

EU Mutual Recognition Technical Requirements

Air compressor	Version	0.0
	Date	2014-06-11
	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:

- Air compressors supporting vessels main functions (hereunder; starting air and control air);
- Safety functions;
- Compressors subject to statutory requirements;
- 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.

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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 its adjustment or disconnection after being fitted on the compressor;
- b) Each separate compression stage shall be provided with safety relief valve as indicated in a);
- c) Cooling water jacket, where a leakage of compressed air may result in undue pressure rise, shall be protected by relief valve or equivalent solution;
- d) Air intake shall be protected by a strainer and arranged such 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 arrangement 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 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;
- 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

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- 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:
 - 1) Crankshaft (reciprocating compressor)
 - 2) Rotor shaft (rotary displacement compressor)
 - 3) Pressure casing (rotary displacement compressor)
 - 4) 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) Compressor function and capacity test shall be witnessed by an RO representative.

3. PRODUCTION REQUIREMENTS

Refer to EU RO "Product Quality Assurance (PQA)" procedure (Annex 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 and, in addition, at least the following items to be marked at the suitable place:

- Manufacturer's name or trade mark;
- Type designation under which the product is type approved;
- Rated power;

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- RPM;
- Design pressure;
- Inlet volume flow rate;
- Maximum ambient air temperature.

5. TYPE APPROVAL CERTIFICATE CONTENT

- (a) Certificate number;
- (b) Name and address of manufacturer;
- (c) Issue date and validity of certificate / expiry date;
- (d) Product description;
- (e) Type / model name(s);
- (f) Technical specifications, ratings;
- (g) List of approval documents;
- (h) Rules / standards applied;
- (i) Environmental test items and test levels applied;
- (j) Approval conditions including limitations, if any;
- (k) Hardware, firmware, software name and revision, as applicable;

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
31 January 2014	0.0	Accepted by Advisory Board

7. BACKGROUND INFORMATION / REFERENCES

EU RO Framework Document for the Mutual Recognition of Type Approval.

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