STANDARD

ANSI/AHRI/ASHRAE ISO Standard 13256-1:1998 (RA 2012)
Reaffirmation of ANSI/ARI/ASHRAE ISO Standard 13256-1:1998

Water-source heat pumps – Testing and rating for performance – Part 1: Water-to-air and brine-to-air heat pumps

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ANSI/AHRI/ASHRAE ISO Standard 13256-1:1998 (RA 2012), Water-source heat pumps—Testing and rating for performance— Part 1: Water-to-air and brine-to-air heat pumps

This standard is an identical national adoption of the ISO standard.

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NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE Web site 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

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

This part of ISO 13256 was developed by ISO Technical Committee TC 86, Refrigeration, Subcommittee SC 6, Testing and rating of air-conditioners and heat pumps.

ISO 13256 consists of the following parts, under the general title Water-source heat pumps—Testing and rating for performance:

- *Part 1: Water-to-air and brine-to-air heat pumps*
- *Part 2: Water-to-water and brine-to-water heat pumps*

Annexes A, B, C, D, and E form an integral part of this part of ISO 13256. Annexes F, G, and H are for information only.

INTRODUCTION

This part of ISO 13256 covers heating and cooling systems which are generally referred to as "water-source heat pumps." These systems generally include an indoor coil with air-moving means, a compressor, and a refrigerant-to-water or refrigerant-to-brine heat exchanger. A system may provide both heating and cooling, cooling-only, or heating-only functions.

1. SCOPE

1.1 This part of ISO 13256 establishes performance testing and rating criteria for factory-made residential, commercial and industrial, electrically-driven, mechanical-compression type, water-to-air and brine-to-air heat pumps. The requirements for testing and rating contained in this part of ISO 13256 are based on the use of matched assemblies.

1.2 Equipment designed for rating at one application under this part of ISO 13256 may not be suitable at all applications covered in this part of ISO 13256.

1.3 This part of ISO 13256 does not apply to the testing and rating of individual assemblies for separate use, nor to the testing and rating of heat pumps covered in ISO 5151, ISO 13253 or ISO 13256-2.

Note: For the purpose of the remaining clauses, the terms "equipment" or "heat pumps" may be used to mean "water-to-air heat pumps" or "brine-to-air heat pumps" and the term "liquid" refers to either "water" or "brine."

2. NORMATIVE REFERENCE

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 13256. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 13256 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 817:2005, *Refrigerants—Designation system*.

3. DEFINITIONS

For the purposes of this part of ISO 13256, the following definitions apply.

3.1 water-to-air heat pump and/or brine-to-air heat pump

heat pump which consists of one or more factory-made assemblies which normally include an indoor conditioning coil with air-moving means, compressor(s), and refrigerant-to-water or refrigerant-to-brine heat exchanger(s), including means to provide both cooling and heating, cooling-only, or heating-only functions

Notes:

1. When such equipment is provided in more than one assembly, the separated assemblies should be designed to be used together.
2. Such equipment may also provide functions of sanitary water heating, air cleaning, dehumidifying, and humidifying.

3.1.1 water-loop heat pump application

water-to-air heat pump using liquid circulating in a common piping loop functioning as a heat source/heat sink

Note: The temperature of the liquid loop is usually mechanically controlled within a temperature range of 15°C to 40°C.

3.1.2 ground-water heat pump application

water-to-air heat pump using water pumped from a well, lake, or stream functioning as a heat source/heat sink

Note: The temperature of the water is related to the climatic conditions and may vary from 5°C to 25°C for deep wells.

3.1.3 ground-loop heat pump application

brine-to-air heat pump using a brine solution circulating through a subsurface piping loop functioning as a heat source/heat sink