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Refractory materials - Determination of thermal conductivity - Part 2: Hot-wire method (parallel) (ISO 8894-2:2007)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/26

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# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

# EN ISO 8894-2

December 2025

ICS 81.080 Supersedes EN 993-15:2005

English Version

# Refractory materials - Determination of thermal conductivity - Part 2: Hot-wire method (parallel) (ISO 8894-2:2007)

Matériaux réfractaires - Détermination de la conductivité thermique - Partie 2: Méthode du fil chaud (parallèle) (ISO 8894-2:2007)

Feuerfeste Werkstoffe - Bestimmung der Wärmeleitfähigkeit - Teil 2: Heißdraht-Verfahren (Paralleldraht-Verfahren) (ISO 8894-2:2007)

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Ref. No. EN ISO 8894-2:2025 E

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## European foreword

The text of ISO 8894-2:2007 has been prepared by Technical Committee ISO/TC 33 "Refractories" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 8894-2:2025 by Technical Committee CEN/TC 187 "Refractory products and materials" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2026, and conflicting national standards shall be withdrawn at the latest by June 2026.

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.

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## Endorsement notice

The text of ISO 8894-2:2007 has been approved by CEN as EN ISO 8894-2:2025 without any modification.

INTERNATIONAL STANDARD

**ISO 8894-2**

Second edition
2007-12-15

# Refractory materials — Determination of thermal conductivity —

## Part 2: Hot-wire method (parallel)

*Matériaux réfractaires — Détermination de la conductivité thermique —*

*Partie 2: Méthode du fil chaud (parallèle)*

Reference number
ISO 8894-2:2007(E)

**ISO 8894-2:2007(E)**

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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 8894-2 was prepared by Technical Committee ISO/TC 33, *Refractories*.

This second edition cancels and replaces the first edition (ISO 8894-2:1990), which has been technically revised to be technically identical to EN 993-15. The main changes are the following. (Note that the clause and subclause references given below refer to the 1990 edition.)

The Scope has been revised. It contains all the essential elements of ISO 8894-2:1990 except that the 1 250°C temperature limit has been omitted. In Note 2, reference to fibres has been taken out as current practice allows measurements on these materials.

Clause 2 *Normative references* has been deleted because

— sampling for this test is not usually carried out in accordance with ISO 5022, and

— ISO 8894-1 is only referred to in the Scope and not in the method itself.

The definitions given in Clause 3 have been improved and clarified.

The accuracy of temperature measurement of the furnace, given in 5.1, has been reduced to $\pm$ 10 K.

Modifications to 5.2 to 5.4 reflect equipment currently in use.

A paragraph has been added to 5.7 to ensure that the container is inert under the test conditions.

Subclause 6.4 and Figure 4 have been modified to allow grooves in one test piece only, for simplicity of machining. Bedding material has been removed from Figure 4 as it has been found to affect the results due to heat-transfer modification. A tolerance has been given for surface flatness of the test pieces, so that bedding material is not required.

Subclause 7.2 has been modified to ensure stability of the hot wire and measurement thermocouple.

Table 1 has been modified to reflect modern equipment and 7.5 has been changed accordingly.

A new Clause 7 has been added between 7.11 and Clause 8 to ensure test accuracy.

 

In the equation In Clause 8, $V.I$ has been replaced by $P$, the rate of energy transfer, as stated in the definitions in Clause 3.

Annex A has been updated for current practice.

ISO 8894 consists of the following parts, under the general title *Refractory materials — Determination of thermal conductivity:*

— *Part 1: Hot-wire method (cross-array)*

— *Part 2: Hot-wire method (parallel)*

**INTERNATIONAL STANDARD** **ISO 8894-2:2007(E)**

# Refractory materials — Determination of thermal conductivity —

# Part 2: Hot-wire method (parallel)

## 1 Scope

This part of ISO 8894 describes a hot-wire (parallel) method for the determination of the thermal conductivity of refractory products and materials. It is applicable to dense and insulating shaped products and to powdered or granular materials (see 6.2), for thermal conductivities of less than 25 W/m·K. The limits are imposed by the thermal diffusivity of the test material and therefore by the dimensions of the test pieces; higher thermal conductivities can be measured if larger pieces are used. Electrically conducting materials cannot be measured.

NOTE 1 The thermal conductivity of products with a hydraulic or chemical bond can be affected by the appreciable amount of water that is retained after hardening or setting and is released on firing. These materials can therefore require pretreatment. The nature and extent of such pretreatment, and the period for which the test piece is held at the measurement temperature as a preliminary to carrying out the test, are details that are outside the scope of this part of ISO 8894 and are agreed between the parties concerned.

NOTE 2 In general, it is difficult to make measurements on anisotropic materials and the use of this method for such materials is also agreed between the parties concerned.