



DNV

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. F-17008
This Certificate consists of 2 pages

This is to certify that the
Window and Glass Partition

with type designation(s)
**B-15 CLASS FIRE RESISTANT RECTANGULAR WINDOW
(JG-B15-258)**

Manufactured by
Jung Gong Ind. Co., Ltd.
Pusan 604-030, Korea, Republic of

is found to comply with


Application

The window is approved for use as an integrated part of fire retarding bulkheads of class B-15. Max. size of fire technical glazing unit: 1710 x 1510 mm (width x height).
Fire against either side.


Place and date
Høvik, 2002-07-16
for DET NORSKE VERITAS AS



This Certificate is valid until
2006-12-31


Svein Erik Jacobsen
Head of Section

Local Office
DNV Pusan (8th floor)


Helge Bjørnara
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: F-17008
File No.: 471.75

Product description

"B-15 CLASS FIRE RESISTANT RECTANGULAR WINDOW (JG-B15-258)"
composed of symmetrical 16mm thick (6+4+6) Contraflam Lite N2, manufactured by Vetrotech Saint-Gobain International, UK, glass unit fitted in a silicone rubber gasket fitted in a frame made of 3mm mild steel. The Frame is screwed to the bulkhead. Total thickness of glass pane is 16mm.

Applications/Limitations

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.

Type Approval documentation

Certification in accordance with Certification Note No. 1.2, Type Approval, December 1996.

Test report No. 20020135 dated 27 May 2002 from FILK, Gyeonggi-Do, Korea.

Tested according to IMO FTPC Part 3 (IMO Res. A.754(18)).

Marking of product

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

Certificate retention survey

Det Norske Veritas' surveyor is to be given permission to perform Certification Retention Surveys at any time during the validity period of this certificate. The arrangement is to be in accordance with procedure described in item 4.3, Certification Note No. 1.2.

END OF CERTIFICATE





Approval Certificate

Germanischer Lloyd

This is to certify, that the product identified below has been tested in accordance with the relevant procedures as contained in the Fire Test Procedure Code (IMO-Res. MSC.61(67)) and was found in compliance with the applicable performance criteria contained in the specified standard.

Certificate No. **43 110 - 02 HH**

Company **Jung Gong Industri Co.,Ltd
546 Shinpyong-Dong, Saha-ku
Pusan, Korea**

Product Description **Fire resistant window type JG-B15-258**

Product Type **Class B-15 window**

Approval Standard **-IMO Res.MSC.61(67), Annex 1, Part 3
-IMO Res.A.754(18)**

Documents **Test report no. 20020135 dated 2002-05-27 issued by Fire Insurers Laboratories of Korea**

Application **The above product may be applied on ships classed with Germanischer Lloyd and on ships for which the Society is responsible for the issue of the relevant certificate required by the "International Convention for the Safety of Life at Sea, 1974" including amendments as authorized by contracting governments.**

Remarks **None**

Valid until **2007-07-07**

The company must inform Germanischer Lloyd of any modification or changes to approved product in order to obtain a valid certificate.

Page 1 of 2

Hamburg, 2002-07-08

Germanischer Lloyd


D. Roßmanith


A. Ullrich

The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable.
German law applies.



Approval Certificate

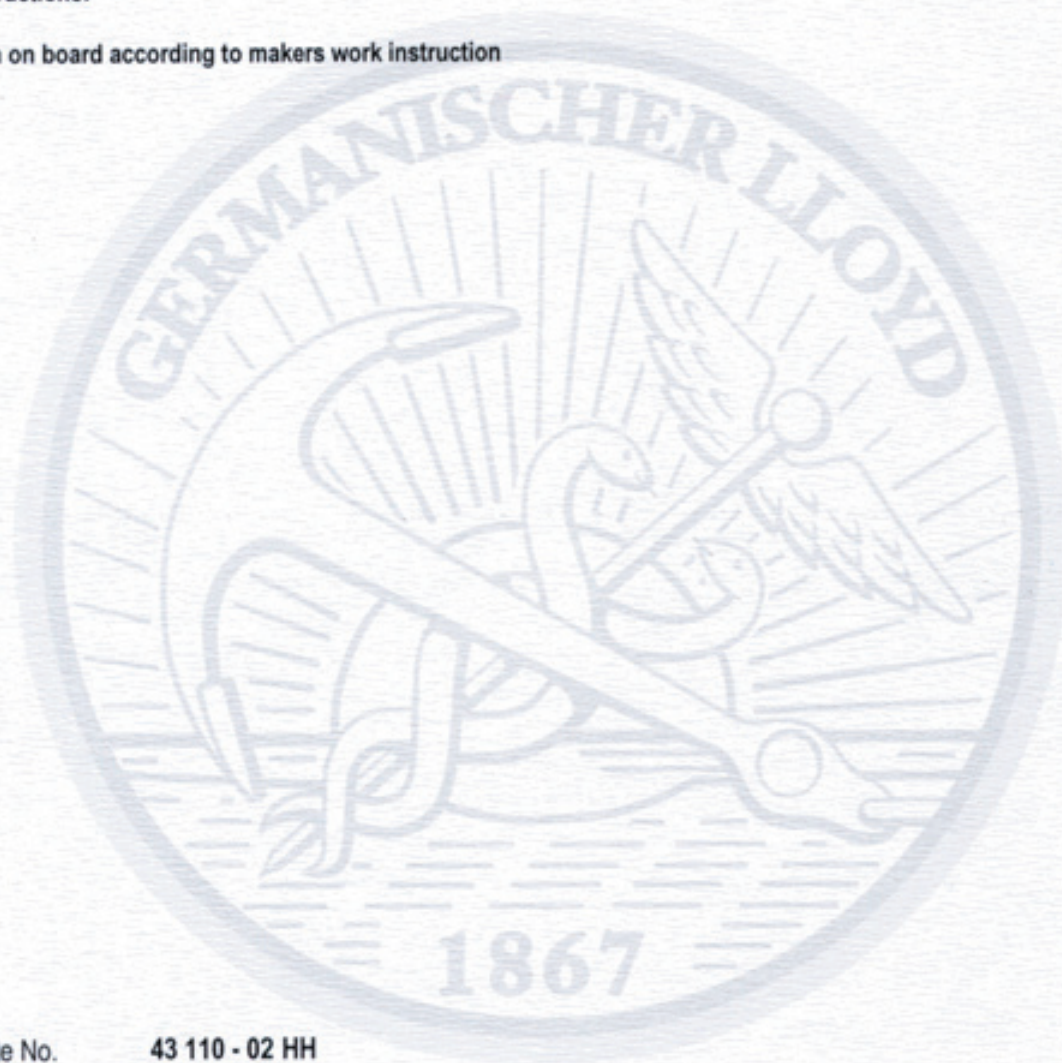
Germanischer Lloyd

principle components:

window consisting of a fire resistant glass Contraflam Lite N2 (6+4+6) mounted in a steel frame; max. size (width x height): 1710 mm x 1510 mm

work instructions:

execution on board according to makers work instruction



Certificate No. 43 110 - 02 HH

Page 2 of 2

Hamburg, 2002-07-08

KOREAN REGISTER OF SHIPPING
한 국 선 급

TYPE APPROVAL CERTIFICATE
형 식 승 인 증 서

Certificate No. : GCH02198-FP016 Date of Approval : 26th September, 2002.

Product : Fire Resistant Window

Manufacturer : Jung Gong Industrial Co., Ltd.
546, Shinpyong-dong, Saha-ku, Busan, Korea

Product Description : Type : JG-B15-258
Grade : B-15 Class
Nominal Size : 1,710 mm x 1,510 mm (W x H)
Fire Resistance Glass :
- Brand : Contraflam Lite N2
- Thickness : 16 mm
- Manufacturer : Vetrotech Saint-Gobain International Export.
Drawing Nos. : JG-B15-258, JG-B15-258B, JG-B15-258D

Approval Condition : 1. This approval is granted on the basis of test report no. 20020135 of Fire Insurers Laboratories of Korea(FILK).
2. No product certificate required.

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and/or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipments".

Pt. 8, Ch. 1 of the Rules for Classification, Steel Ships & IMO FTP Code, Annex 1, Part 3.

This Certificate is valid until 25th day of September, 2007 .

Issued at Daejeon, Korea on 26th September, 2002.

KOREAN REGISTER OF SHIPPING

한 국 선 급

Lim
Manager of Machinery Dept.

Note : 1 : The approval will be automatically suspended and the Certificate become invalid from the expiry date of the Certificate in the event that the extension has not been granted or is not under attendance for completion of the renewal survey.
2 : Any significant changes of products and/or manufacturing process render this certificate invalid.


CERTIFICATE OF FIRE APPROVAL

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 contracting governments to issue the relevant certificates, licences, permits etc.

| | |
|---------------------------|--|
| Manufacturer | Jung Gong Ind Co Ltd |
| Address | 546 Shinpyong-Dong Saha-Ku Pusan, 604-030 Republic of Korea |
| Type | B-15 WINDOW (STANDARD FIRE TEST) |
| Description | Fire Resisting Window - Type: "JG-B15-258" |
| Specified Standard | IMO Fire Test Procedures Code, Annex 1, Part 3 |

The attached Design Appraisal Document forms 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.

| | | | |
|-----------------|--------------|-----------|--|
| Date of issue | 23 July 2002 | Issued by | Lloyd's Register of Shipping, London |
| Expiry date | 22 July 2007 | | |
| Certificate No. | SAS F020311 | Signed |  |
| Sheet No | 1 of 2 | Name | J. D. Burr Marine Support Group London |

Note:

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 of any modification or changes to the equipment in order to obtain a valid Certificate.

DESIGN APPRAISAL DOCUMENTDate
23 July 2002Quote this reference on all future communications
MSG/STAT/DCG/FITA/BM/RDS**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F020311**

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

(FILK) Fire Insurers Laboratories of Korea, Yojukun, Kyunggi-Do, Korea, Fire Test Report No. 20020135, dated 27 May 2002.

CONDITIONS OF CERTIFICATION

1. Maximum clear opening size: 1810mm wide x 1610mm high.
2. Glass fitted in windows and side scuttles for external use should, in addition to the required fire resisting ability, as appropriate, be of toughened quality and suitable to satisfy the operational requirements of the location in which the glass is fitted. For example, consideration should be given to the 1966 Load Line convention Regulation 20 - side scuttles.

PLACE OF PRODUCTION

Jung Gong Ind. Co., Ltd.
546 Shinpyong-Dong
Saha-ku
Pusan, 604-030
Republic of Korea



Capt. J. D. Burr
Principal Surveyor
Dry Cargo Ship Section
Statutory Department
Marine Support Group

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).



NIPPON KAIJI KYOKAI

Certificate

OF

APPROVAL

| | | |
|------------------------|---|---|
| Item | : | B-15 class window |
| Type | : | JG-B15-258 |
| Manufacturer | : | JUNG GONG IND. CO., LTD. 546 Shinpyong-dong, Saha-ku, Pusan, Korea |
| Specification | : | See Annex |
| Maximum size | : | 1710mm x 1510mm (width x height) |
| Conditions of approval | : | See Annex |
| Testing standard | : | FTP Code Annex1 / Part 3 |
| Test report | : | |
| Test laboratory | : | Fire Insurers Laboratories of Korea, Korea |
| Report number | : | 20020135 |

THIS IS TO CERTIFY that the above type of products has been approved by Nippon Kaiji Kyokai with type approval No. 02FPA77DB and that products of the type will be accepted for use onboard ships classed with the Society for compliance with the relevant requirements of the Society's *Rules for the Survey and Construction of Steel Ships* and those of the *International Convention for the Safety of Life at Sea, 1974, as amended*, subject to approval of the flag Administration and conditional upon that the manufacturers have a quality control system audited by a competent authority to ensure continuous compliance with the type approval conditions.

This certificate is valid until 8th December 2007.

Issued at Tokyo on 9th December 2002.

NIPPON KAIJI KYOKAI

H. Kitada

General Manager

Material and Equipment Department

