INTERNATIONAL STANDARD

ISO 13256-1

Second edition
2021-05

Water-source heat pumps — Testing and rating for performance —

Part 1: Water-to-air and brine-to-air heat pumps

Pompes à chaleur à eau — Essais et détermination des caractéristiques de performance —

Partie 1: Pompes à chaleur eau-air et eau glycolée-air

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Reference number
ISO 13256-1:2021(E)

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Published in Switzerland

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 6, *Testing and rating of air-conditioners and heat pumps*.

This second edition cancels and replaces the first edition (ISO 13256-1:1998), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Significant updates to the formatting, symbols, and terms and definitions, have been included to more closely align with other pertinent ISO standards and the latest ISO requirements.

— The original water loop heat pump (WLHP), ground water heat pump (GWHP) and ground loop heat pump (GLHP) application rating designations, specifying entering liquid source rating test conditions, have been replaced with High, Medium, and Low source temperature range conditions to represent a wider operating map at both standard and partially loaded application rating conditions. It is now possible, when all three (High, Medium and Low) temperature ranges are specified by the manufacturer for energy modelling programs to interpolate performance at other entering water temperatures than those used in the standard.

— Specific antifreeze solution composition requirements have been removed to eliminate prescriptive language and promote industry innovation of novel and improved antifreeze solutions.

— Airflow testing requirements have been updated to align with the complexities of testing more sophisticated constant airflow electronically commutated fan motors.

— Testing tolerances and uncertainties have been harmonized with other pertinent ISO standards.

— Annexes have been added and/or significantly updated that harmonize with other pertinent ISO standards.

A list of all parts in the ISO 13256 series can be found on the ISO website.

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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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Introduction

This document 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.

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Water-source heat pumps — Testing and rating for performance —

Part 1: Water-to-air and brine-to-air heat pumps

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1 Scope

1.1 This document 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 document are based on the use of matched assemblies.

1.2 Equipment designed for rating at one liquid temperature range under this document may not be suitable at all liquid temperature ranges covered in this document.

1.3 This document 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.

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 817, *Refrigerants — Designation and safety classification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

— IEC Electropedia: available at http://www.electropedia.org/

3.1
water-to-air heat pump
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

Note 1 to entry: When such equipment is provided in more than one assembly, the separated assemblies should be designed to be used together.

Note 2 to entry: Such equipment may also provide functions of sanitary water heating, air cleaning, dehumidifying, and humidifying.

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