

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Fire restricting materials (except furniture) for high speed craft

with type designation(s)
Fire Restricting Composite Bulkheads and Decks

Issued to
Thermal Ceramics UK Ltd
Wirral, Merseyside, United Kingdom

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306,**
item No. MED/3.32. SOLAS 74 as amended, Regulation X/3, 2000 HSC Code 7, IMO MSC.1/Circ.1457 and IMO 2010 FTP Code

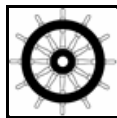
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-05-27.**

Issued at **Høvik** on **2018-05-28**

DNV GL local station:
Manchester

Approval Engineer:
Helge Bjørnarå



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Product description

Fire Restricting Composite Bulkheads and Decks, consist of a fire reinforced polymer (FRP) sandwich insulated on the exposed side with FireMaster Marine Plus Blanket secured with washers and special stainless steel pins with self-tapping screws. The insulation shall following the contours of the stiffeners. The insulation is covered with an aluminium foil.

The approved product is described in detail below. The product is in general only approved for use on vessels built according to HSC Code or rules based on this Code (examples: yachts, navy ships, patrol boats, etc.).

Application/Limitation

Approved for use as a fire restricting material in High Speed Craft.

Fire hazard shall be on the insulated side.

Only the combined product (insulation and FRP structure) is approved as a fire resisting material. The product is to be installed as tested, with the below details considered being the main issues.

See the product's "Fire Protection Systems Information" for more details.

Insulation, foil and pins

The insulation shall be applied on the exposed side of the FRP structure (bulkhead or deck) with 20 mm FireMaster Marine Plus Blanket of nominal density 48 kg/m³ or with 25 mm FireMaster Marine Plus Blanket of nominal density 64 kg/m³. The transversal joints between the layers are to be installed in a staggered pattern, whereas the longitudinal joints shall be pressed tight together (the nominal blanket width is 610 mm and is to be compressed to a width of 580 mm to ensure this compression).

The insulation and foil shall be secured with 38 mm friction fit washers and special stainless steel pins (typically 80 mm long, 3 mm in diameter) with 5 mm self-tapping screws (penetrating 30 mm into skin/core). The pins are to be installed with a nominal spacing of 240 mm across the layers, 225 mm (deck) or 250 mm (bulkhead) along the layers, whereas pins at the joints shall have a nominal spacing of 100 mm. For bulkheads, the distance between pins in the middle row is 500 mm.

See "Fire Protection Systems Information" ref. No. FM 4.74.

FRP structure

The insulation was tested on construction with the following specification:

- Laminate: E-glass fibres (biaxial 0/90°, 1200 g/m²) and polyester resin (thickness: 1.0 mm)
- Core: Divinycell H80/GPC1 (semi-rigid PVC core)

The sandwich bulkhead was assembled with a 50 mm Divinycell core with a 1.0 mm laminate on each side of the core.

Application of other FRP materials

The systems are in general only approved for composite cores with same materials and dimensions as tested. On a case by case basis other equivalent composites may be applied when confirmed acceptable and documented by the maker and found to be acceptable by the flag administration. The following issues are to be addressed:

1. The bulkhead shall have tensile strength, stiffness and other mechanical properties (cold conditions) equivalent or better than to that being tested
2. The materials (core, fibre, resin, etc.) shall have mechanical properties at the relevant temperature range (typically 20 °C to 250 °C) equivalent to the material used in the test. The heat distortion temperature for each material, thickness of laminate and density of the core may be applied as criteria.

The construction is to be supplied with its manual for installation/application.



Job Id: **344.1-000502-93**
Certificate No: **MEDB000045D**

Type Examination documentation

Test Report No. P604618 dated 8 February 2007 from SP, Borås, Sweden.

Test Report No. P604618A dated 13 February 2007 from SP, Borås, Sweden.

Thermal Ceramics Method Statement No. FM MS 05 PW and Fire Protection Systems Information No. FM 4.74, Rev. 1.

Tests carried out

Tested according to IMP FTP Code Part 10 (IMO Res. MSC.40(64)) and in compliance with IMO 2010 FTP Code Ch. 8.

Marking of product

The product is to be marked with name and address of manufacturer, type designation, fire technical rating and the MED Mark of Conformity (see front page).