



DET NORSKE VERITAS

EC TYPE-EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2002/75/EC, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This certificate is issued by Det Norske Veritas under the authority of the Government of the Kingdom of Norway.

CERTIFICATE NO. MED-B-3888

This Certificate consists of 5 pages

This is to certify that the product

Penetrations through "A" class divisions: electric cable transits

with the type designation(s)

FS-FLEX D Cable Penetration

Manufactured by

ESSVE Produkter AB

SOLLENTUNA, Sweden

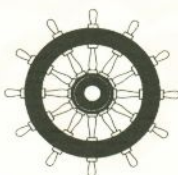
is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/3.26a and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation II-2/9.3.1 and IMO FTP Code.

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

Place and date

Høvik, 2006-10-06

for DET NORSKE VERITAS AS



Notified Body No. 0575

This Certificate is valid until

2009-09-22

Hilde Stenius

for Tore Morten Wetterhus
Manager, MTPNO370
Department Systems & Components



Håkon Laskemoen

Håkon Laskemoen
Surveyor

DNV local office:

DNV Stockholm



Notice: The certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended.

The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: MED-B-3888
Case No.: 344.1-000362-3
File No.: A1/3.26A

Product description

“FS-Flex D Cable Penetration”

Consisting of a 200 mm long steel sleeve welded or bolted to the bulkhead/deck with “Blanket D-24 B” packed into the cavity between the sleeve and the cables. The sleeve is sealed at both ends with a layer of 15 mm (nom.) thick FireStop Sealant 3000.

For further details see approved drawing in appendix.

Applications/Limitations

Approved for use as cable penetration in class A-60 bulkheads and decks for approved ship cables. Approved for class A-0, A-15 and A-30 when the penetration system is insulated as class A-60.

Minimum distance between cables and between cables and frame is to be 5 mm. Well packed bundles are accepted. In no case should the total cross sectional area of the cables exceed 40 % of the cross sectional area of the sleeve.

The insulation material 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 Approval documentation

Test reports Nos:

846007.04 A and 846007.04 B dated 18 September 1997

103070.30 dated 17 March 2004

103070.40 A and 103070.40 B dated 3 July 2006

All test reports from SINTEF NBL as, Trondheim, Norway

Drawing No. FSH-O-105-03 Rev. D dated 26 September 2006 from the manufacturer (see appendix).

Tested according to IMO FTPC Part 3 (IMO Res. A.754(18)).






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Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire-technical rating, Mark of Conformity and USCG Approval number if applicable (see below).

Mark of conformity

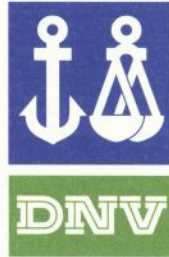
The manufacturer is allowed to affix the Mark of Conformity  according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

- Module D: The quality system for production and testing shall be approved by the Notified Body.
- Module E: The quality system for inspection and testing shall be approved by the Notified Body.
- Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

An 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" signed 17 October 2005.





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

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For details of insulation see drawing in appendix.

Application/Limitation

Approved for penetration in steel bulkheads or steel decks limited to a pressure of 1.6 bar watertightness and 0.02 bar gastightness (test pressure 2.5 bar and 0.03 respectively).

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

Type Approval documentation

Test report FSR-C-260-06 dated 3 May 2006 (Gastightness) and FSR-I-021-98 dated 10 March 1998 (Watertightness) both test reports from the manufacturer.

Tests carried out

Tested according to DNV Type Approval Programme 471.19-1 and Germanischer Lloyd's Regulation for the Performance of Type Test Part 2, Test requirements for Sealing System of Bulkhead and Deck Penetrations.





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APPENDIX, REV. NO. 0

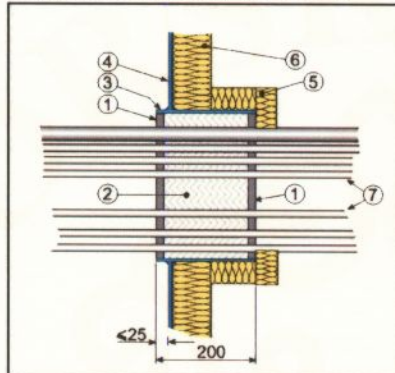
EC Type Examination Certificate, Certificate No. MED-B-3888



Date	Page	Doc. No.	Rev.
2006-09-26	5/9	FSH-O-105-03	D

Type
CD

Bulkhead Penetration - Type CD-B



FS-Flex D

**Cable penetration with elastomer
 A0 - A60 Class**

Area of Use
 Specially suitable for penetrations with simple or complicated cabling below or above the waterline.

Special Properties
 Movements or vibrations of the penetrating cables are accepted.

Simple installation - no special tools required.

Changes, repairs or retrofits are made with ease.

Lightweight coaming - no filling holes required.

Prefabricated sleeves with screw fixing optional.

FS-Flex D is tested to IMO Resolution A.754 (18).

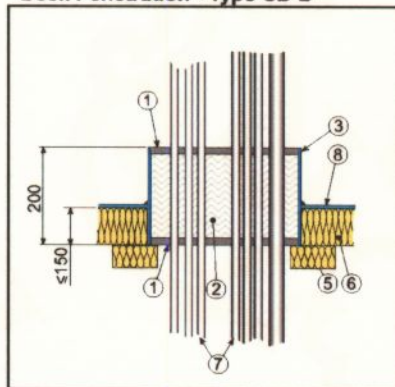
Technical Data

Fire Rating	A0, A15, A30 & A60 class
Water tightness	167 kPa (16,7 mWC) without reinforcement
Gas tightness	20 Pa
Sound Reduction	c. 50 dB
Resiliency	±1 mm, 100 Hz
Moisture Protection	Not required

Technical Support

Contact FireSeal for specification, approval certification or any further details.

Deck Penetration - Type CD-D



Key:

- 1 Firestop Sealant 3000, 15 thk (nom.)
- 2 D-24B alciun Silicate Blanket
- 3 Steel sleeve 200 long with 4 wall thk (min.), size from 48 O.D. up-to 800 x 400*
- 4 Division plate*
- 5 Sleeve insulation, RW 80, 40 thk*
- 6 Division insulation to yard specification*
- 7 Penetrating cables*
- 8 Deck plate*

Minimum distance between cable(s) and sleeve min. 5 mm.
 Well packed cable bundles accepted.
 Max. cable fill 40 %.

*Yard Supply



Recommendations for use of our products are based on tests and information we believe to be reliable. Manufacturer or seller are not responsible for results where the products are used under conditions beyond our control. Specifications are subject to change without notice.

END OF CERTIFICATE



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