



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. F-19082
This Certificate consists of 4 pages

This is to certify that the
Fire Damper
with type designation(s)

FEX-PNR, FEX-EL, FEX-SP and FEX-PNL

Manufactured by
Halton Oy
LAHTI, Finland

is found to comply with
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Interpretation of SOLAS 1974 Convention as Amended

Application
The dampers are approved for use in ducts penetrating bulkheads or decks class H-0 to H-120.
For applications/limitations, see overleaf.
Size of dampers: Max 1200 x 1200 mm. Min. 100 x 100 mm.

Place and date
Høvik, 2009-09-15
for DET NORSKE VERITAS AS

Petter Langnes
Head of Section



Local Office
DNV Helsinki

This Certificate is valid until
2013-12-31

Øyvind Hoff
Surveyor

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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.: F-19082
File No.: 472.22
Case No.: 262.1-008022-1

Product description

"FEX-PNR, FEX-EL, FEX-SP and FEX-PNL"

Actuator operated fire dampers with 21 mm thick damper blades made of 1+1 mm steel on each side of a 19 mm thick core with no filling. The 255 mm deep damper casing is made from 3 mm stainless steel (AISI304, 316 or 316L).

The coaming is made of minimum 3 mm thick steel material (* see application/limitation below), and is seal welded to bulkhead/deck. It extends 450 mm from the structural core on unexposed side. It also extends 450 mm on exposed side including the fire damper measure.

The coaming and fire dampers are insulated on both exposed and unexposed side with Rockwool Firebatt 150 (deck mounting also includes wire mesh along the whole length of both sides of the deck), or any other equivalent and approved H-class insulation. (For insulation details for different fire ratings, reference is made to below mentioned VTT statement and corresponding Halton insulation drawings.) Actuator is fitted on exposed side.

The damper casing is bolted to the bulkhead/deck coaming with M10 bolting spaced 150 mm apart. It may also be welded. For use of gaskets, see Application/Limitation below.

Application/Limitation

The fire dampers are approved for use in ducts penetrating bulkheads or decks with fire rating between H-0 up to H-120 based on fire tests and VTT Statement No. VTT-S-6035-07 (theoretical calculations) with corresponding Halton Insulation drawings LH-5797, LH-5796 and LH-5795. H-0 to be insulated as for H-30.

The arrangement of the fire dampers and necessary insulation of damper casing and ducting in the vicinity of the partition is subject for approval in each case. For further details see the Type Approval documentation below.

* Steel thickness of damper casing to be equal to or greater than thickness of duct/sleeve required by the rules if the damper casing is part of the duct/sleeve.

The fire damper shall be capable of being manually closed from both sides of the bulkhead or deck.

Blade gaskets other than Intumex MV may be used if having equivalent fire technical and functional properties, and approved according to IMO FTPC Part 1.

When gaskets between frame and coaming are used, they must be approved according to IMO FTPC Part 1.





Cert. No.: F-19082
File No.: 472.22
Case No.: 262.1-008022-1

The fire dampers to be automatic operated with fusible link by actuators of following type:

For FEX-PNR (rotary pneumatic):

- Air Torque AT 100 S10 B or AT 210 S10B. (*)
- Festo DRe-4-F05-Q12-F0. (*)
- Prisma P05S. (*)

For FEX-EL (electrical):

- Belimo BF-24-2 HL or BF-230-2-HL. (*)
- Schischek Ext-1524-F1, ExMax 5.10-F or InMax 5.10-F. (*)
- Siemens GCA 321.1E. (*)

For FEX-PNL (linear pneumatic):

- Roder 245N. (*)

(*) Actuators of same make but with different size as mentioned above may also be used, provided that they have similar installation arrangement and equivalent fire technical and functional properties.

The fire dampers may also be spring loaded with fusible link or manual operated by handle without fusible link.

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

Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, April 2009.

Test report No's. VTT-S-4280-07 dated 21 May 2007 and RTE3411/03 dated 28 November 2003, both from VTT, Espoo, Finland.

Statement No. VTT-S-6035-07 dated 27 June 2007 from VTT, Espoo, Finland.

Drawing No's. LH-5795, LH-5796 and LH-5797, all dated 16 February 2009 from Halton.

Initial Type Approval Survey Report dated 17 June 2009 from DNV Helsinki.

Tested according to IMO FTPC Part 3 (IMO Res. A.754 (18)) and NPD's time/temperature curve for hydrocarbon fires.





Cert. No.: F-19082
File No.: 472.22
Case No.: 262.1-008022-1

Marking of product

The product is to be marked with name of manufacturer, type designation and fire-technical rating.

Certificate retention survey

Det Norske Veritas' surveyor is to be given permission to perform Certification Retention Surveys at any time during the validity period of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Standard for Certification No. 1.2 item 4.

END OF CERTIFICATE

