

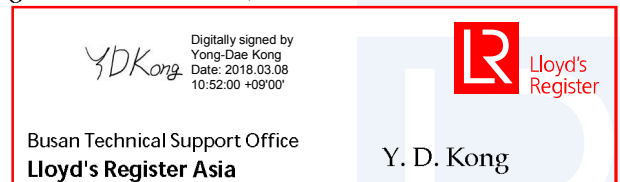
## Type Approval Certificate

*This is to certify that the undernoted product has been tested with satisfactory results in accordance with the relevant requirements of the LR Type Approval System.*

This certificate is issued to:

PRODUCER	BMT Co., Ltd
PLACE OF PRODUCTION	35, Sanmakgongdannam 11-gil, Yangsan-si, Gyeongsangnam-do, Korea
DESCRIPTION	Cryogenic Ball Valve with Extended Bonnet
TYPE	FCB Series
APPLICATION	Marine use for cargo tanks and cargo piping systems in ships for carriage of liquefied gasses in bulk
STANDARD	Lloyd's Register Rules and Regulations for Classification of Ships, Part 5, Chapter 12, Section 5, July 2017 Chapter 5 of Lloyd's Register's Rules and Regulations for the Construction and Classification of Ships for the Carriage of Liquefied Gasses of Ships (July 2017)
RATING	Nominal Size (inch) : $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1 $\frac{1}{2}$ ", 2" Nominal Pressure ratings (psi): Class 150 Minimum Service Temperature (°C): -196
PERFORMANCE TESTS	The following tests were carried out in accordance with BS 6364:1984, KS B 2101:2003 as applicable with satisfactory results:- 1) Burst test 2) Cryogenic service test (including bi-directional flow) 3) Seat leakage test (including bi-directional flow)

Certificate No.	18/40011
Issue Date	08 March 2018
Expiry Date	07 March 2023
Sheet	1 of 2



LR031.1.2016.06 Busan Technical Support Office  
Lloyd's Register Marine & Offshore

*Lloyd's Register Asia,  
119, Daegyo-ro, Jung-gu, Busan*

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

OTHER  
CONDITIONS

- 4) Flow/Capacity test
- 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 piping systems requirements of Part 5, Chapter 12 of the Rules 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.
- 3) Valves which are required to perform an ESD function (end of pipe line) are required to be fire tested type.

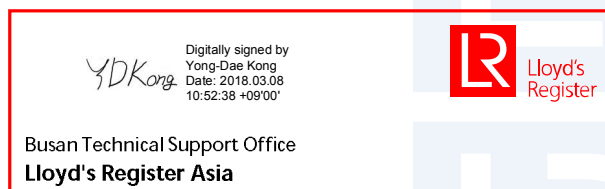
LIMITATION

- 1) Type Approval does not eliminate the need for normal inspection survey procedures required by the Rules and Regulation.
- 2) If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.
- 3) (in case of applications other than Marine) The application of this Type Approval Certificate will be limited to the relevant scope of the Specified standards and acceptance thereof by the local authorities.

*"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."*

*18/40011 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

Certificate No. 18/40011  
Issue Date 08 March 2018  
Expiry Date 07 March 2023  
Sheet 2 of 2



Y. D. Kong  
Busan Technical Support Office  
Lloyd's Register Marine & Offshore

*Lloyd's Register Asia,  
119, Daegyo-ro, Jung-gu, Busan*

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.