EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00007ZR

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: pipe, duct, trunk, etc penetrations

with type designation(s)
Marine Flex System Pipe 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/3.26b. SOLAS 74 as amended, Regulation II-2/9, IMO MSC.1/Circ.1276, 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 Pipe Penetration (150)
Consisting of min. 127 – 150 mm long circular or rectangular steel sleeve welded to the bulkhead/deck with “Marine Blanket” (nominal density of 96 kg/m^3) packed into the cavity between sleeve and pipes. The 127 – 150 mm long sleeve is sealed at both ends with a layer of min. 12.5 mm thick “Marine Flex”.

Application/Limitation

Approved for use as single and multiple pipe penetration system in class A-60 steel bulkheads/decks according to tables below. Other applications are subject to case-by-case approval.

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

Type	Sleeve size (OD) / w x h [mm]	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
Circular	Ø88.9	Steel	13.5 - 33.7	150	3.4	Symmetric	Partially insulated
Circular	Ø88.9 - Ø375	Steel	48.3 - 273	150	3.4	Symmetric	Fully insulated + 1000 mm along pipe(s)
Circular	Ø88.9 - Ø375	Steel	13.5 - 273	150	3.4	Symmetric	Fully insulated on both sides + 600 mm along pipe(s) on both sides
Rectangular	88.9x38	Steel	13.5	150	2.0	Symmetric	Fully insulated + 600 mm along pipe(s)
Rectangular	88.9x38 - 534x274	Steel	13.5 - 219.1	150	3.0	Symmetric	Fully insulated + 600 mm along pipe(s)
Circular	Ø48.3	Copper	15	150	2.6	Symmetric	Fully insulated on both sides + 1000 mm along pipe(s) on both sides
Circular	Ø48.3 - Ø168.3	Copper	15 - 108	150	3.6	Symmetric	Fully insulated on both sides + 1000 mm along pipe(s) on both sides
Circular	Ø101.6	Copper	70	127	5.0	Symmetric	Fully insulated + 860 mm along pipe

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

Type	Sleeve size (OD) / w x h [mm]	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
Circular	Ø88.9 - Ø375	Steel	48.3 - 273	150	3.4	Symmetric	Fully insulated on underside + 1000 mm along pipe(s) on underside
Circular	Ø375	Steel	273	150	3.0	Symmetric	Fully insulated on both sides + 600 mm along pipe(s) on both sides
Rectangular	88.9x38	Steel	13.5	150	2.0	Symmetric	Fully insulated on underside + 1000 mm along pipe(s) on underside
Rectangular	88.9x38 - 534x274	Steel	13.5 - 219.1	150	3.0	Symmetric	Fully insulated on underside + 1000 mm along pipe(s) on underside
Circular	Ø48.3	Copper	15	150	2.6	Symmetric	Fully insulated on both sides + 1000 mm along pipe(s) on both sides
Circular	Ø48.3 - Ø168.3	Copper	15 - 108	150	3.6	Symmetric	Fully insulated on both sides + 1000 mm along pipe(s) on both sides
Circular	Ø101.6	Copper	70	127	5.0	Symmetric	Fully insulated on both sides + 1000 mm along pipe(s) on both sides

Table 3: Approved pipe penetration in A-30 steel deck.

Type	Sleeve size (OD) / w x h [mm]	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
Circular	Ø88.9	Steel	13.5	150	3.4	Symmetric	Partially insulated on underside

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

The insulation material used 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. 2P02649 Rev.2 dated 19 February 2021 from RISE, Borås, Sweden.
Test report No. 2P02650 Rev.2 dated 19 February 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.

Assessment report No. O100408-184492 dated 8 December 2021 from RISE, Borås, Sweden.

Drawing No. FS-TP2204-08 Rev.1 dated 22 April 2022 from maker.

Installation guide No. 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, MED Mark of Conformity and USCG approval number if applicable (see first page).

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

Product description
"Marine Flex System Pipe Penetration"
Consisting of min. 150 mm long circular or rectangular steel sleeve welded to the bulkhead/deck with "Marine Blanket" (nominal density of 96 kg/m^3) packed into the cavity between sleeve and pipes. The 150 mm long sleeve is sealed at both ends with a layer of min. 12.5 mm thick "Marine Flex".

Application/Limitation

Circular penetration:
Approved for penetration in steel bulkheads or decks limited to a pressure of 1.33 bar watertightness and 0.03 bar gastightness (smoke tight) for steel pipes.

Rectangular penetration:
Approved for penetration in steel bulkheads or decks limited to a pressure of 2.00 bar watertightness and 0.03 bar gastightness (smoke tight) for steel pipes.

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

Type Approval documentation
Test report No. FS-RP2008-02 dated 28 August 2020 from FireSeal, Kista, Sweden.
Test report No. FS-RP2008-03 dated 28 August 2020 from FireSeal, Kista, Sweden.
Test report No. FS-RP2008-04 dated 28 August 2020 from FireSeal, Kista, Sweden.
Test report No. FS-RP2008-05 dated 28 August 2020 from FireSeal, Kista, Sweden.
Test report No. FS-RP2104-01 dated 13 April 2021 from FireSeal, Kista, Sweden.
Test report No. FS-RP2104-02 dated 13 April 2021 from FireSeal, Kista, Sweden.
Test report No. FS-RP2104-03 dated 13 April 2021 from FireSeal, Kista, Sweden.

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