



Certificate Of Fire Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Halton Marine Oy
Address	Pulttikatu 2, LAHTI, 15700, Finland
Type	Fire Damper (Standard Fire Test)
Description	Single and Multi-bladed Rectangular Fire Damper – Type: “FDL-EL, FDL-PNR, FDL-SP and FDL-MAN” for use in steel bulkheads and decks
Trade Name	FDL-EL, FDL-PNR, FDL-SP and FDL-MAN
Specified Standard	IMO Res. MSC.61(67) - (FTP Code), Annex 1, Part 3 IMO Res. MSC.307 (88) – (2010 FTP Code), Section 8 IMO Res. MSC.307(88) – (2010 FTP Code) Annex 1 Part 3

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register Marine Polska sp. z o. o. of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Al Zwycięstwa 13a, Gdańsk, 80-219, Poland

Marta Walk

Fire & Safety - Senior Specialist to Lloyd's Register Marine Polska sp. z o. o.
A member of the Lloyd's Register group

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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2443066SF-02

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

This Certificate is an Amendment of Certificate Number LR2443066SF

APPROVAL DOCUMENTATION

VTT expert Services limited, Espoo, Finland, Fire Test report No. VTT-S-00480-16 dated 1st Feb 2016

VTT expert Services limited, Espoo, Finland, Fire Test report No. VTT-S-08754-16 dated 17th Jan 2014

VTT expert Services limited, Espoo, Finland, Fire Test report Nos. VTT-S-8566-10 & VTT-S-8567-10 both dated 27th Oct 2010

TUV Eesti Ou, Estonia, Fire Test report No. 570-15TD-IMO dated 5th Feb 2016

TUV Eesti Ou, Estonia, Fire Test report No. 712-18TD-IMO dated 29th March 2018

VTT expert Services limited, Espoo, Finland, Statement on fire resistance of A class Fire Damper with lengthened fire damper frame VTT-S-02124-15 dated 13th May 2015

IOM manuals:

Electrical FDL – A0(A60) Fire Damper, Installation, Operation & Maintenance Manual, Rev 1, dated 31.12.2021.

FDL Pneumatic Installation, Operation & Maintenance Manual, Rev 08, dated 23.05.2019.

FDL Spring Installation, Operation & Maintenance Manual, Rev 08, dated 23.05.2019.

CONDITIONS OF CERTIFICATION

1. For use in conjunction with approved 'A-15', 'A-30' and A-60 class steel divisions with the ducting protected by the tested insulation system. For use in A-0 Class divisions the damper or ducting need not be insulated. Maximum permissible clear openings of damper combinations as shown in Table 1.
2. The internal cross-sectional area of the fire damper tested, application, maximum fire rating achieved and the minimum duct insulation lengths applicable for all fire ratings are as described in Table 1 below.
3. Ducting of dampers insulated with 'Paroc Marine Fire Slab 110' (110 kg/m³ density), thickness ranging from 60mm (Bulkhead) to 75 mm (Deck).
4. Single or multi-bladed fire dampers with 3mm thick stainless-steel damper frame and stainless-steel blades of nominal height of 200mm for multi-bladed dampers and for single bladed respective width and height. Nominal depth of blades of 20mm for all dampers.
5. Coaming consisting of 3mm thick steel for 100 x 100mm and 250 x 250 mm dampers & 5mm thick steel 1300 x 1200mm damper.

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Table 1

Tested Damper Sizes (width x height)	Application	Maximum Fire Rating Achievable	Fire damper frame, mm	Minimum length of insulation layer to be provided on exposed side of the duct	Minimum length of insulation layer to be provided on unexposed side of the duct	Approved Actuator Type
1300 x 1200 mm Multi- Blade	Bulkhead	A-0	215	-	-	Schischek In Max-15-F
100 x 100 mm Single -Blade	Bulkhead	A-0	210	-	-	Belimo BF 230 or Siemens GGA126
250 x 250 mm Single -Blade	Bulkhead	A-0	210	-	-	PI QT EX MFD10
1300 x 1200 mm Multi -Blade	Bulkhead	A-60	215	450mm	650mm**	AT101
100 x 100 mm Single -Blade	Bulkhead	A-60	210	450mm	650mm	Belimo BFL or Belimo BFN or Belimo BF or Air Torque AT 100 S10
1300 x 1200 mm Multi- Blade	Deck	A-0	215	-	-	Schischek In Max-15-F
100 x 100 mm Single -Blade	Deck	A-0	210	-	-	Belimo BF 230
250 x 250 mm* Single -Blade	Deck	A-30	210	450mm	650mm	Belimo NF24A-SR-S2
1300 x 1200 mm Multi- Blade	Deck	A-60	215	450mm	650mm	Belimo BF230-2 HL
100 x 100 mm Single -Blade	Deck	A-60	210	450mm	650mm	Belimo BFN230-T or Belimo BFL24

*Damper was tested without intumescent sealing material in blades.

**Additional layer of insulation (75mm wide) see drawing no. SaL 1500698, rev.01, dated 16.11.2015

- Frame of damper shall be fixed to coaming with M10 steel bolts and nuts with sealing material such as 'Pyrocryl' or 'Seal Fire W200'.
- Actuators and corresponding thermal triggers/fusible link mechanisms are restricted for use with up to the maximum size damper tested and in the tested orientation (bulkheads/decks). Actuators fire tested with the smaller dampers and identified on this certificate may be accepted with larger dampers on a case-by-case basis, subject to satisfactory test evidence provided to the final Project Plan Approval Authority to demonstrate they are able to close the larger damper at least within the same time period as in the actual fire tests.
- Fire dampers may be fitted with a manual override accessory as described in statement VTT-S-00593-16 and IOM manuals.
- Fire dampers may be fitted with a frame up to 300mm as described in statement VTT-S-02124-15.



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10. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.
11. The certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, are fully compliant with the relevant statutory regulate and Lloyd's Register Class rules as applicable and are designed, manufactured, and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.
- 🇨🇦 This product has been verified to be fully in accordance with Transport Canada Procedure TP14621E "Procedures for approval of life-saving appliances and fire safety systems, equipment and products" and is suitable to be placed on Canadian Flagged vessels.

PLACE OF PRODUCTION

Halton Marine Oy
Pulttikatu 2
15700 Lahti
Finland

Halton Ventilation (Shanghai) Co., Ltd.
Block 7, No. 55 Feidu Road,
Lingang New City, Pudong New District
201306 Shanghai
People's Republic of China

M. Walk.

Marta Walk
Senior Specialist, Fire & Safety
Statutory Discipline Team, Marine & Offshore
Lloyd's Register EMEA

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s)