



MARINE DIVISION

Certificate number: 32608/A0 BV

File number: ACM 145/2570/02

Product code: 7332I

*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*

**BESTOBELL**  
SHEFFIELD - UNITED KINGDOM

*for the type of product*

### CHECK VALVES FOR LIQUEFIED GASES

Cryogenic Swing Check Valve

**Requirements:**

- BUREAU VERITAS Rules for the Classification of Steel Ships
- 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: 25 Mar 2019**

**For BUREAU VERITAS,**

At BV LONDON, on 25 Mar 2014,

Spencer Yule



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](http://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 Swing Check Valve**

*Design: flanged end connection / Butt Welded*

#### 1.1 Ratings

Size range (mm)	DN 25 to DN 350
Max. Design Pressure (bar)	10
Design Temperature range (°C)	-196/80

The working temperature depends on the media and the material of the seat used.

#### 1.2 Materials

Parts	DN 25 to DN 100	DN 150 to DN 350
Body	SS ASTM A351 CF3M / CF8M	SS ASTM A351 CF3M / CF8M
Cover	SS ASTM A320 CF8M	SS ASTM A351 CF8M
Seat	SS316L BS EN 10088-3 1.4404	SS ASTM A351 CF8M
Disc	SS316 BS EN 10088-3 1.4401 / SS ASTM A351 CF8M	SS ASTM A351 CF8M / SS ASTM A351 CF8M

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

### 2. DOCUMENTS AND DRAWINGS

- Drawings N°CHC50TOCHCB0 Rev. A Swing Check Valve DN25 to DN100 dated 11/07/2013
- Drawings N°CHCD0TOCHCH0 Rev. A Swing Check Valve DN150 to DN350 dated 15/07/2013
- Installation, Operation and Maintenance Manual L03M01 Rev C dated 26/08/2008
- Quality Plan N° QP63 Issue N°1 dated 02/04/2012
- Test Specification - Q129 (cryogenic Test Area) Issue N° 9 dated 10/2012
- Test Specification - Q128 (Hobley) Issue N° 9 dated 02/2013

*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

Type tests carried out at manufacturer's factory in presence of IACS suveyor dated 29/10/2012, 11/12/2012 & 04/02/2013:

- Pressure test, seat leakage test at ambient temperature
- Cryogenic Test at -196°C

### 4. APPLICATION / LIMITATION

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

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

4.4 The valve intended to be installed on BV classed ship have to comply with Pt D, Ch 9, Sec 5 & IGC Code and type tests reports witnessed by BV are to be available for each type and size of valve.

4.5 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 of the tests may be granted for design temperature above -60 °C after examination of each case by the Society.

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

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

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

## **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 The products are to be supplied by **PEGL LTD. Trading as BESTOBELL MARINE** 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 the Society's Rules. Charpy impact test to be as per the Society's Rules on materials, 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:**

**BESTOBELL MARINE**

**President Park**

**President Way**

**SHEFFIELD**

**UNITED KINGDOM**

## **6. MARKING OF PRODUCT**

The valve shall be marked with at least:

- Manufacturer's name or trade mark
- Type designation
- Size and pressure class
- 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 fitting and general maintenance of the products and of the conditions of this approval.

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