TYPE APPROVAL CERTIFICATE
No. **MAC122018XG/002**

This is to certify that the product identified below is in compliance with the regulations herewith specified.

Description	**Globe Based Valves**
Type	**Globe Valve** **Globe Valve, Bellow Sealed** **Quick Closing Valves** **Quick Closing Valves, Bellow Sealed** **Self Closing Valve**
Applicant	**LK VALVES AB** **GARNISONSGATAN 19** **SE-25466 Helsingborg** **SWEDEN**
Manufacturer *Place of manufacture*	**LK VALVES AB** **GARNISONSGATAN 19** **SE-25466 Helsingborg** **SWEDEN**
Reference standards	**Part C, Chapter 1, Section 10 of RINA Rules for the Classification of Ships**

Issued in **Hamburg** on **June 11, 2018**. *This Certificate is valid until* **June 10, 2023**

RINA Services S.p.A.
Giuseppe Russo

Alternative Place of Manufacture:
Changzhou LK Valves Co,. Ltd,
Building No16, Xin Yu Logistics Park, East Renmin Road No8, YaoGuan Town Wujin Changzhou,
213102 JIANGSU, CHINA

This certificate consists of this page and 2 enclosures.

RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel +39 010 53851
Fax +39 010 5351000

TYPE APPROVAL CERTIFICATE

No. **MAC122018XG/002**

Globe Valve

Globe Valve, Bellow Sealed

Quick Closing Valves

Quick Closing Valves, Bellow Sealed

Self Closing Valve

Reference documents:

Data Sheets, Configuration Chart & Manufacturing Drawings,
Burst Test Reports, Melting Ring & Stress Analysis filed for info under RINA dwg. no. HMMC-11207
Pressure tests, procedure and acceptance criteria filed for info under RINA dwg. no. HMMC-11209

Technical characteristics:

This product is a globe based valve having:
- execution: straight and angle valve body
- release system: mechanical (wire release), hydraulic or pneumatic and manually.

Design Specification:

Type	Group	Size (mm)	Pressure Class	Temperature Range
Globe Valve	467002, 467102	DN 15 - DN 250	PN 16: DN 15 ~ DN 150 PN 10: DN 200 ~ DN 250	
Globe Valve, bellow sealed	462002, 462102	DN 15 - DN 250	PN 16: DN 15 ~ DN 150 PN 10: DN 200 ~ DN 250	
Quick Closing Valve	901002, 901102 901022, 901122 901062, 901162 901092, 901192	DN 15 - DN 250	PN 16: DN 15 ~ DN 150 PN 10: DN 200 ~ DN 250	
Quick Closing Valve, bellow sealed	902002, 902102 902062, 902162	DN 15 - DN 250	PN 16: DN 15 ~ DN 200 PN 10: DN 200 ~ DN 250	PN16: 0°C to 150°C PN10: max. 320°C
Self Closing Valve	921002, 921102	DN 15 - DN 80	PN 16: DN 15 ~ DN 80	PN16: 0°C to 150°C

Materials:

Part	Material
Valve body / Bonnet	Nodular cast iron GGG40 / EN GJS 400-15 / EN 1563 Nodular cast iron GGG40.3 / EN GJS 400-18 / EN 1563 Cast steel GS-C25 Gun metal RG 5 Stainless steel AISI 316
Stem and disc	Stainless steel AISI 304 / EN 10088-3 / 1.4301 Option: RG5
Seat ring	Stainless steel AISI 304 / EN 10088-3 / 1.4301 Option: RG5
Spring	AISI 301 / 1084 (EN 10270-1:2001/SH)
Bellow	Stainless steel EN 10088 X6CrNiMoTi 17122 (1.4571)

RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel +39 010 53851
Fax +39 010 5351000

TYPE APPROVAL CERTIFICATE

No. **MAC122018XG/002**

Globe Valve

Globe Valve, Bellow Sealed

Quick Closing Valve

Quick Closing Valve, Bellow Sealed

Self Closing Valve

Fields of application:

This product may be used as a component of the piping systems installed on ships and offshore units classed by the RINA and conveying the following media:
Sea water and fresh water, boiler feed water and condensate, fuel oil, lubricating oil, flammable and non-flammable hydraulic oil, thermal oil, air and other gases.

Acceptance conditions:

These valves body, disc and sealing are to be made of a suitable material for use with the conveyed fluids.
RINA certificate is required for materials of valves for class I piping systems having nominal diameter equal or greater than 50 mm and of valves for class II piping systems having nominal diameter equal or greater than 100 mm.
Manufacturer certificate suffices for materials of valves for class I piping systems having nominal diameter less than 50 mm and valves for class II piping systems having nominal diameter less than 100 mm.
All valves for class I and class II piping systems are to have RINA product certificate.
All valves for class III piping systems may have Manufacturer certificate both for materials and product itself.
All valves fitted on the ship side, collision bulkhead and under static pressure on fuel oil tanks are to be certified as a component of a class II piping system.
Valves intended for class I and Class II piping systems are to be subjected to hydrostatic tests in accordance with standards recognized by the RINA, at a pressure not less than 1,5 times the design pressure, as required by RINA Rules Pt C, Ch 1, Sec 10 Art. 21.4.3a).
Valves intended to be fitted on the ship side below the load waterline are to be subjected to hydrostatic tests under a pressure not less than 0,5 MPa as required by RINA Rules Pt C, Ch 1, Sec 10 Art. 21.4.3b). .
These valves mounting to the shell is to be carried out as required by RINA Rules Pt C, Ch 1, Sec 10 Art 2.8.3.

Hamburg June 11, 2018

RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel +39 010 53851
Fax +39 010 5351000