

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001VZ
Revision No:
1

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 AS under the authority of the Government of Norway.

This is to certify:

That the Fire resisting divisions for high speed craft

with type designation(s)

60 minute Load-bearing Composite Bulkhead - FireMaster Marine Plus Blanket

Issued to

Thermal Ceramics UK Ltd
Wirral, Merseyside, United Kingdom

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2020/1170**,

item No. MED/3.34. SOLAS 74, Regulation X/3, 2000 HSC Code 7, IMO MSC.1/Circ.1457 and IMO 2010 FTP Code

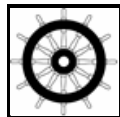
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-05-10**.

Issued at **Høvik** on **2021-05-11**

DNV local station:
Manchester

Approval Engineer:
Helge Bjørnara



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2019 dated February 22nd, 2019.



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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

60 minute Load-bearing Composite Bulkhead - FireMaster Marine Plus Blanket, consists of a fire reinforced polymer (FRP) sandwich insulated on the exposed side with 4 x 25 mm FireMaster Marine Plus Blanket (manufactured by Thermal Ceramics) secured with washers and special stainless steel pins with self-tapping screws. The insulation shall following the contours of the stiffeners. Aluminium foil shall be applied between the insulation layers.

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 (e.g. yachts, navy ships, patrol boats etc.).

Application/Limitation

Approved as a loadbearing fire-resisting bulkhead 60.

Restricted application: Fire hazard from the insulated side only

Only the combined product (insulation and FRP structure) is approved as a fire resisting division. 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 structural FRP deck with 4 x 25 mm FireMaster Marine Plus Blanket. The inner layer (close to FRP) has a density of 64 kg/m³, whereas the three outer layers have a density of 70 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).

An aluminium foil has to be provided between each insulation layer (between layer one/two, two/three and three/four). This foil can be an integrated part of the insulation.

The insulation and foil shall be secured with 38 mm friction fit washers and special stainless steel pins (typically 125 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, 300 mm along the layers, whereas pins at the joints between blankets shall have a nominal spacing of 100 mm from the blanket edge.

FRP structure

The insulation was tested on a bulkhead with the following specification:

Laminate:	E-glass fibres (biaxial 0/90°, 1200 g/m ²) and polyester resin, (thickness of entire laminate: 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 insulation material FireMaster Marine Plus Blanket has to be approved according to the Marine Equipment Directive and bear the Mark of Conformity.

Each product is to be supplied with its manual for installation and maintenance.

Type Examination documentation

Test report No. BRm6075-04A dated 24 May 2006 from SP, Borås, Sweden.

Thermal Ceramics Fire Protection Systems Information, reference No. FM MS 05 PW and No. FM 4.73, Rev. 1.



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Tests carried out

Tested according to IMO FTP Code Part 11 (IMO Res. MSC.45(65) and IMO Res. A.754(18)) 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, the MED Mark of Conformity and USCG approval number if applicable (see page 1).