



Marine & Offshore

Certificate number: 62756/A0 BV

File number: .

Product code: 73511

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**JOKWANG I.L.I CO., LTD.**

Yangsan (Gyeongnam) - KOREA (REPUBLIC OF)

*for the type of product*

**PRESSURE RELIEF VALVES FOR LIQUEFIED GAS PIPING SYSTEMS**

JSV-FF100

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships  
IGC Code as amended by IMO Res. MSC.441(99)

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 04 Oct 2027**

**For Bureau Veritas Marine & Offshore,**

At BV PUSAN, on 04 Oct 2022,

Chang-Uk HONG

***This certificate was created electronically and is valid without signature***



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=lioeaodh17>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### **JSV-FF100**

##### 1.1 - Ratings

Model	JSV-F100
Size range *	3/4" x 1" 1" x 2" 1-1/2" x 2" 1-1/2" x 3" 2" x 3" 3" x 4" 4" x 6"
Design standard	ASME SEC. VIII ASME B16.34 API STD. 520
Class range	150# / 300#
Design pressure (MPa)	1.9/5.1
Setting pressure* (MPa)	0.1 - 4.96
Temperature range (°C)	-196/+180
Coefficient of discharge	0.615 for Liquid 0.831 for Steam & Air/Gas
End connections	Flanged

\*Flow area, setting pressure & Inlet/Outlet diameter as per Document N° JKS-1621(A)T CLASS300 SPEC. REV.00

Part	Material
Body	SA351 CF8M
Bonnet	SA351 CF8M
Stem	316 SS
Seat	316 SS-st
Spring	SWOSC-B SAE9254 Inconel X-750 316 SS

*When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.*

### 2. DOCUMENTS AND DRAWINGS

- Drawings N° JKS-1621001T Rev. 3 dated 11/08/2020, N° JKS-1621002T Rev. 1 dated 20/05/2021, N° JKS-1621003T Rev. 1 dated 20/05/2021
- Manual of installation, use and maintenance N°JK-COM-E-08 Rev. 4 dated 15/03/2019
- Specification sheet N°JKS-1621(A)T CLASS300 SPEC. REV.00
- Test procedure N° ITP-BV Rev. 2 dated 01/06/2021
- Capacity test results dated 18/04/2017

*No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.*

### 3. TEST REPORTS

3.1 - Type tests witnessed by a BV Surveyor including hydrostatic test, seat tightness at re-seat, operating characteristics and flow characteristics test at ambient temperature & valve operation and leakage test at the minimum design temperature:

- Test report N° HYD-220223-03 dated 23/02/2022 and N° HYD-210304-01 dated 04/03/2021

- Test reports N° TA-220510-01/02 dated 10/05/2022, N° TA-220512-01/02 dated 12/05/2022, N° TA-220517-01 dated 17/05/2022, N° TA-220519-01/02 dated 19/05/2022, N° TA-220524-01 to 07 dated 24/05/2022, N° TA-210414-01/02 dated 14/04/2021, N° TA-210415-01/02 dated 15/04/2022, N° TA-210416-01/02 dated 16/04/2022, N° TA-210420-01/02 dated 20/04/2022 & N° TA-210423-01 to 08 dated 23/04/2022

#### **4. APPLICATION / LIMITATION**

- 4.1 - May be used on cargo handling systems of ships granted with the notation liquefied gas carrier
- 4.2 - The safety valves are not to be used as shut-off valves.
- 4.3 - The safety valves intended to be used for handling of Propylene Oxide or Ethylene Oxide/ Propylene Oxide mixtures shall be of a fire safe design.
- 4.4 - The safety valve belongs to class I pressure piping according to the relevant requirements stated in Part D, Ch 9, Sec 5 of BUREAU VERITAS Rules.
- 4.5 - The safety valve intended to be installed on BUREAU VERITAS classed ship have to comply with Pt D, Ch 9, Sec 5 & IGC Code and type tests reports witnessed by BUREAU VERITAS are to be available for each type and size of valve.
- 4.6 - When required in Part D, Ch 9, Sec 6 of the Bureau Veritas Rules applicable to liquefied gas carriers, Charpy V-notch impact test shall be carried out for castings. Castings in steel grades 316 and 316L at any temperature will be impact tested at -196 °C. A reduction may be granted for design temperature above -60 °C after examination by the Society.
- 4.7 - The materials for safety valves housing, disc and sealing should be of a suitable type at the temperature and pressure for use with cargoes intended to be carried.
- 4.8 - The approval does not include any operating gear for remote control of the valves.
- 4.9 - The safety valve is to be set, sealed and installed according to manufacturer's instructions and Society's Rule requirements.

#### **5. PRODUCTION SURVEY REQUIREMENTS**

- 5.1 - The products are to be supplied by **JOKWANG I.L.I CO., LTD** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of BV Rule Note NR320.
- 5.3 - BV product certificate is required.
- 5.4 - BV Certificates are required for materials of safety valve housings of Class I (DN≥50). Materials of safety valve housings of Class I (DN<50) and other pressure boundary parts of Class I are to be with work's certificates.
- 5.5 - Materials are to comply with the approved drawings and the applicable requirements in Part D of the Society's Rules. Charpy impact test is to be as per the Society's Rules on materials, and where relevant, in accordance with requirements of IGC Code.
- 5.6 - Each valve is to be tested according BV Rules Pt D, Ch 9, Sec 5 item 13.3.3.
- 5.7 - For information, **JOKWANG I.L.I CO., LTD.** has declared to Bureau Veritas the following production site:

**JOKWANG I.L.I CO., LTD.**  
**37, Sanmakgongdanbuk 10-gil,**  
**Yangsan (Gyeongnam)**  
**KOREA (REPUBLIC OF)**

#### **6. MARKING OF PRODUCT**

Each valve shall be permanently marked with at least:

- Manufacturer's name or logo
- Type designation
- Maximum working Pressure and Test Pressure
- Society's brand as relevant

#### **7. OTHERS**

It is **JOKWANG I.L.I CO., LTD.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

\*\*\* END OF CERTIFICATE \*\*\*