Certificate No: SAS F180111-02
Issue Date: 26/06/2020
Expiry Date: 24/04/2023

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	**Unifrax Limited**
Address	Mill Lane, Rainford, St. Helens, Merseyside, WA11 8LP, United Kingdom (UK)
Type	Load Bearing Fire-Resisting Deck 60
Description	Fire Resisting Load Bearing Aluminium Deck Insulated on the Under Side with Type: "Load Bearing Fire-Resisting Deck 60"system for High-Speed Craft, using "FyreWrap LT" AES wool insulation
Trade Name	Load Bearing Fire-Resisting Deck 60 - FyreWrap LT (Marine) Blanket
Specified Standard	IMO Res. MSC.45(65) Res.MSC.61(67) – (FTP Code), Part 11 IMO Res.MSC.101(73) –2000, Amendments MSC/Circ.1120 IMO Res. MSC.307(88) – (2010 FTP Code), Section 8

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.

Keith Taylor

Team Lead Fire & Safety to Lloyd's Register EMEA
A member of the Lloyd's Register Group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F180111-02

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 an amendment of previous Lloyd's Register EMEA Certificate of Fire Approval No: SAS F180111

APPROVAL DOCUMENTATION

1. Exova Warringtonfire, Holmesfield Road, Warrington, WA1 2DS, United Kingdom; Fire Test Report No. 325729, dated 09 May 2013.
2. Far East Fire Testing Centre (FEFTC), 511 Chuhua Zhi Lu, Shanghai Chemical Industry Park, Fengxian Sub-Zone, Shanghai, People's Republic of China; Fire Test Report No. FT17206, dated 25 September 2017.

CONDITIONS OF CERTIFICATION

1. When applied to an aluminium Load Bearing Fire-Resisting Deck for High Speed Craft Code applications and major fire hazards, the deck may be classified as a "Load Bearing Fire-Resisting Deck 60"restricted to insulation being on the underside (fire exposed side) of deck
2. When applied to the fire exposed stiffened underside (fire exposed side) of a load bearing aluminium deck with the "FyreWrap LT (Marine) Blanket" AES wool insulation system (both described below), this design of insulated deck may be considered as a 60 minute Load Bearing Fire-Resisting Deck suitable for fire risks on the underside of the deck, when no floor covering is applied on the upperside of deck. Floor coverings may however be permitted as outlined in item 3 below
3. The deck was also tested, and passed, the above criteria with floor coverings applied to the upperside of the deck comprising of: one base layer of primary deck covering type "SikaFloor Marine 120 (6mm thick, 0.9kg/m^3 density) manufactured by Sika Services AG Company, followed by one top layer of floor covering type "Streamo Mariner" (2mm thick, 3.3kg/m^2 weight/area) manufactured by Gernord Ltd Company. Final acceptance is subject to approval by the Plan Approval Authority for the specific ship/project on a case-by-case basis
4. Aluminium structure consists of: 32mm x 32mm x 3mm channel bar stiffeners intermittently welded to the underside of a 2mm thick flat plate by one flange, with stiffeners at 125mm spacing and T-Section members 150mm long x 100mm wide x 6mm web x 10mm flange, at 1200mm spacing and at 90° to the channel bars
5. Insulation consists of: one layer of "FyreWrap LT (Marine) Blanket" AES wool insulation (50mm thick, 70kg/m^3 density), applied to the fire exposed stiffened underside (fire exposed side) of a load bearing aluminium deck, over the tops of channel bar stiffeners and retained by steel pins (secured in welded aluminium ferrules) and steel spring washers, attached to alternate channel flanges at 250mm spacing (creating a 32mm air gap between the plate and the layer of insulation) and spaced at 215mm between T-Sections and 250mm across stiffeners. A strip layer (350mm width across T-Sections) of same insulation type, but 35mm thick, was applied over T-Sections and overlapped the insulation layer over the channels and was retained with the same 3mm diameter steel pins and steel spring washers, and at 50mm from all insulation joints and boundaries. An infill of the same insulation was also applied in air gaps between channel sections, in way of all insulation butt joints

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6. The core temperature of aluminium alloy shall not rise above a maximum 200°C limit above ambient temperature for 60 minute duration of test
7. "FyreWrap LT (Marine) Blanket" AES wool insulation may be considered with alternative facing materials that have been tested for Low Flame Spread Characteristics
8. Application in each case to be approved by Lloyd's Register at the design stage
9. Composition and application of sub components to be maintained in production and use in accordance with originally tested composition formula and method of application, and manufacturer's instructions
10. 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
11. 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, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties

PLACES OF PRODUCTION

Unifrax UK
Mill Lane
Rainford
St.Helens
Merseyside
WA11 8LP
United Kingdom (UK)

Unifrax France
17 Rue Antoine
Durafour
BP2
42420 Lorette
France

Unifrax I LLC
54401 Smilax Road
New Carlisle
Indiana 46552
United States of America (USA)

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

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).