Certificate No: LR25356057TA
Issue Date: 10/11/2025
Expiry Date: 09/11/2030

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**THT Corporation**
Address	62, Mieumsandan 2-ro, Gangseo-gu, Busan, 46748, South Korea
Type	Cryogenic Valves
Description	Cast stainless steel cryogenic valve Cryogenic Swing Check Valve, RF Flange, Class 150, 2”, 4”, 8” Cryogenic Globe Valve, RF Flange, Class 150, 2”, 12” Cryogenic Globe Valve, RF Flange, Class 300, 2” Cryogenic Globe Valve, BW Ends, Class 150, 2”, 3”, 4”
Trade Name	Cast stainless steel cryogenic swing check valve & Globe valve
Application	Marine use for cargo piping systems in ships for carriage of liquefied gases in bulk Marine use for fuel piping systems in ships using Gases as Fuel
Specified Standard	Lloyd’s Register Rules and Regulations for Classification of Ships (July 2025), Part 5, Chapter 12 Chapter 5 of Lloyd’s Register’s Rules and Regulations for the Construction and Classification of Ships for the Carriage of Liquefied Gases in Bulk (July 2025) Part B-1, Section 16 of Lloyd’s Register’s Rules and Regulations for Classification of Ships using Gases or other Low-flashpoint Fuels (July 2025) ISO 28921-2: 2015, Industrial valves - Isolating valves for low-temperature

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Da-Young Kang

Engineering Piping - Senior Specialist to
Lloyd's Register Asia
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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Type Approval Certificate

applications, Part 2 : Type testing

Ratings

Design temperature : -196 ~ 120°C
Design pressure : 19bar, 49.6 bar
Materials for body, bonnet : A351-CF8M, A351-CF3M

Additional Tests

1) Bursting test
2) Shell test
3) Cryogenic service test (Low & High pressure)
4) Cryogenic cycle test
5) Leak test at low temperature
6) Post-test examination
7) Flow capacity test
8) Bi-directional tests (Globe valves only)

Other Conditions

1) Where the valves are intended to be installed on a ship classed with LR, the valves are to be made, installed and tested in accordance with the Class I & II piping systems requirements of Part 5, Chapter 12 of the Rules and Regulations for the Classification of ships.
2) The requirements for design temperatures below -165°C shall be specially agreed with the Flag Administration in accordance with Chapter 6, Table 6.4 of the IGC Code and Part A-1, Section 7 of the IGF code.
3)Testing is to include a hydrostatic test of the valve body at a pressure equal to 1,5 times the design pressure for all valves, and a seat and stem leakage test at a pressure equal to 1,1 times the design pressure for valve. In addition, cryogenic testing consisting of valve operation and leakage verification for a minimum of 10 per cento f each type and size of valve for valves intended to be used at a working temperature below –55°C.

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This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document BTS/ENG/M253601 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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