

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000072N

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 Penetrations through "A" class divisions: electric cable transits

with type designation(s)

Marine Flex System Cable Penetration (150)

Issued to

FireSeal AB

Kista, Stockholms Län, Sweden

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

Regulation (EU) 2021/1158,

item No. MED/3.26a. SOLAS 74 as amended, Regulation II-2/9, IMO 2010 FTP Code and IMO MSC.1/1488

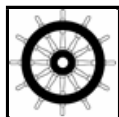
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-05-02**.

Issued at **Høvik** on **2022-05-03**

DNV local station:
Sweden NB

Approval Engineer:
Kristin Grønnæss



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

"Marine Flex System Cable Penetration (150)"

Consisting of a min. 150 mm long steel sleeve, circular or rectangular, welded or bolted to the bulkhead/deck with "Marine Blanket" (nominal density of 96 kg/m³) packed into the cavity between sleeve and cables. The sleeve is sealed at both ends with a layer of min. 12.5 mm thick "Marine Flex".

The rectangular steel sleeve may incorporate a 330 mm long intumescent sleeve with 50 mm diameter, either cable filled or empty. If installed empty, both ends of the intumescent sleeve shall be capped with supplied lids or with min. 7 mm thick "Marine Flex" sealant. If cable filled, the end of the intumescent sleeve shall be sealed with min. 7 mm thick "Marine Flex" sealant on both sides.

Application/Limitation

Approved for cable penetration, may be applied as single, multiple or bundled type in class A-60 bulkheads/decks for approved ship cables according to tables below. Other applications are subject to case-by-case approval.

Table 1: Approved cable penetration in A-60 steel bulkhead.

Type	Size (H x W) [mm]	Max. cable diameter (OD) [mm]	Filling ratio ¹⁾ [%]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
Circular	Ø48 – Ø300	77	0 – 40	150	3	Symmetric	Fully insulated
Rectangular	100x100 – 800x400	77 (35 ²⁾)	0 – 40	150	3	Symmetric	Fully insulated

1) Min. distance between cables and sleeve is 5 mm.

Min. distance between intumescent sleeve and steel sleeve is 10 mm.

2) Max. size of cable inside 330 mm long intumescent sleeve with diameter 50 mm.

Table 2: Approved cable penetration in A-60 steel deck.

Type	Size (H x W) [mm]	Max. cable diameter (OD) [mm]	Filling ratio ¹⁾ [%]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
Circular	Ø48 – Ø300	77	0 – 40	150	3	Symmetric	Fully insulated on underside
Rectangular	100x100 – 800x400	77 (35 ²⁾)	0 – 40	150	3	Symmetric	Fully insulated on underside

1) Min. distance between cables and sleeve is 5 mm.

Min. distance between intumescent sleeve and steel sleeve is 10 mm.

2) Max. size of cable inside 330 mm long intumescent sleeve with diameter 50 mm.

Approved for use in class A-0 when the penetration system is insulated as class A-60 and in addition the division is to be insulated with A-60 insulation at least 200 mm around the penetration.

The insulation materials used have to be approved according to the Marine Equipment Directive and bear the Mark of Conformity.

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

Type Examination documentation

Test report No. O100410-145546 dated 12 August 2021 from RISE, Borås, Sweden.

Test report No. O100409-145555 dated 10 August 2021 from RISE, Borås, Sweden.

Test report No. O100410-145553 dated 1 September 2021 from RISE, Borås, Sweden.

Test report No. O100410-150961-1 dated 13 December 2021 from RISE, Borås, Sweden.

Drawing No. FS-TP2204-10 Rev. 1 dated 22 April 2022 from maker.

Installation guide FS-TP2202-01 from maker.

Tests carried out

Tested according to IMO 2010 FTP Code Part 3.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire-technical rating, the MED Mark of Conformity and USCG approval number (see first page).

APPENDIX

Additional application/information for Watertightness/gastightness (Not part of the Marine Equipment Directive requirement)

Product description

"Marine Flex System Cable Penetration"

Consisting of a min. 150 mm long steel sleeve, circular or rectangular, welded or bolted to the bulkhead/deck with "Marine Blanket" (with nominal density of 96 kg/m³) packed into the cavity between sleeve and cables. The sleeve is sealed at both ends with a layer of min. 12.5 mm thick "Marine Flex".

The steel sleeve (circular or rectangular) may incorporate a 330 mm long intumescent sleeve with 50 mm diameter, either cable filled or empty. If installed empty, both ends of the intumescent sleeve shall be capped with supplied lids or with min. 7 mm thick "Marine Flex" sealant. If cable filled, the end of the intumescent sleeve shall be sealed with min. 7 mm thick "Marine Flex" sealant on both sides.

Application/Limitation

Circular penetration:

Approved for penetration in steel bulkheads or decks limited to a pressure of 2.00 bar watertightness and 0.033 bar gastightness (smoke tight) for approved ship cables.

Rectangular penetration:

Approved for penetration in steel bulkheads or decks limited to a pressure of 1.33 bar watertightness and 0.033 bar gastightness (smoke tight) for approved ship cables.

Penetration with intumescent sleeve only is limited to a pressure of 1.67 bar watertightness and 0.067 bar gastightness (smoke tight) for approved ship cables.

Min. distance between the cables and the sleeve is 5 mm.

Min. distance between intumescent sleeve and steel sleeve is 10 mm.

The penetration system is not to be used for penetrating boundaries of tanks.

Type Approval documentation

Pressure test report No. FS-RP2104-03 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2104-04 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2104-05 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2104-06 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2104-07 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2104-08 dated 13 April 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2109-08 dated 22 September 2021 from FireSeal, Kista, Sweden.

Pressure test report No. FS-RP2109-09 dated 22 September 2021 from FireSeal, Kista, Sweden.

Tests carried out

Pressure tested with water and air according to DNV-CP-0165, September 2021.