Certificate No: LR22221317SF
Issue Date: 09/02/2022
Expiry Date: 08/02/2027

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, FI-15700, Lahti, Finland
Type	Fire Damper (Standard Fire Test)
Description	Single or Multi-Bladed Rectangular Fire Dampers – Type: "FDA" for use in steel bulkheads and decks
Trade Name	FDA
Specified Standard	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 EMEA 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.

Keith Taylor

Keith Taylor

Team Lead Fire & Safety to Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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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 supersedes and is a renewal of previous Lloyd's Register Certificate of Fire Approval No: SAS F170023.

APPROVAL DOCUMENTATION

1. TÜV Eesti OÜ, Maardu, Estonia, Test Report No. 552-15TD-IMO, dated 03 February 2016.
2. Drawing No. JpM1501642, Rev. 02, dated 10 June 2015.
3. TÜV Eesti OÜ, Maardu, Estonia, Test Report No. 561-15TD-IMO, dated 19 February 2016.
4. Drawing No. JpM1501793, Rev. 02, dated 10 June 2015.
5. TÜV Eesti OÜ, Maardu, Estonia, Test Report No. 573-16TD-IMO, dated 06 April 2016.
6. Drawing No. Sal1501047, dated 04 January 2016.
7. TÜV Eesti OÜ, Maardu, Estonia, Test Report No. 575-16TD-IMO, dated 08 April 2016.
8. Drawing No. Sal1501057, Rev. 01, dated 12 January 2016.
9. TÜV Eesti OÜ, Maardu, Estonia, Test Report No. 614-16TD-IMO, dated 10 August 2016.
10. Drawing No. JpM1600113, Rev. 03, dated 10 February 2016.
11. VTT Expert Services Ltd, Lahti, Finland, Test Report No. VTT-S-00639-16, dated 10 March 2016.
12. Drawing No. Sal1501056, dated 05 January 2016.
13. VTT Expert Services Ltd, Lahti, Finland, Test Report No. VTT-S-00798-16, dated 09 May 2016.
14. Drawing No. Sal1600159, Rev. 03, dated 10 February 2016.
15. VTT Expert Services Ltd, Lahti, Finland, Test Report No. VTT-S-04439-15, dated 14 January 2016.
16. Drawing No. JpM1501730, Rev. 02, dated 23 September 2015.
17. VTT Expert Services Ltd, Lahti, Finland, Test Report No. VTT-S-04567-15, dated 11 February 2016.
18. Drawing No. JpM1501905, Rev. 01, dated 23 September 2015.

CONDITIONS OF CERTIFICATION

1. For applications in A-0, A-15, A-30 and A-60 Class steel bulkheads and decks with both the ducting and fire damper suitably insulated in accordance with Condition No's. 10 and 11 below.
2. Minimum and maximum size of damper: 200mm x 200mm up to 1200mm x 1600mm.
3. Maximum modular arrangement size: 2500mm x 2600mm.
4. Single or Multi-Bladed fire dampers 270mm deep with outer casing composed of at least 3mm thick stainless steel. 250mm or 200mm high blades are comprised of stainless steel or galvanised steel 1mm with a double skin hollow profile of total thickness 21mm.
5. Modular fire damper arrangement consisted of 4 modules of FDA 1200mm x 1250mm fire dampers with 100mm wide x 270mm deep stainless steel mullions and framework of which the fire dampers are bolted to in accordance with Condition No. 6 below.

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6. Fire dampers are bolted to the steel coamings with M10 bolts at 150mm maximum spacing.
7. To be fitted with 'Sealfire W200' gaskets between the fire damper and the coaming or an equivalent fire rated product meeting Part 3 of the 2010 IMO FTP Code. Fire dampers which are fitted with Intumex LSK gasket seals (intumescent based gasket seal) between the fire damper and the coaming, or fire damper blades shall be restricted for use in ducts serving unmanned spaces only due to the smoke and toxic gases risks associated with intumescent materials at elevated temperatures. The use of intumescent materials within fire dampers in ducts serving manned spaces, defined as spaces where people normally work or live, must be separately approved at the design stage by the Plan Approval authority for each project.
8. The fire dampers may be operated by fusible links by the actuators dependent upon damper sizer and mode of actuation as per Table 1 below.

Fire Damper Type	Pneumatic Actuators		Electrical Actuators	
	Bulkheads	**Decks**	**Bulkheads**	**Decks**
FDA 1200mm x 1600mm (Multi-Blade)	Rotork GTWSM.110x90 AirTorque AT301 / PT301	Rotork GTWSM.110x90 Air Torque AT351U S12B / PT351U S12B	N/A	N/A
FDA 300mm x 300mm (Single-Blade)	Schischek Ex-Max-15-SF / RedMax-15-SF / InMax-15-SF	AirTorque SB AT104 S12 / PT104 S12 Festo DAPS-0030-090-RS4-F0305-CR	Elodrive CSQP-15A1E	N/A
FDA 200mm x 200mm (Single-Blade)	Air Torque AT104 / PT104	Air Torque AT101 / PT101 Rotork GTWSM.63x90.K12 NP12A F05-F07 601	Belimo BF-230	Schischek Ex-Max-15-SF / RedMax-15-SF / InMax-15-SF Belimo NF24A-SR Belimo BF230-2 HL
FDA 2500mm x 2600mm (Multi-Blade Modular Arrangement)	AirTorque AT350 / PT350	N/A	N/A	N/A

Table 1 -- Actuator Types

9. Dampers may also be fitted with an optional “Halton Smart Override” system.
10. Derivations of fire tested actuators, outlined in Condition 8 above, such as in different voltage supplies, different electric connection specifications (European/American etc.) and with higher performance ratings such as IP Ratings, Explosive Ratings etc. may be accepted on a case-by-case basis, subject to formal confirmation from the actuator manufacturer provided to the final project authorities that such changes do not adversely affect their functionality and performance or reduce damper closure times. Tested actuators in alternative material options cannot be accepted under this Certificate.

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11. For use in A-0, A-15, A-30 and A-60 Class Bulkheads as shown in Table 2 below, the fire damper should be insulated with an approved A-60 insulation system and the coaming and ducting should be insulated with an approved insulation system to the same rating as the bulkhead, for the total insulated lengths specified in Table 2 below, which may be interpolated for intermediate sizes based on the internal cross-sectional area of the duct. Reference is also made in Table 2 below to the corresponding approval document listed above which shows the corresponding insulation arrangements.

Fire Rating	**FDA 1200mm x 1600mm (Multi-Blade)**	**FDA 300mm x 300mm (Single-Blade)**	**FDA 200mm x 200mm (Single-Blade)**	**FDA 2500mm x 2600mm (4 x FDA 1200mm x 1250mm) (Multi-Blade Modular)**
A-0	No insulation on duct or coaming [Approval Doc Ref. 6]	No insulation on duct or coaming [Approval Doc Ref. 6]	No insulation on duct or coaming [Approval Doc Ref. 6]	As per A-60 requirements
A-15	As per A-60 requirements	As per A-60 requirements	As per A-60 requirements	As per A-60 requirements
A-30	As per A-60 requirements	As per A-60 requirements	As per A-60 requirements	As per A-60 requirements
A-60	Total Insulated Length: 1350mm* [Approval Doc Ref. 2 & 4] OR Total Insulated Length: 885mm [Approval Doc Ref. 8]	Total Insulated Length: 1200mm* [Approval Doc Ref. 2 & 4]	Total Insulated Length: 1200mm* [Approval Doc Ref. 2 & 4]	Total Insulated Length: 1650mm** [Approval Doc Ref. 10]

* *Additional 280mm insulation on the unexposed side was applied on the coaming near the bulkhead forming a total thickness of 120mm (60mm + 60mm) of insulation.*

** *Additional 550mm insulation on the fire exposed side was applied on the coaming near the bulkhead forming a total thickness of 85mm (60mm + 25mm) of insulation.*

Table 2 -- Minimum Duct Insulation Lengths (Including Fire Damper) for Bulkhead Applications

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12. For use in A-0, A-15, A-30 and A-60 Class Decks as shown in Table 3 below, the fire damper should be insulated with an approved A-60 insulation system and the coaming and ducting should be insulated with an approved A-60 insulation system to the same rating as the deck, for the insulated lengths specified in Table 3 below, which may be interpolated for intermediate sizes based on the internal cross-sectional area of the duct. For A-0 applications no insulation needs to be fitted to the steel ducting or coaming. Reference is also made in Table 3 below to the corresponding approval document listed above which shows the corresponding insulation arrangements.

Fire Rating	**FDA 1200mm x 1600mm (Multi-Blade)**	**FDA 300mm x 300mm (Single-Blade)**	**FDA 200mm x 200mm (Single-Blade)**
A-0	No insulation required on duct or coaming. [Approval Doc Ref. 12]	No insulation required on duct or coaming. [Approval Doc Ref. 12]	No insulation required on duct or coaming. [Approval Doc Ref. 12]
A-15	As per A-60 requirements	As per A-30 requirements	As per A-30 requirements
A-30	As per A-60 requirements	Total Insulated Length: 805mm [Approval Doc Ref. 14]	Total Insulated Length: 805mm [Approval Doc Ref. 14]
A-60	Total Insulated Length: 805mm*** [Approval Doc Ref. 14] OR Total Insulated Length: 1100mm**** [Approval Doc Ref. 16 & 18]	Total Insulated Length: 900mm [Approval Doc Ref. 16 & 18]	Total Insulated Length: 900mm [Approval Doc Ref. 16 & 18]

*** *Additional 60mm insulation on the upper side was applied on the to the base of the coaming for 60mm forming a total thickness of 120mm (60mm + 60mm) of insulation.*

**** *Additional 60mm insulation on the upper side was applied on the to the base of the coaming for 200mm on the underside of the deck and 200mm on the upper side of the deck forming a total thickness of 120mm (60mm + 60mm) of insulation.*

Table 3 -- Minimum Duct Insulation Lengths (Including Fire Damper) for Deck Applications

13. 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.

14. 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 regulations and Lloyd's Register Class Rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.

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PLACES OF PRODUCTION

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FI-15700 Lahti
Finland

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Keith Taylor
Team Lead, Fire & Safety
Fire & Safety, Statutory Discipline Team
UK&I Technical Support Office, 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).