



## 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.

<b>Manufacturer</b>	Morgan Advanced Materials, Thermal Ceramics
<b>Address</b>	Tebay Road Bromborough Wirral Merseyside CH62 3PH United Kingdom (UK)
<b>Type</b>	<b>A-60 BULKHEAD</b>
<b>Equipment Description</b>	Steel Bulkhead Insulated on one side with- Type: "FireMaster Marine Plus Blanket (40+40mm, 48kg/m <sup>3</sup> )"
<b>Specified Standard</b>	IMO Res.MSC.61(67)-(FTP Code), Annex 1, Part 3 IMO MSC/Circ.1120 IMO Res. MSC.307 (88)-(2010 FTP Code) Section 8 (Period of Grace)

**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.**

Date of issue 23 April 2019 Expiry date 22 April 2024

Certificate No. SAS F190091 Signed 

Sheet No 1 of 3 Name K. Taylor  
Surveyor to Lloyd's Register EMEA  
A Member of the Lloyd's Register Group

**Note:**

**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.**

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



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**Lloyd's Register EMEA (Southampton)**

*Marine & Offshore UK&I*

*Lloyd's Register Global Technology Centre, Southampton  
Boldrewood Innovation Campus, Burgess Road, Southampton,  
SO16 7QF*

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**DESIGN APPRAISAL DOCUMENT**

Date 4 July 2019	Quote this reference on all future communications UKITSO/FIRE/TA/KT/WP35610684
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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F190091**

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 F140103/M1.

**APPROVAL DOCUMENTATION**

1. Far East Fire Testing Centre, Shanghai, People's Republic of China, Fire Test Report No. FT12007, dated 19 January 2012.
2. Manufacturer's Data Sheet, Ref. FM 4.100, Rev. 3, dated June 2013.

**CONDITIONS OF CERTIFICATION**

1. A-60 Class steel bulkhead insulated on one side with alkaline earth silicate fibre based "FireMaster Marine Plus Blanket". The void spaces of the stiffeners are to be first packed with a layer of (60mm wide x 60mm high, 48kg/m<sup>3</sup> density) insulation, followed by another layer (40mm thick, 48kg/m<sup>3</sup> density) applied over the steel plate and a top layer (40mm thick, 48kg/m<sup>3</sup> density) covering both the steel plate and the stiffeners; all secured with 3mm diameter x 100mm long welded steel anchors and 38mm diameter friction fit steel washers. Insulation securing arrangements are to be in accordance with Data Sheet, Ref. FM 4.100, Rev. 3, dated June 2013
2. The size of the insulation blanket must be sufficient to allow suitable compression at all joints
3. When requested for application on corrugated divisions, the insulation layout and securing arrangements, depth of the corrugations and support arrangements are to be separately appraised for fire aspects and structural loadings on a project basis
4. 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
5. 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



Lloyd's  
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#### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F190091

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

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

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

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PO Box 146109  
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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).*