



Confirmation of Product Type Approval

Company Name: BMT CO., LTD.

Address: 17, SINSOJAESANDAN 2-RO, JANGAN-EUP, GIJANG-GUN, BUSAN Korea, Republic of

Product: Cryogenic Valve

Model(s): Cryogenic Ball Valve: FCB Series (Unidirectional) Cryogenic Globe Valve: FGB Series & FCGBARF1

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	24-00T2541496-PDA	14-MAY-2024	13-MAY-2029
Manufacturing Assessment (MA)	23-6019713	11-SEP-2023	10-SEP-2028
Product Quality Assurance (PQA)	NA	NA	NA

Tier

5 - Unit Certification Required

Intended Service

Cryogenic Liquid and Gas Transportation

Description

Cryogenic Ball Valves - 1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3", 4", 6" (Unidirectional)

Cryogenic Globe Valves - 1/2", 3/4", 1", 1-1/2", 2", 4", 6", 8"

Ratings

Design Pressure: 19 barG at 38 degree C

Design Temperature: -196 degree C thru +80 degree C

Material/ Ball Valve: Body/Ball ASTM A182 Gr. F316

Material/ Globe Valve: Body/Disc ASTM A182 Gr. F316/ A276-316 (1/2" thru 2")

Material/ Globe valve: Body/Disc ASTM A351-CF8M/ A276-316 (4" thru 8")

Service Restrictions

1. Unit certification is required for the products intended to be used at a working temperature below -55 degree C and testing specified in section 5C-8-5/13.1.1 & 5C-13-16/7.1 of the ABS Marine Vessel Rules is to be carried out in the presence of the Surveyor as required.

2. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly

defined.

Comments

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. All valves are to be tested at the plant of manufacturer in the presence of the Surveyor in accordance with 5C-8-5/13.1.1(b) and 5C-8-6/2.2(ABS) or 5C-13-16/7.1 and 5C-13-16/1.1 of the Marine Vessel Rules.
3. For valves used for isolation of instrumentation in piping not greater than 25 mm, unit production testing need not be witnessed by the Surveyor. Records of testing are to be available for review in accordance with 5C-8-5/13.1.1 b) of Marine Vessel Rules.
4. All valves are to bear permanent identification, such as the manufacturer's name or trademark, standard of compliance, material identify, pressure rating, etc. as required by the standard of compliance and at which the manufacturer guarantees the valve to meet the requirements of the standards. Such markings may be cast or forged integral with, stamped on, or securely affixed by nameplate on the component, and are to serve as a permanent means of identification of the component throughout its service life in accordance with 4-6-2/5.11.4 and 4-6-1/7.1.4 of the Marine Vessels Rules.
5. The cryogenic ball valve seat pressure test, from sizes 2-1/2" to 6", has only been conducted for the normal flow direction. These valves are designed for one-way flow only (from the upstream side to the downstream side). A bleeding hole is located on the upstream side to prevent pressure buildup in the valve body cavity due to liquid gas vaporization. Due to this design, they are not suitable for bi-directional flow systems.
6. For emergency shutdown valves, with materials having melting temperatures lower than 925°C, the type testing shall include a fire test in accordance with 5C-8-5/13.1.1.4 & 5C-13-16/7.1.1.4 of the Marine Vessels Rules.
7. This certificate is not valid for US flagged vessels.

Notes, Drawings and Documentation

1. DWG. Nos. (Ball Valves): 161115-01-119-01, Rev. A, DWG. No.: 170329-115-01, 02, 03 & 04, Rev. A
2. DWG. Nos. (Globe Valves): 161114-02-119-01, Rev. A, 170403-01-119-01, Rev. A
3. Prototype test report:
 - BMT-CTR-1710N-01 thru 13, Dated 20-NOV-2017
 - BMT-CTR-180207-01 thru 04, Dated 07-FEB-2018
4. Burst test report:
 - BIT180102-01 & 02, dated 03-JAN-2018,
 - BIT180321-01, Dated 21-MAR-2018
5. Flow test report:
 - TCHPV-KL-18-001 thru 013, Dated 08-JAN-2018
 - TCHPV-18-03-105 thru 108, Dated 22-MAR-2018

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 13/May/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

The Rules for Conditions of Classification, 2024 Marine Vessels 1A-1-4/7.7, 1A-1-A3, 1A-1-A4, which covers the following:

2024 Rules for Building and Classing Marine Vessels 4-6-1/7.1.4, 4-6-2/5.11 & 5.15, 5C-8-5/13.1.1, 5C-8-6/2.2(ABS), 5C-13-16/1.1, 5C-13-16/7.1

2024 Rules for Conditions of Classification – Offshore Units and Structures: 1B-1-4/9.7, 1B-1-A2 and A3, which covers the following:

2024 Rules for Building and Classing Mobile Offshore Units: 4-2-2/9.1.2 and 4-2-2/9.5

International Standards

IGC Code – International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, 2016 Edition;

IGF Code – International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels, 2016 Edition

EU-MED Standards

NA

National Standards

BS6364 (1984 Edition)

Government Standards

NA

Other Standards

NA



Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 26-Jun-2024 4:25

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and

Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.