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Solar energy - Solar thermal collectors - Test methods (ISO 9806:2013)

Solarenergie - Thermische Sonnenkollektoren - Prüfverfahren (ISO 9806:2013)

Énergie solaire - Capteurs thermiques solaires - Méthodes d'essai (ISO 9806:2013)

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Solarenergie - Thermische Sonnenkollektoren - Prüfverfahren (ISO 9806:2013)

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Foreword

The text of ISO 9806:2013 has been prepared by Technical Committee ISO/TC 180 “Solar energy” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 9806:2013 by Technical Committee CEN/TC 312 “Thermal solar systems and components” the secretariat of which is held by ELOT.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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INTERNATIONAL
STANDARD

ISO
9806

First edition
2013-11-15

**Solar energy — Solar thermal
collectors — Test methods**

Énergie solaire — Capteurs thermiques solaires — Méthodes d'essai

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 9806 was prepared by Technical Committee ISO/TC 180, *Solar energy*, and by Technical Committee CEN/TC 312, *Thermal solar systems and components* in collaboration.

This first edition cancels and replaces the first editions EN 12975-2:2006, ISO 9806-1:1994, ISO 9806-2:1995, and ISO 9806-3:1995, which have been technically revised.

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Introduction

This International Standard defines procedures for testing fluid heating solar collectors for performance, reliability, durability and safety under well-defined and repeatable conditions. It contains performance test methods for conducting tests outdoors under natural solar irradiance and natural and simulated wind and for conducting tests indoors under simulated solar irradiance and wind. Outdoor tests can be performed either steady-state or as all-day measurements, under changing weather conditions.

Collectors tested according to this International Standard represent a wide range of applications, e.g. tracking concentrating collectors for thermal power generation and process heat, glazed flat plate collectors and evacuated tube collectors for domestic water and space heating, unglazed collectors for heating swimming pools or other low temperature applications. Air heating collectors have been included in the scope of this International Standard. Similarly, collectors using external power sources for normal operation and/or safety purposes (overheating protection, environmental hazards, etc.) are also considered.

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Solar energy — Solar thermal collectors — Test methods

1 Scope

This International Standard specifies test methods for assessing the durability, reliability and safety for fluid heating collectors.

This International Standard also includes test methods for the thermal performance characterization of fluid heating collectors, namely steady-state and quasi-dynamic thermal performance of glazed and unglazed liquid heating solar collectors and steady-state thermal performance of glazed and unglazed air heating solar collectors (open to ambient as well as closed loop).

This International Standard is also applicable to hybrid collectors generating heat and electric power. However it does not cover electrical safety or other specific properties related to electric power generation.

This International Standard is also applicable to collectors using external power sources for normal operation and/or safety purposes.

This International Standard is not applicable to those collectors in which the thermal storage unit is an integral part of the collector to such an extent that the collection process cannot be separated from the storage process for the purpose of making measurements of these two processes.

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2 Normative references (standards.iteh.ai)

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 9060, *Solar energy — Specification and classification of instruments for measuring hemispherical solar and direct solar radiation*

ISO 9488, *Solar energy — Vocabulary*

ASTM E330-02, *Standard Test method for Structural performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

EN 779, *Particulate air filters for general ventilation - Determination of the filtration performance*

EN 13142, *Ventilation for buildings - Components/products for residential ventilation - Required and optional performance characteristics*

EN 13779, *Ventilation for non-residential buildings - Performance requirements for ventilation and room-conditioning systems*

VDI 4670, *Thermodynamic properties of humid air and combustion gases*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 9488 and the following apply.