

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Window and Glass Partition

with type designation(s)
JG-H120-160

Issued to

Jung Gong Ind. Co., Ltd.
Busan, Republic of Korea

is found to comply with
Det Norske Veritas' Offshore Standards

Application :

Approved for use as an integrated part of fire retarding bulkheads of class H-120.

Maximum size of exposed fire technical glazing unit: 1300 x 1300 mm (Width x Height).

Restricted application: Fire against 8 mm toughened glass (from outside/weather side).

This Certificate is valid until **2019-07-27**.

Issued at **Høvik** on **2015-07-28**

DNV GL local station: **Pusan**

Approval Engineer: **Piotr Orzechowski**

for **DNV GL**

Petter Langnes
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

"JG-H120-160"

The rectangular window glass unit composed of:

- 8 mm pressure glass (exposed side) manufactured by Jeong-Am Safety Glass
- 8 mm spacer
- 43 mm fire resistance glass manufactured by Saint-Gobain
- 6 mm spacer
- 71 mm fire resistance glass manufactured by Saint-Gobain

The total window unit thickness is 136 mm.

Between the glazing units and the steel profiles as well as between the steel profiles, the window is insulated with 25 mm thick "Cerakwool" (density 100 kg/m³) from KCC Corporation and 3 mm thick "Kaowool" (density 160 kg/m³) from Morgan Thermal Ceramics Korea.

Window pane is fitted between a 12 mm thick glass stopper and 5 mm thick steel fire glass retaining frame. Fire glass retaining frame is bolted to the fire glass frame with M8 bolts and nuts. The glass stopper is welded to the 12 mm thick main, insulated frame which is welded to the bulkhead.

For more details see approved drawing listed under "Type Approval documentation".

Application/Limitation

The window has only been evaluated with respect to fire technical properties (e.g. strength requirements have not been considered). Arrangement and location of any window is subject to approval from relevant authority in each case.

External windows to comply with ISO 3903 (Ref. Offshore Standard DNV-OS-C301, Ch. 2. Sec. 2).

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

Type Approval documentation

Tests carried out

Tested according to IMO 2010 FTP Code Part 3 and the HC- temperature curve stipulated by the European Standard EN-1363-2.

Marking of product

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

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 Standard for Certification No. 1.2 Type Approval Item 4.