

Data sheet

ENGLISH

# FireMaster® Marine Plus blanket



## Description

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 biopersistence 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

## Classification temperature

FireMaster® Marine Plus blanket: 1200°C (2192°F)

## Fire reaction properties

- Non-Combustible in accordance with IMO FTP Code Part I
- Toxicity Index < 0.5 when tested in accordance with UK MOD Defence Standard 02-713
- Class A1 Reaction to Fire in accordance with EN 13501-1

## Thermal insulation performance

### Thermal insulation at ambient temperatures

- R Values (m<sup>2</sup> K/W) and corresponding U values (W/m<sup>2</sup>K).
- For densities above 80 kg/m<sup>3</sup> the values for 80 kg/m<sup>3</sup> may be used

Thickness of blanket (mm)	48 Kg/m <sup>3</sup>		64 Kg/m <sup>3</sup>		70 Kg/m <sup>3</sup>		80 Kg/m <sup>3</sup>	
	R value	U value	R value	U value	R value	U value	R value	U value
25mm	0.78	1.28	0.78	1.28	0.79	1.27	0.80	1.26
38mm	1.18	0.84	1.19	0.84	1.20	0.83	1.21	0.83
50mm	1.56	0.64	1.57	0.64	1.58	0.63	1.59	0.63
75mm	2.34	0.43	2.35	0.43	2.37	0.42	2.39	0.42
88mm	2.74	0.36	2.76	0.36	2.78	0.36	2.80	0.36
100mm	3.12	0.32	3.13	0.32	3.16	0.32	3.18	0.31
125mm	3.89	0.26	3.92	0.26	3.95	0.25	3.98	0.25
150mm	4.67	0.21	4.70	0.21	4.74	0.21	4.77	0.21

## Basis

Thermal conductivity measured at 10°C using BS EN 12667 method

48 kg/m <sup>3</sup>	0.0321 W/mK
64 kg/m <sup>3</sup>	0.0319 W/mK
70 kg/m <sup>3</sup>	0.03164 W/mK
80 kg/m <sup>3</sup>	0.03144 W/mK

## Thermal conductivity at high temperatures

Thermal conductivity (W/mK) at mean temperature measured using ASTM C201 method

Density	200°C	400°C	600°C	800°C	1000°C
64 / 70 kg/m <sup>3</sup>	0.06	0.11	0.17	0.26	0.38
96 kg/m <sup>3</sup>	0.05	0.10	0.15	0.21	0.29
128 kg/m <sup>3</sup>	0.05	0.08	0.12	0.18	0.25

## Thermal conductivity at low and sub-zero temperatures

FireMaster Marine Plus blanket 128 kg/m<sup>3</sup> measured using ASTM C177-10 method

Mean temperature (°C)	Thermal Conductivity (W/mK)
200	0.0561
150	0.0499
100	0.0429
38	0.0367
0	0.0313
-50	0.0272



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# FireMaster® Marine Plus blanket

## Acoustic insulation performance

Sound absorption tests Test Method: BS EN ISO 354:2003

**FireMaster® Marine Plus Blanket 45mm x 64kg/m<sup>3</sup>**  
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 coefficient	1.00

**FireMaster® Marine Plus Blanket 45mm x 64kg/m<sup>3</sup>**  
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

**FireMaster® Marine Plus Blanket 45mm x 64kg/m<sup>3</sup>**  
Faced with 12µm reinforced aluminium foil  
Sound absorption rating: "Class B"

Frequency (Hz)	Sound absorption coefficient
125	0.30
250	0.83
500	0.87
1000	0.89
2000	0.77
4000	0.50
Overall sound absorption coefficient	0.85

**FireMaster® Marine Plus Blanket 45mm x 64kg/m<sup>3</sup>**  
Faced with 30 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 75mm x 64kg/m<sup>3</sup>**  
Faced with 20 µm reinforced aluminium foil  
Sound absorption rating: "Class B"

Frequency (Hz)	Sound absorption coefficient
125	0.68
250	0.81
500	0.84
1000	0.87
2000	0.70
4000	0.43
Overall sound absorption coefficient	0.80

**Sound transmission loss** (selected data - for the full range of sound transmission loss testing refer to our Fire Divisions Manual). FireMaster® Marine Plus Blanket 45mm x 64kg/m<sup>3</sup> 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 128kg/m<sup>3</sup> 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

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Whilst the values and application information in this datasheet are typical, they are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials - Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product and you should seek advice to confirm the product's suitability for use with Morgan Advanced Materials - Thermal Ceramics.

**SUPERWOOL®** is a patented technology for high temperature insulation wools which have been developed to have a low bio persistence (information upon request). **SUPERWOOL®** products may be covered by one or more of the following patents, or their foreign equivalents:

**SUPERWOOL® PLUS** and **SUPERWOOL® HT** products are covered by patent numbers: US5714421 and US7470641, US7651965, US7875566, EP1544177 and EP1725503 respectively.

A list of foreign patent numbers is available upon request to Morgan Advanced Materials plc.

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## Data sheet

# FireMaster® Marine Plus blanket

## Sound transmission loss

FireMaster® Marine Plus Alu 40 blanket 50mm x 48 kg/m<sup>3</sup> attached to 6mm stiffened steel bulkhead with steel side exposed to noise source.

Average reduction in transmitted noise (R<sub>w</sub>) in accordance with ISO 717-1 R<sub>w</sub>=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	46.0	49.2

FireMaster® Marine Plus Alu 40 blanket 75mm x 64 kg/m<sup>3</sup> attached to 6mm stiffened steel bulkhead with steel side exposed to noise source\* (average density).

Average reduction in transmitted noise (R<sub>w</sub>) in accordance with ISO 717-1 R<sub>w</sub>=49dB.

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/m<sup>3</sup> Blanket: 50.4 kPa.s/m<sup>2</sup>

## Availability and packaging

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 <sup>3</sup> )	48, 64, 70, 96, 128	64, 70	96, 128	64, 70	64	48, 64, 70	48, 64, 70, 80
Roll length	7.32m	4.88m	4.88m	4.88m	4.88m	3.66m	3.0m

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