

## Type Approval Certificate Extension

This is to certify that Certificate No. 12/10009 for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

**PRODUCER**

Hy-Lok Corporation

**PLACE OF  
PRODUCTION**

97, Noksansandan 27-ro, Gangseo-gu, Busan, Korea

**DESCRIPTION**

115 Series Ball Valves

**TYPE**

DIN 2353 Light Series Tube (L)

Basic Part, No. :

BVDT-6L, -8L, -10L, -12L, -15L, -18L, -22L, -28L, -35L

DIN 2353 Heavy Series Tube (S)

Basic Part, No. :

BVDT-8S, -10S, -12S, -14S, -16S, -20S, -25S, -30S, -38S

Femal DIN/ISO 228/BSP

Basic Part, No. :

BVDF-2G, -4G, -6G, -8G, -12G, -16G, -20G

Femal NPT (ANSI/ASME B1.20.1)

Basic Part, No. :

BVDF-4N, -6N, -8N, -12N, -16N, -20N

[Remarks]

*Fire safety Design Code added '-FS' after the basic part number.  
(ex.: BVDF-16N-FS)*

**APPLICATION**

Hydraulic Fluids, compressed air, lubricants and fuel oil systems

[Remarks]

*Only 'Fire Safety' type can be used in spaces where leakage of failure caused by fire could result in fire spread, flooding or the loss of an essential services in accordance with Part 5, Chapter 12, Section 6.1.3 of the Rules.*

**Certificate No.**

17/40003(E1)

**Issue Date**

23 February 2017

**Expiry Date**

22 February 2022

**Sheet**

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Y. D. Kong

Busan Technical Support Office

Lloyd's Register Asia

Lloyd's Register Asia,  
119, Daegyo-ro, Jung-gu, Busan, Republic of Korea

**DESIGN CODE  
STANDARD**

LR Rules and Regulations for the Classification of Ships, Part 5, Chapter 12  
(July 2016)

DIN 2353:1991 "German Industrial Standardization"

API 607: 2005 (ISO 10497-5:2004) "Fire Test for Soft-Seated Quarter-Turn Valves"

**RATINGS**

DIN 2353 Light Series Tube (L)	Nominal size range (DN) : 4~25 Pressure range : 315 bar ~ 160 bar
DIN 2353 Heavy Series Tube (S)	Nominal size range (DN) : 4~25 Pressure range : 500 bar ~ 315 bar
Female DIN/ISO 228/BSP	Nominal size range (DN) : 6~25 Pressure range : 500 bar ~ 315 bar
Female NPT (ANSI/ ASME B1.20.1)	Nominal size range (DN) : 6~25 Pressure range : 500 bar ~ 315 bar
Temperature rating	
Seal material	NBR (Buna N) : -23°C ~ 121°C Viton : -23°C ~ 200°C EPDM : -46°C ~ 149°C
Ball seats material	POM-MoS <sub>2</sub> : -30°C ~ 100°C PTFE : -54°C ~ 65°C
Body material	SS316 : ASTM A479/SS316, DIN 17440/1.4571 Carbon Steel : ASTM A108/12L14, DIN 1651 9SMn28K

**OTHER CONDITIONS**

Valves are to be tested in accordance with recognised standards, but to not less than 1.5 times the design pressure in accordance with Part 5, Chapter 12, Section 8.1.7 of the Rules.

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**Issue Date** 23 February 2017  
**Expiry Date** 22 February 2022  
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Busan Technical Support Office  
Lloyd's Register Asia

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## 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."*

*The attached Design Appraisal Document No. 17/40003(E1) and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous Certificate No. 12/10009 to which this extension should be attached.

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Y. D. Kong  
Busan Technical Support Office  
Lloyd's Register Asia



## 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.

<b>Manufacturer</b>	<b>Hy-Lok Corporation</b>
<b>Address</b>	#97, Noksansandan 27-ro, Gangseo-gu, Busan, Republic of Korea.
<b>Place of Production</b>	Hy-Lok Corporation #97, Noksansandan 27-ro, Gangseo-gu, Busan, Republic of Korea.
<b>Type</b>	Cryogenic Ball Valve
<b>Description</b>	Top Entry Ball Valve / Trunnion Ball
<b>Trade Name</b>	VCRYOTA VCRYOTB VCRYOTC VCRYOTD
<b>Application</b>	Marine use for cargo piping systems in ships for carriage of liquefied gases in bulk
<b>Specified Standard</b>	Lloyd's Register Rules and Regulations for Classification of Ships (July 2019), 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 2019)



**Yong-Dae Kong**

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## Type Approval Certificate

<b>Ratings</b>	Refer to Appendix
<b>Additional Tests</b>	The following tests are carried out on representative samples in accordance with BS 6364:1984, ANSI/ISA-75.02.01:2008, and KS B 2101:2003 with satisfactory results:- <ol style="list-style-type: none"><li>1) Shell test</li><li>2) Cryogenic service test</li><li>3) Seat leakage test</li><li>4) Flow capacity test</li></ol>
<b>Other Conditions</b>	<ol style="list-style-type: none"><li>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 &amp; II piping systems requirements of Part 5, Chapter 12 of the Rules and Regulations for the Classification of ships.</li><li>2) Seat tightness testing for bi-directional flow is to be additionally performed where it is required by 5.13.1.1.1 of the IGC code.</li><li>3) 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.</li></ol>

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 No. LR2016009TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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