



MARINE DIVISION

Certificate number: 36919/A0 BV

File number: ACM 145/2559/2

Product code: 73331

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

HABONIM Industrial Valves & Actuators
Kfar Hanassi - ISRAEL

for the type of product

BALL VALVES FOR LIQUEFIED GASES

C47C 3/8" & 1"

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- IGC Code

This certificate is issued to attest that BUREAU VERITAS 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: 02 Apr 2019

For BUREAU VERITAS,

At BV PIRAEUS, on 02 Apr 2014,

Dimitris DIMITROPOULOS



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. 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 Division 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 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 SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Cryogenic Floating Ball Valves C47C

1.1 Description

Characteristics	Floating Ball Valve
Size	3/8" & 1"
End connection	Flanged, Screwed, Butt Welded, Extended Butt Welded
Class rating	Class 600
Design pressure	10 MPa
Min. design temperature	-196 °C

1.2 Material specification

Body	ASTM A351-CF8M
Bonnet	AISI 316L
Ball	ASTM A351-CF8M, 17-4PH
Stem	ASTM A479 316/316L, 17-4PH
Seat	TFM, NRG, PCTFE

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

2. DOCUMENTS AND DRAWINGS

- Manufacturer's catalogue for Cryogenic valves N° CATC47PP-119M 10/10
- Manufacturer's Installation, Operating & Maintenance Manual N° H-05/08
- Quality Control Plan dated 10/05/2011
- Work Instructions for valve assembly N° WI 04.622e dated 11/2012
- Work Instructions for Cryogenic valves test procedure N° WI 04.485e dated 01/2014
- Drawing N°03-AF47P-6666PG-NPT Rev.HA dated 04/07/2012
- Drawing N°1/2"-2" C47C-006600-BW Rev.HB dated 03/10/2010
- Drawing N°1/2"-2" C47C-006600-SW-THD Rev.HB dated 03/10/2010
- Drawing N°2 1/2"-6" C47C-006600-BW Rev.HB dated 03/10/2010
- Drawing N°P05-FC47C-6666PG-BW-C20SR-YTC Rev.HA dated 12/05/2010
- Drawing N°P25-FC47C-6666PG-BW-C35 Rev.HA dated 12/05/2010

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 were carried out at manufacturer's factories according to manufacturer's test procedures under witnessing of a Society's Surveyor and found in order:

- Pressure test (Shell & Seat) and Cryogenic operation and leakage test.
- Mill certificates

3.2 Test Reports:

- N° 69817 dated 23/02/2014 for 3/8"
- N° 69315 dated 02/02/2014 for 1"

4. APPLICATION / LIMITATION

4.1 To be used on cargo handling systems of ships granted with the notation Liquefied gas carrier.

4.2 The valves intended to be used for handling of Propylene Oxide or Ethylene Oxide/ Propylene Oxide mixtures shall be of a fire safe design.

4.3 The valves belong to class I pressure piping according to the relevant requirements stated in Part D, Ch 9, Sec 5 of BUREAU VERITAS Rules.

4.4 When required in Part D, Ch 9, Sec 6 of 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.

4.5 The materials for valves housing, internal and sealing are to be of a suitable type at the temperature and pressure for use with cargoes intended to be carried.

4.6 The approval does not include any operating gear for remote control of the valves.

4.7 The valve is to be installed according to manufacturer's instructions and Society's Rule requirements.

4.8 Threaded ends are not acceptable on lines with external diameter above 25 mm.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **HABONIM Industrial Valves & Actuators** in compliance with the type and the requirements described in this certificate.

5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.3 BUREAU VERITAS Certificates are required for materials of valve housings of Class I (DN \geq 50). Materials of valve housings of Class I (DN $<$ 50) and other pressure boundary parts of Class I are to be with work's certificates.

5.4 Materials are to comply with the approved drawings and the applicable requirements in Part D of BUREAU VERITAS Rules. Charpy impact test to be as per Materials Rules requirements, and where relevant, in accordance with requirements of IGC Code.

5.5 Each valve housing for class I is to be hydraulically pressure tested to 1.5 times the design pressure.

Place of production:

HABONIM Industrial Valves & Actuators

Upper Galilee

12305 Kfar Hanassi

ISRAEL

6. MARKING OF PRODUCT

The valve shall be marked with:

- Manufacturer's name or trade mark
- Type designation
- Size
- Society's brand as relevant

7. OTHERS

This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of use and general maintenance of the product and of the conditions of this approval.

*** END OF CERTIFICATE ***