Certificate No:
TAF00001MA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class A Bulkhead

with type designation(s)
A-60 Class Bulkhead Type W-102-M

Issued to
KCC Corporation Ltd. Gimcheon Plant
Gimcheon, Gyeongsangbuk-do, Republic of Korea

is found to comply with
DNV offshore standards
DNV rules for classification – Ships
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021

Application :

Approved for use as a vertical fire retarding division of class A-60.

This certificate is recognized by Transport Canada.

Issued at **Høvik** on **2022-03-16**
This Certificate is valid until **2027-03-15**.
DNV local station: **Ulsan**

for **DNV**

Approval Engineer: **Karolina Kuśmider**

Helene David-Andersen
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 Bulkhead Type W-102-M"
composed of a structural steel bulkhead insulated with 75 mm thick "Hi-Wool Bio" of density 90 kg/m^3 (manufacturer by KCC Gimcheon Plant Co., ltd.) between/in stiffeners and 25 mm thick the same insulation around the stiffeners.

Insulation is fixed to the bulkhead with pins of 2.5 mm - 4.0 mm diameter and washers of 25 mm - 35 mm diameter.

Pins are to be installed on bulkhead plate with a nominal spacing of 300 mm between pins, 150 mm from the stiffeners and max. 110 mm from top/bottom of the bulkhead. Pins also to be installed on bulkhead stiffeners with a nominal spacing of 300 mm. Joints between blankets can be located between pin rows with max. spacing of 250 mm / 50 mm.

For further details, see drawings listed under Type Approval documentation.

Application/Limitation
Approved for use as a vertical fire retarding division of class A-60.

Any surface materials used have to be approved for smoke and toxicity and low flame-spread characteristics (IMO 2010 FTP Code Annex 1 Parts 2 and 5) when required according to relevant rules.

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

Type Approval documentation
Certification in accordance with Class Program DNV-CP-0338, September 2021.

Test report No. AK2015-0698 dated 21 January 2016 from "FILK" Fire insurers Laboratories of Korea, Gyeonggi, Korea.

Drawing No. KCC-GC-2015-12-C-1/2 dated 12 November 2015 from manufacturer.

Tests carried out
Tested according to IMO 2010 FTP Code part 3.

Marking of product
The product or packing is to be marked with name of manufacturer, type designation and fire technical rating.

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 DNV-CP-0338, Section 4.

Transport Canada Approval
Based on the procedures laid down in the Transport Canada Publication entitled *"Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)",* DNV confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.