Certificate No: LR2325157SF-01
Issue Date: 28/01/2025
Expiry Date: 30/04/2028

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	**BSB Engineering Services Ltd**
Address	Unit 7, Upper Mills Road, Quarry Wood Industrial Estate, Mills Road, Aylesford, Kent, ME20 7NA, United Kingdom
Type	Fire Damper (Standard Fire Test)
Description	Single/Multi Bladed Rectangular Fire Damper – Type: “BSB Marine Fire Damper A60
Trade Name	A60 Series Marine Fire Damper
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 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.

M. Halk.

Marta Walk

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

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

DESIGN APPRAISAL DOCUMENT

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2325157SF-01

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 LR2325157SF.

APPROVAL DOCUMENTATION

RINA Fire Protection Research Laboratory, Genova, Italy; Fire Test Report No. 2017CS011024/1 and 2017CS011024/2 both dated 27th July 2017.

LGAI Technological Center S.A., Campus UAB, Ronda de la Font del Carme, 08193 Bellaterra, Barcelona, Spain; Fire Test Report No. 17/14594-1339 dated 20th September 2017.

BRE Global Ltd, Watford, Herts, WD25 9XX, Test Report No. P107602-1017, Issue 1, dated 26th February 2019 and The Danish Institute of Fire and Security Technology (DBI), Jernholmen 12, 2650 Hvidovre, DBI Opinion No. PHD10071A, dated 1st July 2022

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 as-tested A-60 Class insulation system or equivalent.
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. The minimum duct insulation lengths for any intermediate damper sizes within the tested range (if applicable) may be determined by linear interpolation based on the internal cross-sectional area of the duct. For use in A-0 Class divisions the damper or ducting need not be insulated.

Table 1

Tested Damper Sizes (width x height)	Application	Maximum Fire Rating Achievable	Minimum length of A-60 insulation layer to be provided on exposed side of the duct	Minimum length of A-60 insulation layer to be provided on unexposed side of the duct	Approved Actuator Type
100mm x 100mm (Single)	Deck	A-60	130mm	950mm	PML-TF
300mm x 300mm (Multi)	Deck	A-60	130mm	950mm	PML-TF
1000mm x 1000mm (Multi)	Deck	A-60	130mm	1400mm	PM-TF
1000mm x 1000mm (Multi)	Bulkhead	A-60	130mm	1250mm	PM-TF

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Tested Damper Sizes (width x height)	Application	Maximum Fire Rating Achievable	Minimum length of A-60 insulation layer to be provided on exposed side of the duct	Minimum length of A-60 insulation layer to be provided on unexposed side of the duct	Approved Actuator Type
2080mm x 1000mm (Multi) [Dual Units: 2 x 1000mm x 1000mm]	Bulkhead	A-60	130mm	2000mm	PM-TF

3. Maximum permissible clear openings of damper combinations as shown in Table 1.
4. Dampers with smaller clear openings may also be considered for use as A60 for bulkheads if they have identical construction / insulation lengths / actuators as the as-tested 1000mm x 1000mm damper.
5. Minimum damper length/depth: 210mm.
6. Single or multi-bladed fire dampers with 1.2mm thick galvanised steel damper frame and 0.7mm thick steel hollow profile blades of height 108mm and depth 21mm. Different steels (with at least equivalent fire survivability properties) and thicknesses of 2mm and 3mm may be considered for use for damper frame and blades, on a case by case basis subject to final project authority approval considering the weight of the blades and dampers and the closing performance times of the dampers.
7. Coaming consisting of 3mm thick steel for 100mm x 100mm and 300mm x 300mm dampers, and of 5mm thick steel for 1000mm x 1000mm damper.
8. Frame of damper shall be fixed to coaming with M10 steel bolts and nuts.
9. Ducting of single unit dampers insulated with 'SEAROX SL620' (100 kg/m^3 density, thickness 50mm + 25mm). Total insulation thickness 75mm. Insulation retained to structure with steel pins and washers. Dual unit dampers: unexposed ducting of dual unit 1000mm x 1000mm dampers insulated with one layer of 'FireMaster Marine Plus Blanket' (128 kg/m^3 density, thickness 45mm) manufactured by Morgan Thermal Ceramics and thickness 25mm on joints; exposed ducting covered with two layers of 'FireMaster Marine Plus Blanket' (128 kg/m^3 density, thickness 45mm + 25mm) manufactured by Morgan Thermal Ceramics. Equivalent insulation could be accepted; such acceptance of equivalent insulation is subject to agreement by the design Plan Approval Authority for the project.
10. Dual unit dampers shall be installed side by side horizontally with 75mm wide central joining strips of 1.2mm thick galvanised steel and fitted together between 1.2mm thick galvanised steel sheets each side, secured with self-tapping screws.
11. Dampers shall be fitted with spring return, fail safe close type actuators Type 'PML-TF' and 'PM-TF' of torque rating, respectively, 9Nm/7Nm and 20Nm/20Nm, with associated thermo electric release closing mechanisms (72°C) type 'BAT72'

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12. Composition, application and installation of sub components, including insulation and any fire retardants, to be maintained in production and use in accordance with originally tested composition formula and method of application and installation, and manufacturer's instructions.
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 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.

PLACE OF PRODUCTION

BSB Engineering Services Ltd
Unit 56, Trinity Trade Centre
Mill Way
Sittingbourne
Kent. ME10 2PD
United Kingdom

BSB Engineering Services Ltd
Unit 7, Upper Mills Road,
Quarry Wood Industrial Estate,
Mills Road,
Aylesford,
Kent. ME20 7NA,
United Kingdom

M. Halk

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

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)