SLOVENSKI STANDARD
SIST EN ISO 24194:2022

01-september-2022

Sončna energija - Polja sprejemnikov sončne energije - Preverjanje zmogljivosti (ISO 24194:2022)

Solar energy - Collector fields - Check of performance (ISO 24194:2022)

Sonnenenergie - Kollektorfelder - Überprüfung der Leistungsfähigkeit (ISO 24194:2022)

Energie solaire - Champs de capteurs - Vérification de la performance (ISO 24194:2022)

Ta slovenski standard je istoveten z: **EN ISO 24194:2022**

ICS:

27.160	Sončna energija	Solar energy engineering

SIST EN ISO 24194:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 24194

June 2022

ICS 27.160

English Version

Solar energy - Collector fields - Check of performance (ISO 24194:2022)

Energie solaire - Champs de capteurs - Vérification de la performance (ISO 24194:2022)

Sonnenenergie - Kollektorfelder - Überprüfung der Leistungsfähigkeit (ISO 24194:2022)

This European Standard was approved by CEN on 25 May 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword

This document (EN ISO 24194:2022) has been prepared by Technical Committee ISO/TC 180 "Solar energy" in collaboration with Technical Committee CEN/TC 312 “Thermal solar systems and components” the secretariat of which is held by NQIS/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 December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 24194:2022 has been approved by CEN as EN ISO 24194:2022 without any modification.

INTERNATIONAL STANDARD

ISO 24194

First edition
2022-05

Solar energy — Collector fields — Check of performance

Energie solaire — Champs de capteurs — Vérification de la performance

Reference number
ISO 24194:2022(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 180, *Solar energy*, Subcommittee SC 4, *Systems - Thermal performance, reliability and durability*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 312, *Thermal solar systems and components*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

Introduction

This document specifies procedures for checking the performance of solar thermal collector fields. Measured performance is compared with calculated performance - and conditions for conformity are given.

Three levels for accuracy in the checking can be chosen:

— Level I - giving possibility for giving a very accurate estimate (with low safety retention, e.g. f_{safe} = 0,95) - but with requirements for use of expensive measurement equipment.

— Level II/III - allowing for a less accurate estimate (with higher safety retention, e.g. f_{safe} = 0,90) - but possibility to use less expensive measurement equipment.

Solar energy — Collector fields — Check of performance

1 Scope

This document specifies two procedures to check the performance of solar thermal collector fields. This document is applicable to glazed flat plate collectors, evacuated tube collectors and/or tracking, concentrating collectors used as collectors in fields.

The check can be done on the thermal power output of the collector field and also be on the daily yield of the collector field.

The document specifies for the two procedures how to compare a measured output with a calculated one.

The document applies for all sizes of collector fields.

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

ISO 9488, *Solar energy — Vocabulary*

ISO 9806, *Solar energy — Solar thermal collectors — Test methods*

3 Terms and definitions

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

ISO and IEC maintain terminology 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
transversal plane
plane defined by the normal to the plane of the collector and the line orthogonal to the concentrator axis, or the shortest symmetry line for flat biaxial geometries

4 Symbols

A_G	Gross area of collector as defined in ISO 9488	m^2
A_{GF}	Gross area of collector field	m^2
$a_{1,\Delta Q}$	Heat loss coefficient at $(\vartheta_m - \vartheta_a) = 0$	$W/(m^2 \cdot K)$
$T_{\Delta Q}$	Temperature dependence of the heat loss coefficient	$W/(m^2 \cdot K^2)$