

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Fire Damper**

with type designation(s)

FGD-A6SS-P2, FGD-A6SS-E3, FGD-A6SG-P1, FGD-A6SG-P2, FGD-A6SG-E1, FGD-A6SG-E3

Issued to

Hi Air Korea Co., Ltd.**Gimhae-si, Gyeongsangnam-do, Republic of Korea**

is found to comply with

DNV GL offshore standards**DNV GL rules for classification – Ships****DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****Application :****The damper is approved for use in ducts penetrating bulkhead or deck Class A-60.****Application/Limitations see overleaf.****This certificate is recognized by Transport Canada.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-03-20**This Certificate is valid until **2024-03-19**.DNV GL local station: **Gimhae Station**for **DNV GL**Approval Engineer: **Krzysztof Kolakowski**

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Mårten Schei-Nilsson
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

"FGD-A6SS-P2, FGD-A6SS-E3, FGD-A6SG-P1, FGD-A6SG-P2, FGD-A6SG-E1, FGD-A6SG-E3" are fire dampers with the following specifications:

"FGD-A6SS-P2"

Pneumatic operated rectangular fire damper with 1.5 mm thick stainless steel blades (double skin) and 1200 mm x 1400 mm x 300 mm (width x height x length) casing made of 3 mm stainless steel. The fire dampers are fitted with a frangible bulb trigger of type F3 from JOB, Germany. The fire dampers are fixed to 1200 mm x 1400 mm x 600 mm (width x height x length) coamings made of 5 mm thick steel which are welded into the structural core. The coamings are insulated with 50 mm thick layer of mineral wool with density of 120 kg/m³ (manufactured by Byucksan Corporation). The actuator is fitted on exposed side.

The fire damper is to be bolted to the steel coaming at a maximum spacing of 150 mm apart and sealed with non-combustible gasket, or fully welded.

"FGD-A6SS-E3"

Electric operated rectangular fire dampers with 1.5 mm thick stainless steel blades (double skin) and 1200 mm x 1400 mm x 300 mm (width x height x length) casing made of 3 mm stainless steel. The fire dampers are fitted with a frangible bulb trigger of type F3 from JOB, Germany. The fire dampers are fixed to 1200 mm x 1400 mm x 600 mm (width x height x length) coamings made of 5 mm thick steel which are welded into the structural core. The coamings are insulated with 50 mm thick layer of mineral wool with density of 120 kg/m³ (manufactured by Byucksan Corporation). The actuator is fitted on exposed side.

The fire damper is to be bolted to the steel coaming at a maximum spacing of 150 mm apart and sealed with non-combustible gasket, or fully welded.

"FGD-A6SG-P1/-P2"

Pneumatic operated rectangular fire damper with 1.6 mm thick galvanized steel blades (double skin) and 1200 mm x 1400 mm x 300 mm (width x height x length) casing made of 3 mm galvanized steel. The fire dampers are fitted with a frangible bulb trigger of type F3 from JOB, Germany. The fire dampers are fixed to 1200 mm x 1400 mm x 600 mm (width x height x length) coamings made of 5 mm thick steel which are welded into the structural core. The coamings are insulated with 50 mm thick layer of mineral wool with density of 120 kg/m³ (manufactured by Byucksan Corporation). The actuator is fitted on exposed side.

The fire damper is to be bolted to the steel coaming at a maximum spacing of 150 mm apart and sealed with non-combustible gasket, or fully welded.

"FGD-A6SG-E1/-E3"

Electric operated rectangular fire dampers with 1.6 mm thick galvanized steel blades (double skin) and 1200 mm x 1400 mm x 300 mm (width x height x length) casing made of 3 mm galvanized steel. The fire dampers are fitted with a frangible bulb trigger of type F3 from JOB, Germany. The fire dampers are fixed to 1200 mm x 1400 mm x 600 mm (width x height x length) coamings made of 5 mm thick steel which are welded into the structural core. The coamings are insulated with 50 mm thick layer of mineral wool with density of 120 kg/m³ (manufactured by Byucksan Corporation). The actuator is fitted on exposed side.

The fire damper is to be bolted to the steel coaming at a maximum spacing of 150 mm apart and sealed with non-combustible gasket, or fully welded.

For further details, see the documents listed under Type Approval documentation.

Application/Limitation

The fire dampers are approved for installation in A-60 class steel bulkheads and decks. Other applications are subject to case-by-case approval.

Approved sizes:

Type of fire damper	Max. size of fire damper (W x H x L mm)	Max. number of blades	Max. blade size (H x W mm)
FGD-A6SS-P2	1200 x 1400 x 300	7	295 x 1190
FGD-A6SS-E3	1200 x 1400 x 300	7	295 x 1190
FGD-A6SG-P1	1200 x 1400 x 300	7	295 x 1190
FGD-A6SG-P2	1200 x 1400 x 300	7	295 x 1190
FGD-A6SG-E1	1200 x 1400 x 300	7	295 x 1190
FGD-A6SG-E3	1200 x 1400 x 300	7	295 x 1190

The fire dampers are operated with fusible link by actuators of following types:

Electrical:

FGD-A6SS-E3:

- GGA326.1E from Siemens, Germany (*)

FGD-A6SG-E1:

- InMax-15-SF - 50SF from Schischek, Germany (*)

FGD-A6SG-E3:

- GGA326.1E from Siemens, Germany (*)

Pneumatic:

FGD-A6SS-P2:

- SR125 from Valbia, Italy (*)

FGD-A6SG-P1:

- RS125-R Eunha Machinery Industrial Co., Ltd., Korea (*)

FGD-A6SG-P2:

- SR125 from Valbia, Italy (*)

(*) Actuators of same brand but with different size as mentioned above may also be used, provided that they have sufficient torque, similar installation arrangement and equivalent fire technical and functional properties.

The arrangement of the fire damper and necessary insulation of damper frame and ducting in the vicinity of the partition are subject to approval in each case.

The damper shall be capable of being closed from both sides of the bulkhead or deck.

The fire damper is to be operated automatically and manually according to SOLAS II-2, Reg. 9.7.

Each product is to be supplied with its manual for installation and use.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, September 2018.

Test reports:

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|---|-------------------------|
| - No. KOMERI-0402-16T0364 dated 13 October 2016 | (FGD-A6SS-P2, Bulkhead) |
| - No. KOMERI-0402-16T0363 dated 13 October 2016 | (FGD-A6SS-P2, Deck) |
| - No. KOMERI-0402-15T1478 dated 15 July 2015 | (FGD-A6SS-E3, Bulkhead) |
| - No. KOMERI-0402-16T1786 dated 17 October 2016 | (FGD-A6SS-E3, Deck) |
| - No. KOMERI-0402-15T0410 dated 1 July 2015 | (FGD-A6SG-P1, Bulkhead) |
| - No. KOMERI-0402-15T0714 dated 1 July 2015 | (FGD-A6SG-P1, Deck) |
| - No. KOMERI-0402-16T0372 dated 13 October 2016 | (FGD-A6SG-P2, Bulkhead) |
| - No. KOMERI-0402-16T0371 dated 13 October 2016 | (FGD-A6SG-P2, Deck) |
| - No. KOMERI-0402-15T0411 dated 1 July 2015 | (FGD-A6SG-E1, Bulkhead) |
| - No. KOMERI-0402-15T0409 dated 1 July 2015 | (FGD-A6SG-E1, Deck) |

Job Id: **262.1-030146-1**
Certificate No: **TAF000015R**

- No. KOMERI-0402-15T1308 dated 15 July 2015 (FGD-A6SG-E3, Bulkhead)
 - No. KOMERI-0402-15T1098 dated 1 July 2015 (FGD-A6SG-E3, Deck)
- all from Korea Marine Equipment Research Institute, Busan, Republic of Korea.

Drawings:

- No. FGD-A6SS-P2 (8 pages) dated 21 January 2016
- No. FGD-A6SS-E3 (8 pages) dated 5 September 2014
- No. FGD-A6SG-P1 (8 pages) dated 27 January 2015
- No. FGD-A6SG-P2 (8 pages) dated 21 January 2016
- No. FGD-A6SG-E1 (8 pages) dated 27 January 2015
- No. FGD-A6SG-E3 (8 pages) dated 27 January 2015

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Marking of product

The product is to be marked with name and address of manufacturer, type designation and fire-technical rating.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNVGL-CP-0338, Section 4.