# FireMaster® Marine Plus Blanket

Datasheet Code 7-9-13 E

MSDS Code 102-13-EURO



**Fire Reaction Properties**

- Non-Combustible in accordance with IMO FTP Code Part 1
- Toxicity Index < 0.5 when tested in accordance with UK MOD Defence Standard 02-713

Manufactured from FireMaster® Plus fibre, FireMaster® Marine Plus Blanket is a highly insulating blanket especially developed for fire protection applications that are very space or weight sensitive. Using an advanced fibre production technology developed by Morgan Thermal Ceramics, insulation performance of the blanket is optimised. Compared to standard FireMaster® blanket, systems using FireMaster® Marine Plus Blanket require either less thickness or lower density specifications to meet the same fire ratings, resulting in typical savings of 20% to 30% in applied weight.

The advanced production technology used in the manufacture of FireMaster® Marine Plus Blanket ensures that even low density blankets have high handling strength, allowing easy and convenient installation. No binder is used during manufacture therefore no smoke will be emitted in a fire. FireMaster® Marine Plus Blanket is non-combustible, very flexible, easily cut and simple to install.

Manufactured exclusively from Morgan Thermal Ceramics Superwool® Plus low biospersistence fibres, FireMaster® Marine Plus Blanket is exonerated from carcinogen classification under Nota Q of the European Union Directive 97/69/EC.

FireMaster® Marine Plus Blanket has been comprehensively tested and approved for the fire protection of steel, aluminium and composite structures used in the marine industry and offers substantial weight savings over traditionally-used fibre insulation systems. It is also suitable for use where high insulation performance in fires is required in the offshore, petrochemical and construction industries.

A wide range of thickness and densities are available and the blanket can be supplied with aluminium foil or glass cloth facings on request

**Thickness range**
25mm to 60mm

**Density Range**
48 to 128 kg/m$^3$

**Thermal Insulation Performance**

**Thermal Insulation at Ambient Temperatures**
R Values (m² K/W) and corresponding U values (W/m²K).

For densities above 64 kg/m³ the values for 64 kg/m³ may be used

| Thickness of blanket | 64 kg/m³ | | 48 Kg/m³ | |
|---|---|---|---|---|
| | R value | U Value | R Value | U Value |
| 25mm | 0.78 | 1.28 | 0.78 | 1.28 |
| 30mm | 0.94 | 1.06 | 0.93 | 1.08 |
| 35mm | 1.09 | 0.92 | 1.09 | 0.92 |
| 40mm | 1.25 | 0.80 | 1.25 | 0.80 |
| 50mm | 1.56 | 0.64 | 1.56 | 0.64 |
| 60mm | 1.88 | 0.53 | 1.87 | 0.53 |

Basis:
Thermal conductivity of FireMaster® Marine Plus Blanket measured at 10°C to BS EN 12667 method
0.0319 W/mK (64 kg/m³ density)
0.0321 W/mK (48 kg/m³ density)

# FireMaster® Marine Plus Blanket

### Thermal Conductivity at High Temperature

Thermal Conductivity (W/mK) at mean temperature

| Density | 200°C | 400°C | 600°C | 800°C | 1000°C |
|---|---|---|---|---|---|
| 64 kg/m$^3$ | 0.06 | 0.11 | 0.17 | 0.26 | 0.38 |
| 96 kg/m$^3$ | 0.05 | 0.10 | 0.15 | 0.21 | 0.29 |
| 128 kg/m$^3$ | 0.04 | 0.09 | 0.13 | 0.19 | 0.25 |

### Thermal Conductivity at low temperatures

Measurements made to KS L 9016 2010 Method for 48 kg/m³ density Blanket

-10°C: 0.029 W/mK
0°C: 0.030 W/mK
70°C: 0.038 W/mK

### Acoustic Insulation Performance

**Sound Absorption Tests**
Test Method: BS EN ISO 354:2003
FireMaster™ Marine Plus Blanket 45mm x 64kg/m$^3$

Non-faced (no surface covering material used)
**Sound Absorption Rating: "Class A"**

| Frequency (Hz) | Sound Absorption Coefficient |
|---|---|
| 125 | 0.15 |
| 250 | 0.75 |
| 500 | 1.00 |
| 1000 | 1.00 |
| 2000 | 1.00 |
| 4000 | 0.75 |
| **Overall Sound Absorption Co fficient** | **1.00** |

Faced with glass cloth
**Sound Absorption Rating: "Class B"**

| Frequency (Hz) | Sound Absorption Coefficient |
|---|---|
| 125 | 0.40 |
| 250 | 0.95 |
| 500 | 0.95 |
| 1000 | 0.85 |
| 2000 | 0.80 |
| 4000 | 0.65 |
| **Overall Sound Absorption Coefficient** | **0.80** |

Faced with 20 µm reinforced aluminium foil
**Sound Absorption Rating: "Class C"**

| Frequency (Hz) | Sound Absorption Coefficient |
|---|---|
| 125 | 0.45 |
| 250 | 0.90 |
| 500 | 0.75 |
| 1000 | 0.65 |
| 2000 | 0.65 |
| 4000 | 0.45 |
| **Overall Sound Absorption Coefficient** | **0.65** |

# FireMaster® Marine Plus Blanket

## Sound Transmission Loss

**FireMaster® Marine Plus Blanket 45mm x 64 kg/m$^3$ attached to 5mm steel substrate**
Average Reduction in Transmitted Noise (Rw) in accordance with ISO 717-1 Rw=45dB
Reduction in Transmitted Noise (dB) at Varying Frequency (Hz) Test Method: ISO 140/3

| Hz | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dB | 29.2 | 26.0 | 28.6 | 28.4 | 30.4 | 36.9 | 40.7 | 44.6 | 48.5 | 52.2 | 56.0 | 59.0 | 60.9 | 62.0 | 57.6 | 58.3 | 61.8 | 64.5 |

**FireMaster® Marine Plus Blanket 45mm x 128 kg/m$^3$ attached to 5mm steel substrate**
Average Reduction in Transmitted Noise (Rw) in accordance with ISO 717-1 Rw=46dB
Reduction in Transmitted Noise (dB) at Varying Frequency (Hz) Test Method: ISO 140/3

| Hz | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dB | 28.0 | 25.5 | 28.8 | 29.1 | 31.8 | 39.0 | 43.9 | 48.0 | 51.5 | 55.8 | 60.3 | 62.5 | 63.8 | 64.5 | 60.4 | 62.1 | 65.0 | 66.5 |

**FireMaster® Marine Plus Alu 40 Blanket 50mm x 48 kg/m$^3$ attached to 6mm stiffened steel bulkhead with steel side exposed to noise source**
Average Reduction in Transmitted Noise (Rw) in accordance with ISO 717-1 Rw=44dB
Reduction in Transmitted Noise (dB) at Varying Frequency (Hz) Test Method: EN ISO 10140-2

| Hz | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dB | 22.4 | 23.3 | 25.7 | 30.3 | 36.6 | 39.7 | 43.6 | 46.9 | 51.6 | 52.7 | 51.5 | 49.1 | 47.4 | 44.8 | 46 | 49.2 |

**FireMaster®Marine Plus Alu 40 Blanket 75mm x 64 kg/m³ * attached to 6mm stiffened steel bulkhead with steel side exposed to noise source *(average density)**
Average Reduction in Transmitted Noise (Rw) in accordance with ISO 717-1 Rw=49 dB
Reduction in Transmitted Noise (dB) at Varying Frequency (Hz) Test Method: EN ISO 10140-2

| Hz | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dB | 24.0 | 26.1 | 30.5 | 37.9 | 44.3 | 45.2 | 48.0 | 52.2 | 56.3 | 58.8 | 57.1 | 55.1 | 53.1 | 50.1 | 51.2 | 53.1 |

## Airflow Resistance of FireMaster® Marine Plus Blanket (ISO 9053: 1991)

45mm x 64 kg/m³ Blanket: 50.4 kPa.s/m²

## Availability

Available in rolls of 610mm width in the following thickness and densities. Availability may vary with supplying plant. Please contact your local office to confirm.

| Thickness | 25mm | 35mm | 38mm | 40mm | 45mm | 50mm | 60mm |
|---|---|---|---|---|---|---|---|
| Standard Available Densities (kg/m$^3$) | 48,64, 70, 96, 128 | 64, 70 | 96, 128 | 64, 70 | 64 | 48,64, 70 | 48,64,70 |
| Roll length | 7.32m | 4.88m | 4.88m | 4.88m | 4.88m | 3.66m | 3.66m |