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Methods of test and characterization of performance for energy recovery components

Méthode d'essai et caractérisation des performances des composants récupérateurs d'énergie

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Foreword

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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 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).

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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*.

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.

Methods of test and characterization of performance for energy recovery components

1 Scope

This document specifies methods for testing and characterizing the performance of air-to-air heat/energy exchangers when used as devices to transfer heat or heat and water vapor between two airstreams used in ventilation systems. It also specifies methods to characterize the performance of exchangers for use in calculation of the energy performance of buildings. This document is applicable to:

— fixed-plate exchangers (also known as recuperators),

— rotary exchangers, including heat wheels and total energy wheels (also known as regenerators),

— heat pipe exchangers using a heat transfer medium, excluding those using mechanical pumping.

This document does not provide a method for measuring the response of exchangers to the formation of frost.

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 3966, *Measurement of fluid flow in closed conduits — Velocity area method using Pitot static tubes*

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements*

ISO 5801, *Fans — Performance testing using standardized airways*

ISO 13253, *Ducted air-conditioners and air-to-air heat pumps — Testing and rating for performance*

ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

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 https://www.electropedia.org/

3.1
effectiveness
actual energy transfer rate (sensible, latent, or total) divided by the maximum possible energy transfer rate

Note 1 to entry: The formula for effectiveness is given in 5.2.