

EU RO Mutual Recognition Technical Requirements

AIR COMPRESSOR	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

These technical requirements apply to air compressors of reciprocating and rotary displacement type.

Compressor unit consists of the device for compressing the medium along with its unit internal piping for air medium as well as the necessary system for cooling and lubrication.

1.b Application limitations

These technical requirements do not apply to:

- a) Air compressors supporting vessels main functions (hereunder; starting air and control air):
- b) Safety functions;
- c) Compressors subject to statutory requirements;
- d) Compressors delivering air at a pressure of more than 40 bar.

1.c Intended use

These technical requirements apply to air compressors intended for general purpose use.

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1.d System context

General service air system.

2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a i. Technical Requirements

Arrangement

- a) The compressor shall be protected from overload by a safety relief valve with capacity to discharge the compressor capacity without pressure increase above 1,1 times the relief valve set point. The safety relief valve design shall preclude any possibility of an accidental change of setting;
- b) Each separate compression stage shall be provided with safety relief valve as indicated in a) above;
- c) Cooling water jacket, where a leakage of compressed air may result in an undue pressure rise, shall be protected by relief valve or equivalent solution;
- d) Air intake shall be protected by a strainer and arranged so as to prevent intake of water and oil;
- e) Each compression stage shall be arranged to drain condensate;
- f) Compressed air temperature shall be limited to maximum 90°C. Cooling arrangements shall be provided if necessary;
- g) Crank case (if applicable) shall be protected by a relief valve if the crank case volume exceeds 0,5m³.

Construction:

- h) The compressor unit shall be designed in accordance with a relevant recognised standard. Strength of main load carrying parts shall be documented (see 2.a.ii. "Technical documents to be submitted" below);

The following local indicators shall be provided;

- i) Each separate compression stage shall be equipped with pressure gauge;

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- j) Temperature reading of discharge air shall be provided;
- k) Lubrication: Pressure gauge (forced lubrication) or Level indicator (splash lubrication) shall be provided.

2.a.ii. Technical documents to be submitted

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

- a) Specification of compressor type, power rating and rotational speed, capacities and design pressure;
- b) Compressor unit arrangement drawing and cross section;
- c) Schematic arrangement drawing for compressed air;
- d) Schematic arrangement drawing for forced lubrication (if applicable);
- e) Schematic arrangement drawing for cooling medium (if applicable);
- f) Strength calculation of main load carrying parts, including reference to the applied calculation standard. The following is considered as main components:
 - Crankshaft (reciprocating compressor)
 - Rotor shaft (rotary displacement compressor)
 - Pressure casing (rotary displacement compressor)
 - High pressure piping for air.

2.b Type testing requirements

- a) All pressure loaded parts shall be hydrostatically tested to 1,5 times the design pressure;
- b) Safety relief valve capacity shall be documented by test;
- c) Test specimens shall be taken from the production line or from stocks†.
- d) 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 EO 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

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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

Refer to EU RO "Product Quality Assurance (PQA)" procedure (Appendix VI of EU RO Framework Document for the Mutual Recognition of Type Approval).

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 trade mark;
- b) Type designation under which the product is type approved;
- c) Rated power;
- d) RPM;
- e) Design pressure;
- f) Free Air Delivery (FAD), if appropriate;
- g) Maximum ambient air temperature.

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.

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6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
31 January 2014	0.0	Accepted by Advisory Board
31 January 2015	0.1	CRF018 – Revision to par. 2.a.ii - Technical documents to be submitted in English; CRF019 – Revision to par. 4 - 'Marking Requirements' - Free Air Delivery (FAD); CRF020 – Revision to par. 5 - 'Type Approval Certificate Content'
1 April 2016	0.2	CRF022 – Change of text in 2.a.i.a relating to adjustment of the safety relief valve; 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. Copyrights

7. BACKGROUND INFORMATION / REFERENCES

- a) 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.

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: <https://www.euromr.org/technical-requirements>.

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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;

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