



UK TYPE-EXAMINATION (MODULE B) CERTIFICATE

This is to certify that:

Lloyd's Register Marine Limited (LRM Ltd) did undertake the relevant type approval procedures for the type of equipment identified below which was found to be in compliance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended, subject to any conditions in the schedule attached hereto.

Manufacturer	BSB Engineering Services Limited
Address	Unit 56, Trinity Trade Centre, Mill Way, Sittingbourne, Kent, ME10 2PD, United Kingdom
Reference	MSN1874 Amendment 6
Regulation Item (No. & Item Designation)	UK/3.22 Fire Dampers
Product Type	FIRE DAMPER (STANDARD FIRE TEST)
Product 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

The attached Design Appraisal Document (schedule) forms part of this certificate. This certificate remains valid unless suspended, expired or withdrawn, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory in service.

This certificate is issued under the authority of the MCA. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved Body.

The "UK Mark of Conformity" may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an Approved Body.

Lloyd's Register Marine Limited (Reg. no. 13281335) is a limited company registered in England and Wales. Registered office: 71 Fenchurch Street, London, EC3M 4BS, UK.
A member of Lloyd's Register group.

Keith Taylor

Team Lead Fire & Safety
For and on behalf of Lloyd's Register Marine Ltd. (8512)

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The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions and the Merchant Shipping (Marine Equipment) Regulations 2016, as amended for the UK Type Examination of marine equipment for use on UK ships

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

1. RINA Fire Protection Research Laboratory, Genova, Italy; Fire Test Report No's: 2017CS011024/1 and 2017CS011024/2, both dated 27 July 2017.
2. 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 20 September 2017.
3. BRE Global Ltd, Watford, Herts, WD25 9XX, Test Report No. P107602-1017, Issue 1, dated 26 February 2019 and The Danish Institute of Fire and Security Technology (DBI), Jernholmen 12, 2650 Hvidovre, DBI Opinion No. PHD10071A, dated 01 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
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.

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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/m³ 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/m³ 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/m³ 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'.
12. Composition, application and installation of subcomponents, including adhesives, glass, seals 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. Each item, batch or lot of the equipment is to have the "UK Conformity Mark" affixed and be issued with a "UK Declaration of Conformity" affixed after a conformity assessment module is in place.
14. Production items of subject equipment are to be manufactured in accordance with either an approved Production Quality Assurance System (Module D), a Product-Quality Assurance System (Module E) or a Product Verification Process (Module F), as applicable. The UK Conformity Mark cannot be affixed to the product until a conformity assessment module is in place.
15. 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.
16. Should a change of Place of Production from that stated below be required i.e. where the stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained.
17. The manufacturer must keep a copy of the UK type-examination certificate, its annexes and additions together with the technical documentation at the disposal of the national authorities for a period of at least 10 years after the UK Conformity Mark has been affixed on the last product manufactured and, in no case for a period shorter than the expected life of the marine equipment concerned.



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Expiry Date: 22 January 2028
Reference: UKITSO/FIRE/TA/MW/KT/PRJ11100399130/WP49028067

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PLACE OF PRODUCTION

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Fire & Safety, Statutory Discipline Team
For and on behalf of Lloyd's Register Marine Ltd.
(LRM Ltd) - UK Approved Body 8512

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