

Certificate Of Fire Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

| | |
|---------------------------|--|
| Manufacturer | Morgan Advanced Materials, Thermal Ceramics |
| Address | Tebay Road, Bromborough, Wirral, Merseyside, CH62 3PH, United Kingdom |
| Type | A-60 Bulkhead |
| Description | Fire Resisting 'A' Class Bulkhead – Type "FireMaster Marine Plus Blanket" for Restricted Applications with Insulation on Fire Exposed Side |
| Trade Name | "FireMaster Marine Plus Blanket" |
| Specified Standard | IMORes. MSC.307(88) – (2010 FTP Code), Annex 1, Part 3 |

The attached Design Appraisal Document forms 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.

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 of any modification or changes to the equipment in order to obtain a valid Certificate.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2003641SF

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

This Certificate is a replacement of previous Lloyd's Register EMEA Certificate of Fire Approval No: SAS F140272.

APPROVAL DOCUMENTATION

1. KOMERI, 1125-22 Dongsam-Dong, Youngdo-Gu, Busan, Republic of Korea; Fire Test Report No. KOMERI-0402-13T1606 dated 1st November 2013.

CONDITIONS OF CERTIFICATION

1. **Restricted Application:** Insulated side of the division to be exposed to the fire risk side in all cases
2. A-60 bulkhead consisting of 4.5mm thick steel bulkhead insulated on fire exposed side with one layer of (45mm thick, density 64 kg/m³) 'FireMaster Marine Plus Blanket' mineral wool insulation manufactured by Morgan Advanced Materials, Thermal Ceramics
3. Insulation retained to bulkhead and stiffeners with 3mm diameter steel anchors and 30mm diameter steel washers spaced at: a maximum of 350mm centres; a maximum of 145mm from stiffeners; and a maximum of 40mm from all bulkhead edges. Insulation edges comprise compressed butt joints
4. Composition and application of insulation material 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, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class Rules as applicable and designed and manufactured to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties

PLACES OF PRODUCTION

Thermal Ceramics
 Lieu-dit Les Plantées
 St. Marcellin-en-Forez
 F-42680
 France

Thermal Ceramics
 2102 Old Savannah Road
 Augusta
 GA 30906
 United States of America (USA)

Thermal Ceramics
 1-31 Bookdong, Non Gong Eup
 Dal Sung-Gun, Dae Gui-Shi
 711 855
 Korea

Thermal Ceramics
 Cerrada de la Paz No. 101
 Zona Industrial la Paz
 CP. 4218
 Mineral de la Reforma Hidalgo
 México

M/S Murugappa Morgan Thermal
 Ceramics Ltd., Plot No. 26 & 27 SIPCOT
 Industrial Complex
 Ranipet 632 403
 Vellore District Tamil Nadu
 India

Murugappa Morgan Thermal Ceramics
 Ltd. Plots No. 681 Village Moti Bhoyan
 Kalol-sanand Road,
 Dist. Gandhinagar,
 Pin 382 721, Gujarat
 India

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2003641SF RENEW

PLACES OF PRODUCTION (Cont'd)

Morgan Thermal Ceramics (Shanghai)
Co., Ltd.
18 Kang An Road
Kangqiao Industrial Zone
Pudong, Shanghai
201315
China

Morgan Kailong (Jingmen) Thermal
Ceramics Co., Ltd.
No. 20-1, Quankou Road
Jingmen City
Hubei Province
448032
China

Morgan Advanced Materials
Industries Limited
PO Box 146109
Plot No. KHIA4-07A
Khalifa Industrial Zone
Abu Dhabi
United Arab Emirates (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).