Marine & Offshore

**Certificate number:** 33356/C0 BV
**File number:** ACM 145/2573/9
**Product code:** 7351I

*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*

## HEROSE GMBH ARMATUREN UND METALLE

Bad Oldesloe - GERMANY

*for the type of product*

## PRESSURE RELIEF VALVES FOR LIQUEFIED GAS PIPING SYSTEMS

SAFETY VALVES

**Requirements:**
BUREAU VERITAS Rules for the Classification of Steel Ships
BUREAU VERITAS Rules for the Classification of Offshore Units
BUREAU VERITAS Rules for Gas Fuelled Ships
IGC Code as emended by IMO Res. MSC.447(99)
IGF Code as amended by IMO Res. MSC.422(98)

*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: 26 Jul 2028**

**For Bureau Veritas Marine & Offshore,**
At BV HAMBURG, on 26 Jul 2023,
Heiko Lange

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

# THE SCHEDULE OF APPROVAL

## 1. PRODUCT DESCRIPTION:

**Safety valves**

**1.1 Design:**
Spring loaded, metal to metal seated or with carbon filled PTFE/PCTFE valve seal, closed or open bonnet with or without lifting.
Inlet: female thread or male thread according to ISO 228/1, ISO 7/1 or ANSI B 1.20.1
Outlet: female thread according to ISO 228/1, ISO 7/1 or ANSI B 1.20.1

**1.2 Identification and technical data:**
**Type 06011 – Safety valve:**
Size range: DN8, DN10 and DN15
Pressure: PN63
Temperature range: -196 °C up to +65 °C

**Type 06012 – Safety valve:**
Size range: DN8, DN10 and DN15
Pressure: PN63
Temperature range: -196 °C up to +150 °C

**Type 06016 – Safety valve:**
Size range: DN8, DN10 and DN15
Pressure: PN63
Temperature range: -196 °C up to +150 °C

**Type 06383 – Safety valve:**
Size range: DN15, DN20, DN25, DN32, DN40 and DN50
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06386 – Safety valve:**
Size range: DN15, DN20 and DN25
Pressure: PN40
Temperature range: -196 °C up to +185 °C

**Type 06387 – Safety valve:**
Size range: DN15
Pressure: PN40
Temperature range: -196 °C up to +185 °C

**Type 06388 – Safety valve:**
Size range: DN15, DN20, DN25, DN32, DN40 and DN50
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06413 – Safety valve:**
Size range: DN15, DN20 DN25, DN32, DN40 and DN50
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06416 – Safety valve:**
Size range: DN15, DN20 and DN25
Pressure: PN40
Temperature range: -196 °C up to +185 °C

**Type 06417 – Safety valve:**
Size range: DN15
Pressure: PN40
Temperature range: -196 °C up to +185 °C

**Type 06418 – Safety valve:**
Size range: DN15, DN20, DN25, DN32, DN40 and DN50
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06420 – Safety valve:**
Size range: DN15, DN20, DN25 and DN32
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06421 – Safety valve:**
Size range: DN15, DN20, DN25 and DN32
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06425 – Safety valve:**
Size range: DN15, DN20, DN25 and DN32
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06426 – Safety valve:**
Size range: DN15, DN20, DN25 and DN32
Pressure: PN50
Temperature range: -196 °C up to +185 °C

**Type 06440 – Safety valve:**
Size range: DN15, DN20 DN25 and DN32
Pressure: PN40 (DN15 & DN20=PN50)
Temperature range: -196 °C up to +185 °C

**Type 06441 – Safety valve:**
Size range: DN15, DN20 DN25 and DN32
Pressure: PN40 (DN15 & DN20=PN50)
Temperature range: -196 °C up to +185 °C

**Type 06445 – Safety valve:**
Size range: DN15, DN20 DN25 and DN32
Pressure: PN40 (DN15 & DN20=PN50)
Temperature range: -196 °C up to +185 °C

**Type 06446 – Safety valve:**
Size range: DN15, DN20 DN25 and DN32
Pressure: PN40 (DN15 & DN20=PN50)
Temperature range: -196 °C up to +185 °C

**Type 06474 – Safety valve:**
Size range: DN8, DN10, DN15 and DN20
Pressure: PN63
Temperature range: -196 °C up to +150 °C

**Type 06478 – Safety valve:**
Size range: DN8, DN10, DN15 and DN20
Pressure: PN63
Temperature range: -196 °C up to +150 °C

**1.3 Material and components:**

| Standard | DIN EN | ASTM |
|---|---|---|
| **Inlet body** | 1.4301 | A 276 Grade 304 / SA-479.304 |
| **Outlet body** | 1.4308 / CC491K | A-351.CF 8 / B 62 UNS C83600 |
| **Body** | 1.4408 | A 351 CF8M |
| **Valve seal** | PTFE / Carbon filled (25%) / PCTFE | |
| **Disc** | 1.4541 / (25% Carbon filled) PTFE / 1.4301 / CC493K / CW452K | A 276 Grade 321 / A 276 Grade 304 / SA-479.304 / SB 505 UNS C93200 / B 103 UNS C51900 |
| **Guide plate** | 1.4301 / CW453K / CC493K | A 276 Grade 304 / SA-479.304 / B 103 UNS C52100/ SB 505 UNS C93200 |
| **Stem** | 1.4301 / CW453K /1.4571 / CW614N | A 276 Grade 304 / SA-479.304 / SB 103 UNS C52100/ SA-479.316Ti / B 283 UNS C38500 |
| **Spring** | 1.4571 | A 276 Grade 316Ti / A 313 Grade 316Ti / SA-479.316Ti / SA-479.316 |
| **Bonnet** | 1.4301 / 1.4308 / 1.4305 | A 276 Grade 304 / A 351 CF 8 / A 314 Grade 303 |
| **Spring clamp** | 1.4305 / 1.4301 / CW614N | A 276 Grade 303 / SA-479.304 / B 283 UNS C38500/ EN 12164 R400 / SB 455 UNS C38500 |
| **Thread ring** | 1.4305 / 1.4301 / CW614N | A 276 Grade 303 / SA-479.304 / B 283 UNS C38500/ EN 12164 R400 / SB 455 UNS C38500 |
| **Cap** | 1.4301 / CW614N | A 479 Grade 304 / A 276 Grade 304 / B 283 UNS C38500 / EN 12164 R400 / SB 455 UNS C38500 |
| **Lifting device** | 1.4305 / CW614N | A 276 Grade 303 / SA-479.304 / B 283 UNS C38500 |
| **Closing cap** | 1.4305 | A 276 Grade 303 |
| **Lifting cap** | 1.4301 / CW614N | SA-479.304 / B 283 UNS C38500 / EN 12164 R400 |
| **Lifting spring** | 1.4571 | SA-479.316 / A 276 Grade 316Ti /A 313 Grade 316Ti |
| **Lifting stem** | 1.4301 / CW614N | SA-479.304 / B 283 UNS C38500 / EN 12164 R400 |
| **Lever** | 1.4408 | A 351 CF8M |
| **Braze fitting** | 1.4301 | A 276 Grade 304 |
| **Union nut** | CW614N | B 283 UNS C38500 |

## 2. DOCUMENTS AND DRAWINGS:

According following documents:

| Document no. | Rev. | Designation |
|---|---|---|
| 06011-X-0000-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06012-X-0000-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06016-X-0000-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06383-X-X000-ZULASSUNG | 01.03.2022 | Safety Valve |
| 06386-X-XX00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06387-X-XX00-WKSTLISTE | 17.10.2019 | Safety Valve |
| 06388-X-X000-ZULASSUNG | 14.01.2022 | Safety Valve |
| 06413-X-X000-ZULASSUNG | 02.03.2022 | Safety Valve |
| 06416-X-XX00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06417-X-XX00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06418-X-0000-WKSTLISTE | 11.02.2016 | Safety Valve |
| 06420-X-XX00-ZULASSUNG | 14.01.2022 | Safety Valve |
| 06421-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06425-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06426-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06440-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06441-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06445-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06446-X-0X00-WKSTLISTE | 16.10.2019 | Safety Valve |
| 06474-X-X000-WKSTLISTE | 17.10.2019 | Safety Valve |
| 06478-X-X000-WKSTLISTE | 17.10.2019 | Safety Valve |

## 3. TEST REPORTS:

3.1 Cryogenic test including pressure test, function and leakage tests according to ISO 4126 API 527 performed on 25/06/2015 and 09/07/2015 and witnessed by an IACS member.

3.2 Cryogenic test according to 13648-1:2008, dd. 20.04.2018.

3.3 Pressure tests according to AD 2000, test report no. 1321P0004/2/01, dd. 21/03/2012.

3.4 Pressure tests according to AD 2000, test report no. 1321P0004/2/02, dd. 21/03/2012.

3.5 Pressure tests according to AD 2000, test report no. 1321P0004/2/05, dd. 27/03/2012.

3.6 Pressure tests according to AD 2000, test report no. 1321P0004/2/07, dd. 06/06/2012.

3.7 Pressure tests according to AD 2000, test report no. 1321P0004/2/08, dd. 06/06/2012.

3.8 Pressure tests according to DIN EN 12516, DIN EN ISO 4126-1, test report no. 1409 P 0137/15/D/0109, dd. 13/07/2015.

## 4. APPLICATION / LIMITATION:

4.1 Bellow sealed safety valves intended to be used for air gases, vapors and cryogenic liquefied gases including LNG; in cargo handling systems of oil tankers and liquefied gas tankers and in piping systems onboard ships and offshore units.

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 according to BUREAU VERITAS Rules.

4.4 For liquefied gas application, the valve intended to be installed on BUREAU VERITAS classed ship have to comply with applicable BUREAU VERITAS Rules, IGC Code and IGF Code and type tests reports witnessed by BUREAU VERITAS are to be available for each type and size of valve.

4.5 The materials for valves housing, disc and sealing should be of a suitable type at the temperature and pressure for use with fluids intended to be carried. In particular the nature of materials, joints included, is to be selected according to the fluid to be conveyed and the temperature.

4.6 The valves are to be installed according to the manufacturer's instructions and BUREAU VERITAS Rules requirements.

## 5. PRODUCTION SURVEY REQUIREMENTS:

5.1 The valves are to be supplied by **HEROSE GmbH Armaturen und Metalle** 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 product certificate is required.

5.4 For information, **HEROSE GmbH Armaturen und Metalle** has declared to BUREAU VERITAS the following production site:
**HEROSE GmbH Armaturen und Metalle, Bad Oldesloe / GERMANY**

5.5 BUREAU VERITAS Certificate is required for materials of valve housings of class I (DN≥50) or class II (DN≥100). Materials of valve housings of class I (DN<50) or class II (DN<100) and for other parts are to be with Work's certificates.

5.6 For liquefied gas applications, materials are to comply with the approved drawings and the applicable requirements in BUREAU VERITAS 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 and IGF Code.

5.7 For liquefied gas applications, each valve is to be tested according to BUREAU VERITAS Rules. For other applications, each valve housing for class I and class II is to be hydraulically pressure tested to 1.5 times the design pressure.

**6. MARKING OF PRODUCT:**

Each valve is at least to be marked with:
- Manufacturer's name or logo
- Type designation
- Size
- Design pressure
- Temperature range
- BUREAU VERITAS' marks

**7. OTHERS:**

7.1 It is **HEROSE GmbH Armaturen und Metalle**'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.

7.2 This certificate supersedes the Type Approval Certificate N° 33356/B0 BV issued on 28 Jan 2019 by the Society.

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