

# EU RO Mutual Recognition Technical Requirements

<b>PNEUMATIC ACTUATORS FOR VALVES</b>	Version	0.3
	Adoption Date	1 January 2023
	Application Date	1 July 2023
	Tier	3
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## 1. PRODUCT DESCRIPTION

### 1.a General description of the product

A pneumatic actuator for valves is a component which directly converts air pressure into mechanical action, opening and closing the operated valve.

### 1.b Application limitations

- The technical requirement only applies to mass-produced pneumatic actuators having design pressure  $p \leq 1$  MPa and product  $p \cdot V \leq 150$  (V being the internal volume in  $\text{dm}^3$  of the pressure vessel/cylinder).
- Pneumatic actuators shall not be used inside cargo tanks.

### 1.c Intended use

Pneumatic actuators intended for remote and local operation of valves.

### 1.d System context

Piping systems.

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## 2. DESIGN EVALUATION

### 2.a Engineering evaluation requirements

#### 2.a.i. Technical Requirements

##### Materials:

- a) All parts of pneumatic actuators subject to internal pressure are to be of metallic materials;
- b) Grey cast iron is not to be used for pressure vessels with design pressure  $p > 0,7\text{MPa}$ ;
- c) Where a specific standard is used for the design, the materials are to be selected among those allowed by that standard.

##### Safety Valve:

- d) Piping systems where the pneumatic actuators are installed shall be provided with safety devices ensuring protection of pressure vessels in normal service;
- e) These safety devices shall be set at no more than the maximum working pressure of pneumatic actuators and sized to prevent the pressure from rising more than 10% above MAWP.

##### Design:

- f) Pneumatic actuators shall be designed according to recognised standards for pneumatic actuators (e.g.: EN 15714-3:2009) and/or pneumatic cylinders, in particular with regard to the safety factors for dimensioning of pressurised enclosures;
- g) All valve pneumatic actuators provided with remote control shall be designed to permit local manual operation of valve;
- h) The remote control system and means of local operation shall be independent;
- i) Opening and/or closing of the valve by local manual means shall not render the remote control system inoperable;
- j) Power failure of the remote control system shall not cause an undesired change of the valve position.

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## Position indication:

- k) The actuator shall be equipped with a local indicator to clearly show if the valve is open or shut.

## 2.a.ii. Technical documents to be submitted

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

- a) General arrangement plan including nozzles and fittings;
- b) Material specifications (including yield point, tensile strength, impact strength, heat treatment);
- c) Welding details as applicable, including at least:
  - Typical weld joint design;
  - Welding procedure specifications;
  - Post weld heat treatments;
- d) Constructional details of all pressure parts, such as shells, headers, nozzles;
- e) Design data, including design pressure and temperature;
- f) Internal volume of the pressure vessel/cylinder;
- g) Maximum torque on the stem of the valve.

## 2.b Type testing requirements

- a) Burst pressure test is to be carried out at 4 times the design pressure;
- b) Functional test to be carried out both by remote control and local manual operation.

Test specimens shall be selected from production line or at random from stocks†. Tests shall be carried out in the presence of the EU 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.euromr.org/Guidance%20for%20Mutual%20Recognition>)

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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) Materials, including welding consumables, for the construction of parts of actuators subject to pressure are to be certified by the material manufacturer in accordance with the appropriate material specification
- c) A hydrostatic pressure test is to be carried out by the manufacturer at 1.5 times the design pressure
- d) Functional tests are to be carried out by both remote control and local manual operation.

## 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:

- a) Manufacturer's name or equivalent;
- b) Type No. or symbol;
- c) Serial No. and date of manufacture;
- d) Particulars or ratings.

Each pneumatic actuator is to be fitted with a permanently attached plate made of non-corrosive metal, with indication of the following information, in addition to the identification marks (name of manufacturer, year and serial number):

- e) Design pressure;
- f) Design temperature (optional);
- g) Test pressure and the date of the test.

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## 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
31 January 2014	0.0	Accepted by EU RO MR Advisory Board.
31 January 2015	0.1	CRF018 – Revision to par. 2.a.ii - Technical documents to be submitted in English; CRF020 – Revision to par. 5 - ‘Type Approval Certificate Content’.
1 April 2016	0.2	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 January 2023	0.3	Added para. 2.c. Added para 9. Copyright (ref 21030_)

## 7. BACKGROUND INFORMATION / REFERENCES

- a) EN 15714-3:2009 (Industrial Valves - Actuators - Part 3: Pneumatic part-turn actuators for industrial valves - Basic requirements);
- b) EU RO Framework Document for the Mutual Recognition of Type Approval.

## 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@euromr.org](mailto:Secretariat@euromr.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.euromr.org/Guidance%20for%20Mutual%20Recognition>.

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## 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.euromr.org/about-us>.
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