Certificate No:
TAF00001JC

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fire Damper

with type designation(s)
A-60 class - FGD6

Issued to
Baramintec Co., Ltd.
Busan, **Republic of Korea**

is found to comply with
DNV GL offshore standards
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL rules for classification – Ships

Application :

The fire damper is approved for installation in steel bulkheads. Other applications are subject to case-by-case approval.

This certificate is recognized by Transport Canada.

Product approved by this certificate is accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2021-06-10**
This Certificate is valid until **2026-06-09**.
DNV local station: **Busan**

Approval Engineer: **Karolina Kuśmider**

for **DNV**

Sverre Olav Bergli
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

"A-60 class - FGD6"
is a single or multi-bladed, rectangular fire damper with automatic, electric and pneumatic actuation intended to use in bulkheads.

The stainless / carbon / galvanized steel fire damper consists of 3 x 300 x 1400 mm (T x L x H) casing bolted to the 5 mm thick coaming which has length 725 mm. Coaming is welded to the bulkhead.

The blades are made of 2 mm thick stainless / galvanized steel (double blade) welded or bolted to shaft and filled with insulation. Blades are filled with insulation Cerakwool Bio 1100 type from KCC Corporation (nominal density 96 kg/m^3).

Installation in the bulkhead:
The minimum distance between the fire damper and the bulkhead is 225 mm.
From the exposed and the unexposed side the coaming is insulated with 225 mm / 450 mm wide slabs of 50 mm thick Hi-wool insulation manufactured by KCC Corporation, Korea (nominal density 120 kg/m^3).

For further details see approved drawings listed under Type Approval documentation below.

Application/Limitation

The fire damper is approved for installation in steel bulkheads. Other applications are subject to case-by-case approval.

Max. size of fire damper: 1400 mm x 1400 mm (W x H)
Max. number of blades: 7
Max. blade size: 200 mm x 1400 mm (W x H)

The fire damper may be operated by actuators of following types:

- Pneumatic actuators:
  - Type: ETKS045SR ~160SR, GT ATTUATORI, Italy
  - Type: EPR052~EPR210-SR, FLOWBUS, Korea
  - Type: HP050~HP200-S, HKC, Korea (Used in the test)
- Electric actuators:
  - Type: InMax-5,10SF~50SF, SCHISCHEK, Germany
  - Type: RedMax-5,10SF~50SF, SCHISCHEK, Germany
  - Type: ExMax-5,10SF~50SF, SCHISCHEK, Germany
  - Type: BF-24-T, BELIMO, Switzerland
  - Type: BF-230-T, BELIMO, Switzerland
  - Type: SFU-S2, BELIMO, Switzerland

Actuators of the same make but of 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.

Steel thickness of damper casing to be equal to or greater than thickness of duct/sleeve required by the rules if the damper casing is part of the duct/sleeve.

The insulation used is to be regarded as minimum insulations for all fire rating and is not to be removed if the fire damper is to be used in division with lower fire ratings.

The fire dampers shall be capable of being closed from both sides of the bulkhead.

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

Type Approval documentation

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

Test Report No. AK2016-0103 dated 22 March 2016 from "FILK" Fire Insurers Laboratories of Korea.

Drawings Nos.: FGD6-IND-01, FGD6-STD-1, FGD6-P-1, FGD6-EX-1, FGD6-E-1, FGD6-GEN-1, FGD6-BK-1, FGD6-BK-2, dated 10 June 2015 from BARAMINTEC Co., Ltd.

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Marking of product
The product is to be marked with name 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 confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment
DNV'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.