

Certificate of Type Approval Issued on Behalf of Transport of Canada

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 Transport Canada to issue the relevant certificates, licences, permits etc.

Manufacturer	Swegon Air Management Ltd (Actionair)
Address	Joseph Wilson Industrial Estate, South Street, Whitstable, Kent, CT5 3DU, United Kingdom
Type	Fire Damper (Standard Fire Test)
Description	Single or Multi Bladed Rectangular Fire Damper – Type “A-60 Marine Fire Damper” for use in A Class steel bulkheads and decks
Trade Name	A-60 Marine Fire Damper
Specified Standard	IMO Res. MSC.307(88) – (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.

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

Saji Abraham

Surveyor to Lloyd's Register EMEA
A member of the Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22291204TCF

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.

APPROVAL DOCUMENTATION

TEST REPORTS

Test Laboratory of RINA Services SpA, Genoa, Italy, Fire Test Reports No: 2015CS013908/1, 2015CS013908/2, 2015CS013908/3, and 2015CS013908/4, all dated 9 June 2016

CONDITIONS OF CERTIFICATION

- For applications in A-15, A-30 and A-60 Class steel bulkheads and decks, the fire damper and ducting are to be protected by an approved insulation system suitable for the fire rating of the division. Table 1 below shows minimum total duct insulation lengths, which may be interpolated for intermediate sizes based on internal cross-section area of the duct. For use in A-0 divisions, at least the fire dampers should be insulated with the as-tested A-60 insulation arrangements or equivalent and the ductwork need not be insulated.

Table 1: Minimum total duct insulation lengths based on internal cross-sectional area

	100mm x 100mm	400mm x 400mm	1000mm x 1000mm	2080mm wide x 1000mm high (Two rectangular dampers each 1000mm x 1000mm, joined by a mullion and with single duct/coaming)
Bulkhead	750mm	750mm	1150mm	1150mm
Deck	750mm	1050mm	1350mm	1350mm

- Mono or multi blade fire dampers with outer casing composed of either galvanised/zinc carbon steel or 316 grade stainless steel, in thickness options of 1.2mm, 2mm or 3mm. Blades are composed of Stainless Steel of thickness 0.5mm, shaped to double skin hollow profile of 12.7mm thick.
- Minimum permissible clear opening of single unit fire damper: 100mm x 100mm
- Maximum permissible clear opening of single unit fire damper: 1000mm x 1000mm
- Depth of damper casing: 150mm or 210mm
- Maximum permissible clear opening of multiple unit fire damper assembly with mullion: 2080mm wide x 1000mm high. Each fire damper unit to be fitted with an appropriate actuator and associated thermal release mechanism depending on the damper size and torque requirement as per Table 2 below.
- Fire dampers are suitable for use in A-0, A-15, A-30 and A-60 Class steel bulkheads and decks with a spring return, fail safe close actuator of appropriate torque rating depending on the damper size and with associated thermal release mechanisms as described in Table 2 below.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22291204TCF
Table 2: Approved closing mechanisms based on damper size and required torque

Damper size range	Actuator	Thermal release mechanism	Torque
100mmx100mm up to 400mm x 400mm	Actionair Compact Version 1 (24v, 120v, 230v)	Electrical Thermal Release (ETR)	6Nm spring return
100mm x100mm up to 400mm x 400mm	Actionair Compact Version 2 (24v, 120v, 230v)	Electrical Thermal Release (ETR)	7Nm spring return
401mm x 401mm up to 1000mm x 1000mm	Actionair Universal (24v, 120v, 230v)	Electrical Thermal Release (ETR)	20Nm spring return
100mm x100mm up to 1000mm x 1000mm	Festo DFPB 20 S F05 Pneumatic	Pneumatic Thermal Release (PTR)	20Nm @5bar
100mm x100mm up to 1000mm x 1000mm	Hytork XL071 (S-90) Pneumatic	Pneumatic Thermal Release PTR)	20Nm @5.5bar
100mm x100mm up to 400mm x 400mm	Schischek 5.10 BF (BF-A-45.9Lb) ExMax, RedMax, InMax, VAS, CTS, BF1	ExPro-TT Thermal Trigger	5 or 10Nm
401mm x 401mm up to 1000mm x 1000mm	Schischek 15 BF (BF-A-Schischek 15 BF (BF-A-5.9Lb) ExMax, RedMax, InMax, VAS, CTS, BF2	ExPro-TT Thermal Trigger	15Nm

8. Actuators and corresponding thermal triggers/fusible links are restricted for use with up to the maximum size of each type fire damper tested, in the tested orientation only. The following variations of fire tested actuators described in this certificate may also be accepted on a case-by-case basis, subject to final approval from the project authority:
 - (a) Derivations of fire tested actuators, 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.
9. Damper and coaming installation arrangements to be as-tested. Any additional requirements specified by the project surveyors (for example weld requirements for installations in high stress locations etc.) must also be complied with.
10. 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 designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22291204TCF**PLACE OF PRODUCTION**

Swegon Air Management Ltd (Actionair)
Joseph Wilson Industrial Estate
South Street, Whitstable
Kent, CT5 3DU
United Kingdom (UK)



Saji Abraham
Senior Specialist
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).