

AHRI Standard 571 (SI)

2012 Standard for Performance Rating of Positive Displacement Carbon Dioxide Refrigerant Compressors and Compressor Units



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IMPORTANT

SAFETY RECOMMENDATIONS

AHRI does not set safety standards and does not certify or guarantee the safety of any products, components or systems designed, tested, rated, installed or operated in accordance with this standard/guideline. It is strongly recommended that products be designed, constructed, assembled, installed and operated in accordance with nationally recognized safety standards and code requirements appropriate for products covered by this standard/guideline.

AHRI uses its best efforts to develop standards/guidelines employing state-of-the-art and accepted industry practices. AHRI does not certify or guarantee that any tests conducted under its standards/guidelines will be non-hazardous or free from risk.

This standard is a new standard.
For I-P ratings, see AHRI Standard 570 (I-P)-2012.

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PERFORMANCE RATING OF POSITIVE DISPLACEMENT CARBON DIOXIDE REFRIGERANT COMPRESSORS AND COMPRESSOR UNITS

Section 1. Purpose

1.1 Purpose. The purpose of this standard is to establish for positive displacement carbon dioxide refrigerant compressors and compressor units: definitions; test requirements; rating requirements; minimum data requirements for Published Ratings; operating requirements; marking and nameplate data and conformance conditions.

1.1.1 Intent. This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

1.1.2 Review and Amendment. This standard is subject to review and amendment as technology advances.

Section 2. Scope

2.1 Scope. This standard applies to electric motor driven, single and variable capacity, single and two stage Positive Displacement Refrigerant Compressors and Compressor Units operating with carbon dioxide in both Subcritical and Transcritical applications for refrigeration. This standard also applies to the presentation of performance data for Positive Displacement Compressors and Compressor Units operating with carbon dioxide.

2.1.1 Refrigerant. The rating points in this standard are based on R-744 (carbon dioxide).

2.2 Exclusions.

2.2.1 This standard does not apply to compressors and compressor units intended for use in:

- 2.2.1.1** Household refrigerators and freezers
- 2.2.1.2** Automotive air-conditioners
- 2.2.1.3** Dehumidifiers
- 2.2.1.4** Industrial products other than heating and cooling

2.2.2 This standard does not apply to compressors that are coupled with condensers or gas cooler heat exchangers.

2.2.3 This standard does not apply to carbon dioxide compressors used in heat pump and air-conditioning applications.

Section 3. Definitions

All terms in this document will follow the standard industry definitions in the current edition of *ASHRAE Terminology of Heating, Ventilation, Air Conditioning and Refrigeration* unless otherwise defined in this section.

3.1 Coefficient of Performance (COP). A ratio of the cooling capacity in watts (W) to the power input value in watts (W) at any given set of Rating Conditions expressed in watts/watt, W/W.

3.2 Compressor Efficiency or Compressor Unit Efficiency. A ratio of theoretical to actual power as defined in Appendix C.

3.3 Positive Displacement Refrigerant Compressor. A machine in which an increase in refrigerant vapor pressure is attained by changing the internal volume of the compression chamber through work applied to the compressor's mechanism.