

**SLOVENSKI STANDARD**  
**oSIST prEN ISO 9806:2012**  
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**Toplotni sončni sistemi - Sprejemniki sončne energije - Preskusne metode  
(ISO/DIS 9806:2012)**

Solar energy - Solar thermal collectors - Test methods (ISO/DIS 9806:2012)

Solarenergie - Thermische Sonnenkollektoren - Prüfverfahren (ISO/DIS 9806:2012)

Énergie solaire - Capteurs thermiques solaires - Méthodes d'essai (ISO/DIS 9806:2012)

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**Solar energy - Solar thermal collectors - Test methods (ISO/DIS 9806:2012)**

Énergie solaire - Capteurs thermiques solaires - Méthodes d'essai (ISO/DIS 9806:2012)

Solarenergie - Thermische Sonnenkollektoren - Prüfverfahren (ISO/DIS 9806:2012)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 312.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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**prEN ISO 9806:2012 (E)**

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## Foreword

This document (prEN ISO 9806:2012) has been prepared by Technical Committee CEN/TC 312 "Thermal solar systems and components" the secretariat of which is held by ELOT, in collaboration with ISO/TC 180 "Solar energy".

This document is currently submitted to the parallel Enquiry.

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**Solar energy — Solar thermal collectors — Test methods***Énergie solaire — Capteurs thermiques solaires — Méthodes d'essai*

(Revision of ISO 9806-1:1994, ISO 9806-2:1995 and ISO 9806-3:1995)

ICS 27.160

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This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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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 electro technical 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.

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

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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. For the latter stationary inlet temperature conditions and natural solar irradiance and natural and/or simulated wind conditions are applied. Important effects for the all-day performance of the collector, as the dependence on incident angle, wind speed, diffuse fraction of solar irradiance, thermal sky radiation and thermal capacity are taken into account.

Some of the advantages of all-day testing as compared to steady-state test methods are:

- shorter and less expensive outdoor test, suitable for European climate conditions.
- much wider range of collectors can be tested with the same method.
- at the same time, a much more complete characterization of the collector is achieved.
- collector model is still directly compatible with that of the present basic test standards, and only correction terms are applied in this extended approach.
- all additions are based on long agreed collector theory.
- at any time, full backwards comparability to steady-state can be established by evaluating only periods of the test days that correspond to steady-state test requirements.  
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- same test equipment can be used as for stationary testing with only minor changes, which will also improve the accuracy of steady-state testing.
- commonly available standard PC software can be used for the parameter identification, such as spreadsheets or more advanced statistical packages that have Multiple Linear Regression (MLR) as an option.

Collectors tested according to this International Standard represent a wide range of applications. From tracking concentrating collectors for thermal power generation and process heat to glazed flat plate collectors for domestic water heating. Unglazed collectors are in most cases used for heating swimming pools or other low temperature applications. Air heating collectors have recently been included in the scope of this International Standard.