



Confirmation of Product Type Approval

Company Name: IMI CRITICAL ENGR PBM LLC

Address: 1070 SANDY HILL RD. Irwin PA 15642 United States

Product: Cryogenic Valve

Model(s): 2-Way Ball Valves: CP Series, CN Series, C6 Series and IB Series, 3-Way Ball Valves: CD Series

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	22-2265732-PDA	15-JUN-2022	14-JUN-2027
Manufacturing Assessment (MA)	22-5431437	26-AUG-2022	10-AUG-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

5 - Unit Certification Required

Intended Service

Cryogenic LNG/LPG services in Marine and Offshore Applications.

Description

2-Way Full Port Fire-safe Cryogenic Valves (CP, CN and C6 Series) - 1/2" to 4" ;

2-Way Cryogenic Instrument Valves (IB Series) - 3/4" and 1";

3-Way Full Port Cryogenic Valves (CD Series): 1/2" to 4";

Materials:

Body: ASME A351, CF8M, ASME A479, S31603;

Bonnet: ASME A351, CF3M, ASME A479, S31603;

Stem: ASME A564 S17400, H1150D;

Ball: 316L SST, ASME A479, S31603;

Bolts: ASME A320, CL.I, GR.B8;

Consult with the manufacturer regarding other available materials for specific services per ASME B16.34 or MSS SP 72

Ratings

Design Temperature: -196°C to +205°C;

Design Pressure Ratings:**2-Way Full Port Fire-safe Cryogenic Valves:****ASME Class #150:**

CP Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

CN Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

CD Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

ASME Class #300:

CP Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

CN Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

CD Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

ASME Class #600:

C6 Type Series 6: 1/2", 3/4", 1", 1-1/2" and 2" ;

CN Type Series 6: 1/2", 3/4", 1", 1-1/2", 2", 3" and 4" ;

2-Way Cryogenic Instrument Valves:

IBH Type Series 5 Class #2500: 1" ;

IBH Type Series 5 up to 5367 psig: 3/4" ;

Service Restrictions

1) Unit Certification is required for this product. 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.

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) of ABS Marine Vessel Rules.

3) The material for valves with design temperature at or below -55°C are to be tested in the presence of the Surveyor in accordance with 5C-8-6/2.2 of ABS Marine Vessel Rules.

Comments

1) The manufacturer is to guarantee that the valve has been tested to the pressure required by the pressure rating of the valve prior to shipment.

2) All valves to bear the trademark of the manufacturer legibly stamped or cast on the exterior of the valves as well as the primary rating.

3) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

4) All valves are to be subjected by the manufacturer to a hydrostatic test at pressure equal to that stipulated by the American National Standards Institute or other recognized standard. The manufacturer's Trademark, pressure/temperature rating and material identification, as applicable, must be stamped or cast on the component.

5) During the initial gas trial, the equipment and system are to be confirmed by ABS Surveyor in accordance with ABS Marine Vessel Rules 5C-13-16/8.4

6) Electrical components not included in this PDA

Notes, Drawings and Documentation

Sample Drawings:

CP Series:

Drawing No. CPH-H6J-G---04-L, 2" CPH-H6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 07/07/16, Page: 1;

Drawing No. CPHLC6B-G---04-L, 1/2" CPHLC6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 09/13/16, Page: 1;

Drawing No. CPHLC6Q9G---04-T296, 1/2" CPHLC6, 2-WAY, API-607, CL. 300, Double Block & Bleed Cryogenic Ball Valve, Rev. 0, Date: 10/02/17, Page: 1;

Drawing No. CPHLD6B-G---02-L, 3/4" CPHLD6, 2-WAY, 300# Cryogenic Ball Valve, Rev. 0, Date: 03/07/16, Page: 1;

Drawing No. CPHLE6B-G---04-L, 1" CPHLE6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 09/13/16, Page: 1;

Drawing No. CPHLE6B9G---04-T293, 1" CPHLE6, 2-WAY, API-607, CL. 300, Cryogenic Ball Valve, Rev. 0, Date: 10/04/17, Page: 1;

Drawing No. CPHLE6B9G---66-T293, 1" CPHLE6, 2-WAY, API-607, CL. 300, Cryogenic Ball Valve, Rev. 0, Date: 10/05/17, Page: 1;

Drawing No. CPHLG6B-G---04-L, 1-1/2" CPHLG6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 09/13/16, Page: 1;

Drawing No. CPHLH6B-G---04-L, 2" CPHLH6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 09/14/16, Page: 1;

Drawing No. CPHLK6B-G---02-L, 3" CPHLK6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 12/16/16, Page: 1;

Drawing No. CPHLL6B-G---02-L, 4" CPHLL6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 12/16/16, Page: 1;

CN Series:

Drawing No. CNH-C6L9G---04-L, 1/2" CNH-C6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 0, Date: 06/05/17, Page: 1;

Drawing No. CNH-C6N-G---02-L, 1/2" CNH-C6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 08/17/16, Page: 1;

Drawing No. CNH-D6L-G---02-L, 3/4" CNH-D6, 2-WAY, 150# Cryogenic Ball Valve, Rev. 0, Date: 03/17/16, Page: 1;

Drawing No. CNH-D6M-G---04-L, 3/4" CNH-D6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 03/23/15, Page: 1;

Drawing No. CNH-D6N-G---02-L, 3/4" CNHLD6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 1, Date: 02/21/17, Page: 1;

Drawing No. CNH-E6L-G---02-L, 1" CNH-E6, 2-WAY, 150# Cryogenic Ball Valve, Rev. 0, Date: 03/31/17, Page: 1;

Drawing No. CNH-E6M-G---04-L, 1" CNH-E6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 08/25/15, Page: 1;

Drawing No. CNH-E6N-G---02-L, 1" CNH-E6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 1, Date: 02/21/17, Page: 1;

Drawing No. CNH-G6L-G---04-L, 1-1/2" CNH-G6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 1, Date: 02/27/18, Page: 1;

Drawing No. CNH-G6M-G---04-L, 1-1/2" CNH-G6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 06/24/15, Page: 1;

Drawing No. CNH-G6N-G---02-L, 1-1/2" CNH-G6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 1, Date: 01/24/17, Page: 1;

Drawing No. CNH-H6L-G---04-L, 2" CNH-H6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 0, Date: 04/02/15, Page: 1;

Drawing No. CNH-H6L9G---66-T291, 2" CNH-H6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 0, Date: 09/29/17, Page: 1;

Drawing No. CNH-H6M-G---04-L, 2" CNH-H6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 04/01/15, Page: 1;

Drawing No. CNH-H6N-G---02-L, 2" CNH-H6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 12/28/16, Page: 1;

Drawing No. CNH-K6L-G---09-L, 3" CNH-K6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 1, Date: 07/15/15, Page: 1;

Drawing No. CNH-K6M-G---09-L, 3" CNH-K6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 1, Date: 07/15/15, Page: 1;

Drawing No. CNH-K6N-G---02-L, 3" CNH-K6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 07/25/17, Page: 1;

Drawing No. CNH-L6L-G---02-L, 4" CNH-L6, 2-WAY, API-607, 150# Cryogenic Ball Valve, Rev. 0, Date: 01/19/16, Page: 1;

Drawing No. CNH-L6M-G---02-L, 4" CNH-L6, 2-WAY, API-607, 300# Cryogenic Ball Valve, Rev. 0, Date: 01/19/16, Page: 1;

Drawing No. CNH-L6N-G---02-L, 4" CNH-L6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 02/27/18, Page: 1;

C6 Series:

Drawing No. C6H-C6N-G---02-L, 1/2" C6H-C6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 05/18/17, Page: 1;

Drawing No. C6H-D6N-G---02-L, 3/4" C6H-D6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 05/18/17, Page: 1;

Drawing No. C6H-E6N-G---02-L, 1" C6H-E6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 02/08/17, Page: 1;

Drawing No. C6H-G6N-G---02-L, 1-1/2" C6H-G6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 01/24/17, Page: 1;

Drawing No. C6H-H6N-G---02-L, 2" C6H-H6, 2-WAY, API-607, 600# Cryogenic Ball Valve, Rev. 0, Date: 01/20/17, Page: 1;

IB Series:

Drawing No. IBH-F5EEG44-66--T368, 1", 2-WAY, 2500# Cryogenic Instrument Valve, Rev. 0, Date: 11/09/17, Page: 1;

Drawing No. IBH-F5EEGEE-66--T292, 3/4", 2-WAY, Cryogenic Instrument Valve up to 5367 psig, Rev.

0, Date: 09/29/17, Page: 1;

CD Series:

Drawing No. CDHLC6Q-G18-04-L, 1/2" CDHLC6, 3-Way, 300# Cryogenic Ball Valve, Rev. 2, Date: 05/27/2020, Page: 1;

Drawing No. CDHLD6Q-G18-04-L, 3/4" CDHLD6, 3-Way, 300# Cryogenic Ball Valve, Rev. 2, Date: 09/24/2018, Page: 1;

Drawing No. CDH-E6Q-H18-04-L, 1" CDH-E6, 3-Way, 300# Cryogenic Ball Valve, Rev. 1, Date: 12/27/2018, Page: 1;

Drawing No. CDHLG6D-G18-04-L, 1-1/2" CDHLG6, 3-Way, 300# Cryogenic Ball Valve, Rev. 1, Date: 05/18/2020, Page: 1;

Drawing No. CDHLH6D-G18-04-L, 2" CDHLH6, 3-Way, 300# Cryogenic Ball Valve, Rev. 1, Date: 05/18/2020, Page: 1;

Drawing No. CDH-K6B-G18-09-L, 3" CDH-K6, 3-Way, 300# Cryogenic Ball Valve, Rev. 1, Date: 05/21/2020, Page: 1;

Test Reports:

ABS Prototype Test Report No. C3484657, Date: 4/29/18; Test lab location: PBM, INC

Fire Test Reports:

Project No. 214227 per API 607 6th Edition (2010), Date: 8/5/2014, 2" Class 150 CNH-H6 Cryogenic Ball Valve;

Project No. 214142 per API 607 6th Edition (2010), Date: 6/3/2014, 2" Class 150 CPHLH7 Cryogenic Ball Valve;

Project No. 217425 per API 607 7th Edition (2016), Date: 1/26/2018, 2" Class 600 CNH-H6 Cryogenic Ball Valve;

Project No. 217317 per API 607 7th Edition (2016), Date: 9/29/2017, 2" Class 600 C6H-H6 Cryogenic Ball Valve;

Test lab location: YARMOUTH RESEARCH AND TECHNOLOGY, LLC

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 14/Jun/2027 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, Part 1 2022 Marine Vessels 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2022 Rules for Building and Classing Marine Vessel Rules: 4-1-1/3.7, 4-1-1/table 6, 4-6-1/7.1, 4-6-2/3, 4-6-2/5.11, 5C-8-5/13.1, 5C-8-6/2.2, 5C-8-6/Table 4, and 5C-13-16/7.1

The Rules for Conditions of Classification - Offshore Units and Structures, 2022 Mobile Offshore Units

Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3 which covers the following:

2022 Rules for Building and Classing Mobile Offshore Units: 4-2-2/9, 4-2-2/17;

International Standards

NA

EU-MED Standards

NA

National Standards

ASME B16.34 - 2020 Valves - Flanged, Threaded and Welding End;

MSS SP 72 - 2010A - Ball Valves with Flanged or Butt-Welding Ends for General Service;

API 607 (7th Edition) - 2016 Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats;

Government Standards

NA

Other Standards

NA



A handwritten signature in black ink, appearing to read "Joseph W. Wilson".

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 28-Aug-2023 7:57

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.