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ANSI/ASHRAE Standard 17-2022
Method of Testing Capacity of Electronic and Thermostatic Refrigerant Expansion Valves

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

ASHRAE Standard 17 prescribes a method of testing capacity of electronic and thermostatic expansion valves for use in air-conditioning and refrigeration systems. Standard 17 references AHRI Standards 750, 751, 1370, and 1371 for the test conditions to be used in obtaining standard ratings for electronic and thermostatic refrigerant expanding valves.

The 2022 edition of Standard 17 adds electronic expansion valves, changes example calculations to use R-410A (previously R-22), and updates references.

1. PURPOSE

This standard prescribes a method of testing the capacity of electronic and thermostatic refrigerant expansion valves for use in vapor-compression refrigeration systems.

2. SCOPE

2.1 This standard is applicable to

a. electronic and thermostatic expansion valves (also referred to in this standard as "expansion valves") as defined in Section 3;
b. expansion valves of the direct-acting type but not the pilot-operated type; and
c. many currently used refrigerants deemed available and suitable according to ANSI/ASHRAE Standard 15, *Safety Standard for Refrigeration Systems* [1] and ANSI/ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants* [2].

2.2 This standard specifies procedures, apparatus, and instrumentation that will produce accurate capacity data.

2.3 This standard does not

a. specify tests for production, specification compliance, or field testing of expansion valves or
b. specify capacity rating conditions for testing expansion valves.

These can be found in AHRI Standard 750, *Thermostatic Refrigerant Expansion Valves* [3]; AHRI Standard 751, *Thermostatic Refrigerant Expansion Valves* [4]; AHRI 1370, *Performance Rating of Electronic Expansion Valves* [5]; and AHRI 1371, *Performance Rating of Electronic Expansion Valves* [6].

3. DEFINITIONS

The following definitions apply only to parts and terms used in this standard.

capacity of an expansion valve: the refrigerating effect in kW (Btu/h or tons) of refrigeration, produced by the mass flow of refrigerant that will pass through the valve under the conditions that are cited in Section 5.

certified standard instrument: an instrument calibrated by the manufacturer or other reliable agency and certified as traceable to the National Institute of Standards and Technology (NIST).

direct-acting valve: an expansion valve designed so that the valve plug opens the valve port in inverse response to sensed equalizer pressure and in direct response to temperature sensing element temperature. The valve plug is positioned through direct mechanical linkage to the actuating element (e.g., diaphragm or bellows).

***electric expansion valve (EXV)*:** an electrically driven device that regulates the flow of volatile refrigerant in a refrigeration system.

evaporator: an evaporatively cooled heat exchanger.

external equalizer: in a thermostatic expansion valve, a connection from a selected point in the low-pressure part of the circuit to the system pressure sensing side of the actuating element such that the selected point pressure is transmitted to the actuating element (e.g., diaphragm or bellows).

initial valve opening: a minimal valve opening position not to exceed 0.05 mm (0.002 in.).