25+38mm)	6pcf	1 or 2 layer Option	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-30	Bulkhead (restricted)	5mm (min.)	1.5" (38mm)	6pcf	1	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-60	Deck	5mm (min.)	2.0" (50mm)	6pcf	1	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-60	Deck	2mm (min.)	2.0" (55mm)	6pcf	1	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-30	Deck	5mm (min.)	1.5" (38mm)	6pcf	1	164.207/2/0	April 9, 2008
Aluminum	IMO MSC.45 (65)	A-30	Deck	2mm (min.)	2.0" (55mm)	6pcf	1	164.207/2/0	April 9, 2008

*Actual tested insulation thickness shown in parentheses.
Minimum production thickness for 2.0" thick Insulfrax Marine Blanket is 55mm.

Reduction in transmitted noise



Frequency (Hz)	Sound absorption Coefficient	
	25 mm/96 Kg/m	25 mm/128 Kg/m
125	0.70	0.09
250	0.29	0.54
500	0.73	0.86
1000	0.92	0.94
2000	0.96	0.94
4000	0.99	0.96
Noise Reduction Coefficient	0.72	0.82

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