

EU RO Mutual Recognition Technical Requirements

VALVES FOR FRESHWATER SYSTEMS	Version	0.2
	Adoption Date	1 February 2023
	Application Date	1 July 2023
	Tier	4
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1. PRODUCT DESCRIPTION

1.a General description of the product

Valves for freshwater systems of Class III piping as defined by IACS UR P2.2 Rev.4 intended to stop or modify freshwater flow.

1.b Application limitations

- a) These Technical Requirements apply to valves dedicated to freshwater systems of Class III with design pressure up to 1.6MPa, design temperature up to 200°C and diameter up to 100mm;
- b) These technical requirements are not applicable to:
 - valves intended to be fitted on the ship's side and valves intended to be fitted on the ship's collision bulkhead;
 - hydraulically, electrically or pneumatically controlled devices for valves;
 - plastic valves.

1.c Intended use

Piping systems for fresh water with design pressure up to 1,6 MPa and design temperature up to 200 °C (only for class III).

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1.d System context

As per item 1.c

2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a i. Technical Requirements

Design

- a) Valves in piping systems shall be compatible with the pipes to which they are attached in respect of their strength and shall be suitable for effective operation at the maximum working pressure and rated flow that they will experience in service;
- b) Valves shall be designed and manufactured in accordance with recognized standards such as ISO standards, API specifications, etc.;
- c) Valves and accessories shall be designed so as to prevent the loosening of covers and glands when they are in use;
- d) Valves shall be designed so as to shut with a right-hand (clockwise) motion of the wheels;
- e) Valves shall be provided with local indicators showing whether they are open or shut, unless this is readily apparent. When the valves are designed for one way flow, the direction of flow shall be clearly and legibly marked on the valve. The direction may be cast into the valve housing, such as for Screw-down and other non-return valves;
- f) Valves and cocks shall be fitted with nameplates to indicate their purpose(s). The casing of non-return valves shall be permanently marked with flow direction;
- g) Suitable positive means of securing the spindle shall be provided on valves where the spindle is turned between fully open and fully closed position. Manually operated butterfly valves, which are designed for throttling service, shall be equipped with a locking arrangement that holds the disc in any relevant position.

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Materials:

- h) Carbon, carbon-manganese steel, bronze and stainless steel may be used in freshwater systems. Spheroidal graphite cast iron may be used, provided that the minimum elongation is not less than 12% on a gauge length of $5,65 \times S^{0,5}$, where S is the actual cross-sectional area of the test piece;
- i) The use of asbestos is prohibited;
- j) Aluminium and aluminium alloys are not permitted for use in freshwater valves intended for boiler or machinery spaces or installation in spaces containing fuel oil tanks or pumping units;
- k) Content such as lead, cadmium in valve, and its coating material in drinking water system shall meet the requirements of the relevant authorities.

Type of connections:

- l) Butt welded, slip-on sleeve and socket welding joints shall be used in the connecting of valves;
- m) Threaded joints with tapered thread may be permitted for an outside diameter not more than 60.3 mm. Threaded joints with parallel thread may be permitted for an outside diameter not more than 60.3 mm;
- n) Metallic flange connections are permitted. Flange connection type, as shown in **Figure 1**, is permitted for design temperatures less than 150°C;
- o) The dimensions of flanges and relative bolts shall be chosen in accordance with the relevant national standards. Flange attachments shall be in accordance with national or international standards that are relevant to the piping system and are to recognize the applicable boundary fluids, design pressure and temperature conditions, external or cyclic loading and location.

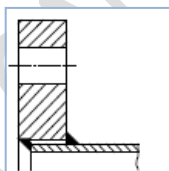


Fig. 1

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2.a.ii. Technical documents to be submitted

IMPORTANT: The English Language shall be used for all submitted documents.

- a) The standard used by the manufacturer shall be clearly identified in the documentation submitted;
- b) Assembly drawings showing dimensions, internal parts (valve body and coupling flange, valve disc and rod, valve seat.), materials, type of connections shall be submitted for RO review;
- c) Product descriptions including intended services, installation locations, intended fluids, working medium, rated flow, temperature range, certificates and reports of relevant tests previously carried out, instructions on operation, performance specification shall be submitted for RO review.

2.b Type testing requirements

- a) Type tests shall be carried out as per the referenced standard;
- b) The maximum turning torque of spindle shall be checked for remote control against the applicable design requirements;
- c) Test specimens shall be selected from the production line or 'at random' from stocks†;
- d) Where there are various sizes of the type of valve requiring approval, a minimum of three separate sizes representative of the range from each type of joints shall be subject to the hydrostatic test at the following value of pressure:

$PH = 1,5P$, but not less $0,2 MPa$

where PH = test pressure (MPa), P = design pressure (MPa) or the pressure indicated by the referenced standard for valves, whichever is the largest.

- e) Hydrostatic tests shall be carried out in both the closed and open position of the valve;

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- f) Tests shall be carried out in the presence of a RO surveyor. In cases where the tests are conducted at Nationally Accredited Laboratories, the presence of the EU RO surveyor may be omitted†.

† For further clarification of witnessing of tests and sampling the test specimen(s), refer to paragraphs 6, 7 and 8 of the EU RO "Design Evaluation Scheme" procedure (Appendix V of EU RO Framework Document for the Mutual Recognition of Type Approval found on <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>)

2.c Type testing requirement for certificate renewal

The manufacturer is to notify the RO of any modification or changes to the manufacturing specifications that may affect the MR TA to be renewed.

3. PRODUCTION REQUIREMENTS

- a) Refer to EU RO "Product Quality Assurance (PQA)" procedure (Appendix VI of EU RO Framework Document for the Mutual Recognition of Type Approval);
- b) All valve bodies having a design pressure greater than 0.1 MPa shall be subject to a hydrostatic test at the following value of pressure:

$$PH = 1,5P, \text{ but not less } 0,2 \text{ MPa};$$

where PH = test pressure (MPa), P = design pressure (MPa).

- c) After assembly, the valves shall be checked for leakage by a hydraulic pressure equal to 1.1 times the design pressure.

4. MARKING REQUIREMENTS

Manufacturers of the approved equipment are, in principle, to mark the product before shipment for identification of approved equipment as per referenced standard. In addition, and as a minimum, the following items to be marked at the suitable place:

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- a) Manufacturer's name or equivalent;
- b) Type No. or symbol;
- c) Serial No. and date of manufacture;
- d) Particulars or ratings;
- e) When the valves are designated for one way flow, the direction of flow shall be clearly and legibly marked on the valve. The direction may be cast into the valve housing.

5. TYPE APPROVAL CERTIFICATE CONTENT

The EU RO MR Type Approval Certificate shall contain the minimum information as defined in the "EU RO Framework Document for the Mutual Recognition of Type Approval" - see *Appendix I EU RO MR Type Approval Certificate Information*.

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
2015-01-31	0.0	Accepted by EU RO MR Advisory Board
1 April 2016	0.1	CRF025 – Updated to new MR TR document format incl. par. 8; CRF026/026a – Witness testing & control of test specimen; CRF028 – addition of 6 month application clause.
1 February 2023	0.2	Added para 2.c. Added para 9. Copyright (ref. 21030_)

7. BACKGROUND INFORMATION / REFERENCES

- a) EU RO Framework Document for the Mutual Recognition of Type Approval;
- b) IACS UR P2 (Rev.2 Nov 2001)"Rules for piping design, construction and testing";
- c) ISO 5208-2008 "Industrial valves-Pressure testing";
- d) ISO 5209-1977 "General purpose industrial valves-marking".

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8. MAINTENANCE / CLARIFICATION OF TECHNICAL REQUIREMENTS

Anyone wishing to propose changes to this document or request clarification of technical issues should contact the EU RO MR Group Secretariat in the first instance: Secretariat@euomr.org.

Review and approval of change requests shall follow the EU RO MR Maintenance Process detailed in the EU RO Framework Document for the Mutual Recognition of Type Approval: <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>.

9. LEGAL PROVISIONS / COPYRIGHT

- a) Underlying legal provisions in accordance with EU RO Framework Document for the Mutual Recognition of Type Approval;
 - b) Copyright © 2022. All EU RO MR Group rights reserved.
- For a list of EU RO MR Group members please see <https://www.euomr.org/about-us>.

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