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Turbocompressors — Performance test code — Simplified acceptance test

Turbocompresseurs — Code d'essais des performances — Essai de réception simplifié

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 118, *Compressors and pneumatic tools, machines and equipment*, Subcommittee SC 6, *Air compressors and compressed air systems*.

Introduction

ISO 5389 is the primary International Standard for performance statements of dynamic compressors of all types.

For electrically driven packaged air compressors of standard types, which are constructed to specifications determined by the manufacturer, and which are sold against performance data published in the manufacturer's sales documentation, ISO 5389 provides for demanding conditions to be met for such standard packages.

To allow performance statements to be made for standard types, this simplified code has been developed where the performance statement can be given based on specified test conditions (see Table 1), where the key measured variables are maintained within identified test limitations (see Table 2).

The performance statement is valid, provided it is within the identified acceptance allowances (see Table 3) for volume flow rate, specific power consumption, and unloaded power consumption.

Whereas ISO 5389 addresses any type of dynamic compressor, this simplified International Standard addresses centrifugal compressors only which are of the fixed speed type and are electrically driven packaged air compressors. It is envisaged that at a later date, variable speed types will also be included.

This International Standard will ultimately become an annex of ISO 5389 once sufficient experience has been gained from its use in the field. In its current form, it complements ISO 5389 for standard packages, but where acceptance tests are required to demonstrate fulfilment of the order conditions and guarantees specified by the client in a supply contract, then ISO 5389 is still the primary reference International Standard.

Turbocompressors — Performance test code — Simplified acceptance test

1 Scope

This International Standard applies to any fixed (constant) speed, liquid cooled, packaged centrifugal air compressor which incorporates a centrifugal compression element of any type driven by an electric motor.

This International Standard defines and describes acceptance tests for electrically driven packaged air compressors of standard types which are constructed to specifications determined by the manufacturer and which are sold against performance data published in the manufacturer's sales documentation.

NOTE Items supplied shipped loose for installation at site are not considered to be a part of the compressor package.

Such compressors are designed to draw in atmospheric air from their immediate surroundings and the performance data offered by the manufacturer usually relates to a normal ambient air inlet pressure.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1217, *Displacement compressors — Acceptance tests*

ISO 3857-1, *Compressors, pneumatic tools and machines — Vocabulary — Part 1: General*

ISO 3857-2, *Compressors, pneumatic tools and machines — Vocabulary — Part 2: Compressors*

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements*

ISO 9300, *Measurement of gas flow by means of critical flow Venturi nozzles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3857-1, ISO 3857-2, ISO 1217 and the following apply.

3.1
ambient pressure
absolute pressure of the atmospheric air measured in the vicinity of the compressor

3.2
ambient temperature
total temperature of the atmospheric air in the vicinity of the compressor but unaffected by it

3.3
centrifugal air compressor
comprise machines in which inlet, compression, and discharge are continuous flow processes

Note 1 to entry: The gas is conveyed and compressed in impellers and decelerated with further increase in pressure in fixed vaned or vaneless stators.