



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAF00000CH**  
Revision No:  
**2**

## This is to certify:

**That the Fire Damper**

with type designation(s)

**Single and Multiblade Fire Damper Types FDB2-EL, FDB2-PNL, FDB2-PNR and FDB2-SP**

Issued to

**Halton Marine Oy**  
**Lahti, Finland**

is found to comply with

**DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021**

**DNV rules for classification – Ships**

**DNV offshore standards**

**TP14612E Ed.4 (2019-02) Procedures for approval of life-saving appliances and fire safety systems, equipment and products**

## Application :

**The damper is approved for use in ducts penetrating bulkhead or deck Class A-0 to A-60.**

**Size of damper: Max. 2000 x 1900 mm. Min. 100 x 100 mm.**

**This certificate is recognized by Transport Canada.**

**Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

Issued at **Høvik** on **2022-09-12**

for **DNV**

This Certificate is valid until **2027-09-11**.

DNV local station: **Finland FiS**

Approval Engineer: **Lars Erik H. Parelus**

Head of Section

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.

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

"Single and Multiblade Fire Damper Types, FDB2-EL, FDB2-PNL, FDB2-PNR and FDB2-SP", are fire dampers operated manually or automatically by a pneumatic/electric actuator, composed of 1–22 mm thick damper blades and 210-300 mm deep coaming made from 3-10 mm thick galvanized, painted steel plates or stainless steel (AISI304, 316 or 316L). The coaming and fire dampers are insulated on both exposed and unexposed side with 60-75 mm thick mineral wool of type Paroc Slab 100, Paroc Slab 110 or any other equivalent and approved A-class insulation. Actuator is fitted on exposed side.

For A-0 approved dampers, no insulation is required.

The coaming to be welded or bolted to the bulkhead/deck by Ø10 mm bolts spaced 150 mm apart. For use of gaskets, if any, see Application/Limitation below.

The fire damper blades to be plug welded or bolted to the blade shaft.

The fire damper is manufactured at the premises of:

- Halton Marine Oy, Lahti, Finland
- Halton Ventilation (Shanghai) Co. Ltd, Lingang New City, Pudong, Shanghai, China

For further details, see drawings listed under Type Approval documentation below.

## Application/Limitation

The fire dampers of type FDB2-EL, FDB2-PNL, FDB2-PNR and FDB2-SP are approved for use in duct penetrating bulkheads and decks with fire rating as follows:

Fire Damper Type	Size (W x H) [mm]	Fire rating Bulkhead installation	Fire rating Deck installation
FDB2-EL/PNR/ E-D/P-D	2000 x 1900	A-60: with insul. dwg. LH-5242 Rev. A	
FDB2-EL/PNR	1200 x 1600	A-0: No insulation dwg. LH-5219 Rev. A A-15 or A-30: with insul. dwg. LH-5187 Rev. C A-60: with insul. dwg. LH-5189 Rev. D	A-0: No insulation dwg. LH-5219 Rev. A A-60: with insul. dwg. LH-5189 Rev. D
FDB2-EL	250 x 250	A-60: with insul. dwg. ITM0001012379 and LH-5189 Rev. D	A-60: with insul. dwg. ITM0001012379 and LH-5189 Rev. D
FDB2-EL/PNR/SP	100 x 100	A-0: No insulation dwg. LH-5219 Rev. A A-60: with insul. dwg. LH-5189 Rev. D	A-0: No insulation dwg. LH-5219 Rev. A A-60: with insul. dwg. LH-5189 Rev. D

Damper modules	Two dampers together	Four dampers together
FDB2 size of one damper:	W is ≤ 1000mm, H is ≤ 1900mm (horizontal) W is ≤ 1000mm, H is ≤ 1600mm (vertical)	W is ≤ 1000mm, H is ≤ 1600mm
FDB2 size of one damper:	W is 1000mm < W ≤ 1200mm, H is ≤ 1600mm (horizontal) W is 1000mm < W ≤ 1200mm, H is ≤ 1400mm (vertical) Installation dwgs.: Statement No. EUFI29-22001202-T1	W is 1000mm < W ≤ 1200mm, H is ≤ 1400mm. Installation dwgs.: Statement No. EUFI29-22001202-T1

Blade gaskets other than Silicon LTE and/or Intumex LSK may be used if having equivalent fire-technical and functional properties and approved according to IMO 2010 FTP Code part 1.

When gaskets between frame and coaming are used, they must be approved according to IMO 2010 FTP Code part 1.

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

### For FDB2-EL (electrical):

- Belimo BF-24-TN, BF-230-2-HL, SR24/120/230. (All min. 12 Nm torque). (\*)  
The following modulating actuators are also part of this approval: SF24ALON and SF24A-SR-S2 (all min. 15 Nm torque).
- Schischek 15-SF, ExMax 15-SF, ExMax 5.10-YF or InMax 15-F. (\*)
- Siemens GGA or GGA126. (\*)
- PETZ QT.Ex-MFD03. (\*)

### For FDB2-PNL (linear pneumatic):

- Roder 245N. (\*)

### For FDB2-PNR (rotary pneumatic):

- Air Torque AT 100/101 S10 B / AT204 or EL-O-MATIC ES40. (\*)

(\*) 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.

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

The arrangement of the fire dampers and necessary insulation of damper coaming and ducting in the vicinity of the partition is subject for approval in each case. For further details see test report.

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

### **Type Approval documentation**

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No. VTT-S-10161-07 dated 23 November 2007 from VTT, Espoo, Finland.  
Test report No. VTT-S-7445-10 dated 27 September 2010 from VTT, Espoo, Finland.  
Test report No. VTT-S-7447-10 dated 27 September 2010, from VTT, Espoo, Finland.  
Test report No. VTT-S-07638-13 dated 4 November 2013 from VTT, Espoo, Finland.  
Test report No. VTT-S-08754-13 dated 17 January 2014 from VTT, Espoo, Finland.  
Test report No. FT15261 dated 19 August 2015 from FEFTC, Shanghai, China.  
Test report No. FT15314 dated 9 October 2015 from FEFTC, Shanghai, China.  
Test report No. FT15315 dated 9 October 2015 from FEFTC, Shanghai, China.  
Test report No. RS-20/B-037/E dated 25 February 2020 from CTO, Gdansk, Poland.  
Test report No. EUFI29-21000981-T1 dated 26 March 2021 from Eurofins, Espoo, Finland.  
Test report No. EUFI29-21000981-T2 dated 31 March 2021 from Eurofins, Espoo, Finland.

Statement VVT-S-3913-09 dated 16 June 2009 from VTT, Espoo, Finland.  
Statement VVT-S-1381-10 dated 16 February 2010 from VTT, Espoo, Finland.  
Statement VTT-S-9239-10 dated 2 December 2010 from VTT, Espoo, Finland.  
Statement VTT-S-02124-15 dated 13 May 2015 from VTT, Espoo, Finland.  
Statement VTT-S-00593-16 dated 5 February 2016 from VTT, Espoo, Finland.  
Statement VTT-S-02756-18 1 June 2018 from VTT, Espoo, Finland.  
Statement EUFI29-22001202-T1 dated 16 May 2022 from Eurofins, Espoo, Finland.

Drawing No. LH-5189 Rev. D dated 13 December 2007 from manufacturer.  
Drawing No. LH-5187 Rev. C dated 27 February 2008 from manufacturer.  
Drawing No. LH-5223 Rev. C dated 22 October 2009 from manufacturer.  
Drawing No. LH-5219 Rev. A dated 1 February 2010 from manufacturer.  
Drawing No. LH-5768 Rev. A dated 23 April 2014 from manufacturer.  
Drawing No. LH-5772 Rev. A dated 23 April 2014 from manufacturer.  
Drawing No. LH-5799 Rev. A dated 23 April 2014 from manufacturer.  
Drawing No. LH-5327 Rev. C dated 29 December 2014 from manufacturer.  
Drawing No. LH-55205 Rev. A dated 30 December 2015 from manufacturer.  
Drawing No. JpM1800289 Rev. A dated 4 August 2016 from manufacturer.  
Drawing No. LH-51222 Rev. B dated 19 August 2016 from manufacturer.  
Drawing No. JpM1800276 dated 25 May 2018 from manufacturer.  
Drawing No. ITM0001012379 dated 9 September 2022 from manufacturer.

### **Tests carried out**

Tested according to IMO FTPC Part 3 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 and fire-technical rating.

### **Transport Canada Approval**

Based on the procedures laid down in the Transport Canada Publication entitled "Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, and Products (TP 14612E)", DNV confirms that the product listed in this certificate is in accordance with Transport Canada's requirements.

### **Periodical assessment**

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.