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Performance rating of positive displacement refrigerant ~~compressors~~compressor

Détermination des performances des compresseurs frigorifiques à déplacement positif

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 4, *Testing and rating of refrigerant compressors*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Performance rating of positive displacement refrigerant ~~compressors~~compressor

1 Scope

This document specifies normative references, terms and definitions, rating requirements, published rating, tolerance and marking provisions of positive displacement refrigerant compressors. This document applies to positive displacement refrigerant compressors and their performance in air-conditioning, heating, refrigeration and dehumidification applications. Single stage, two-stage and refrigerant-injected compressors without intermediate temperature load (only one evaporator) are included in this document. Subcritical operation and transcritical operation are also included in this document.

Compressors for other applications, compression types and operations can also refer to this document. The manufacturer is solely responsible for the determination of values to be used in the published product information.

This document is intended as guidance for the industry, including manufacturers, engineers, installers and service contractors. It defines the minimum amount of information in a standard form to enable the evaluation and comparison of different compressors for use in an application.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18976, *Testing of refrigerant compressors*

~~IEC 60038, *IEC standard voltages*~~

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ISO 817, *Refrigerants — Designation and safety classification*

IEC 60038, *IEC standard voltages*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18976 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ~~—~~ISO Online browsing platform: available at https://www.iso.org/obp

— ~~—~~IEC Electropedia: available at https://www.electropedia.org/

3.1 ~~3.1~~
positive displacement refrigerant compressor
machine that increases the pressure of a refrigerant vapour by reducing the compression chamber volume

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~~3.2~~
~~**displacement capacity**~~
~~theoretical suction volumetric flow rate through the compressor~~

~~Note 1 to entry: Expressed in m^3/h.~~

3.2 ~~3.3~~
fixed displacement compressor
compressor with only one displacement capacity

3.3 ~~3.4~~
modulating compressor
compressor with more than one displacement capacity, either continuous or discrete modulating capacities

3.3.1 ~~3.4.1~~
continuous modulating compressor
compressor with more than four displacement capacities or infinitely variable displacement capacities

Note 1 to entry: This includes but is not limited to variable speed, continuously variable mechanical unloading or cyclic modulation of discrete.

3.3.2 ~~3.4.2~~
discrete modulating compressor
compressor with two to four discrete displacement capacities

3.4 ~~3.5~~
subcooling
difference between the bubble point temperature of the refrigerant corresponding to its pressure and the temperature of the liquid refrigerant

3.5 ~~3.6~~
superheat
difference between the temperature of the vapour refrigerant and its dew-point temperature corresponding to its pressure

3.6 ~~3.7~~
refrigerating capacity
product of the refrigerant mass flow at the compressor inlet port and the difference between the specific refrigerant enthalpy at the compressor inlet port and the specific enthalpy of fluid entering the evaporator expansion device

3.7
~~3.8~~
heating capacity
product of the refrigerant mass flow leaving the compressor discharge port and the difference of the specific refrigerant enthalpy at the discharge port and the outlet of the condenser or gas cooler

3.8 ~~3.9~~
power input
time rate of energy usage of the compressor plus any accessories required to sustain operation of the compressor at the rating condition

3.9 ~~3.10~~
refrigerating coefficient of performance
ratio of the refrigerating capacity to the power input

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