

Certificate Of Fire Approval

This is to certify that the product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore units classed with Lloyd's Register, and for use on offshore units and onshore facilities when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Morgan Advanced Materials
Address	Thermal Ceramics, Tebay Road, Bromborough, Wirral, Merseyside, CH62 3PH, United Kingdom
Type	H-60 Deck (Hydrocarbon Fire Test)
Description	Fire Resisting Steel Deck Insulated on the Stiffened Underside (Fire Exposed Side) with "FireMaster® XLS Blanket" (90mm thick, 50 kg/m ³ density), for Hydrocarbon Fire Exposures
Trade Name	FireMaster® XLS Blanket
Specified Standard	Testing generally meets the requirements of: IMO Resolution MSC.307(88) (2010 FTP Code), Annex 1, Part 3, Substituting the Cellulosic Time / Temperature Curve with the Hydrocarbon Time/Temperature Relationship ISO 20902-1:2018, "Fire test procedures for divisional elements that are typically used in oil, gas and petrochemical industries – Part 1 General Requirements"

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

ATTACHMENT TO CERTIFICATE OF FIRE APPROVAL No. LR2216879SF

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

1. BRE Global Ltd. Watford UK, Fire Test Report No. P119601-1001 Issue: 1, dated 8 August 2021.

CONDITIONS OF CERTIFICATION

1. "FireMaster® XLS Blanket" H-60 Steel Deck Insulation System consisting of: 5mm steel deck; insulated on the Stiffened Underside (Fire Exposed Side) with "FireMaster® XLS Blanket" (90mm thick, 50 kg/m³ density) may be considered as an H-60 Steel Deck with Fire Rating Classifications discussed in the 'Notes' Section of this Certificate.
2. The "FireMaster® XLS Blanket" H-60 Steel Deck Insulation System shall consist of two 45mm thick layers of "FireMaster® XLS Blanket" insulation (50 kg/m³ density). The first layer shall be fitted following the profile of the stiffeners and the second layer shall be offset from the first layer to avoid coinciding the joints of the first layer.
3. The insulation shall be retained to the steel deck and stiffeners by 3mm diameter welded steel pins and 38mm diameter steel washers, spaced at: a maximum of 300mm centres; a maximum of 135mm from flat edges of stiffeners; a maximum of 95mm from open edges of stiffeners; and a maximum of 150mm from all deck edges. Insulation edges comprise compressed butt joints.
4. Composition and application of insulation material, including any flame retardants, to be maintained in production and use in accordance with originally tested composition formula and method of application, and Manufacturer's instructions
5. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.
6. The Certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products are fully compliant with the relevant statutory regulations and Lloyd's Register Class Rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.

NOTES

1. The "FireMaster® XLS Blanket" (2 x 45mm thick layers, 50 kg/m³ density) deck insulation system may be assigned the following **Classification Rating** generally in accordance with the **IMO Resolution MSC.307(88) (2010 FTP Code)**:
 - **H-60** (120 minutes Stability & Integrity and 60 minutes Insulative Criteria)
2. The "FireMaster® XLS Blanket" (2 x 45mm thick layers, 50 kg/m³ density) deck insulation system may be assigned the following **Classification Rating** in accordance with **ISO 20902-1:2018, Section 14 and Annex D** (Fire Exposure Type / Protected Element / Structural Stability Rating (R) / Integrity Rating (E) / Insulation Rating (I)):
 - **HC / 5mm Deck / R120 (400°C) / E120 / I60**

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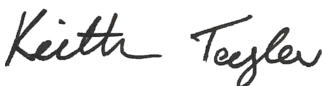
PLACES OF PRODUCTION

Thermal Ceramics France
Saint Marcellin Plant
Lieu-dit les Plantees, B.P. No. 4,
42680 Saint-Marcellin en Forez,
France

Thermal Ceramics Korea (Daegu)
1-31 Bookri, Nongong-Eup
Dalsung-Gun
Daegu-shi 711 855
Korea

Grupo Industrial Morgan SA de CV
Cerrada de la Paz No. 101
Zona Industrial la Paz, CP. 42181
Mineral de la Reforma, Hidalgo
México

Morgan Advanced Materials Industries Limited
PO Box 146109, Plot No. KHIA4-07A
Khalifa Industrial Zone
ABU DHABI
UAE



Keith Taylor
Team Lead, Fire & Safety
Statutory Discipline Team
UK&I Technical Support Office, Marine & Offshore
Lloyd's Register

Supplementary Type Approval Terms and Conditions

This Certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).