KESKKONNA SOOJUSLIKUD OMADUSED. MÕÕTEVAHENDID FÜÜSIKALISTE SUURUSTE MÕÕTMISEKS JA SEIRAMISEKS

Ergonomics of the thermal environment - Instruments for measuring and monitoring physical quantities (ISO 7726:2025)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 7726:2025 sisaldab Euroopa standardi EN ISO 7726:2025 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 7726:2025 consists of the English text of the European standard EN ISO 7726:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.10.2025.	Date of Availability of the European standard is 22.10.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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Ergonomics of the thermal environment - Instruments for measuring and monitoring physical quantities (ISO 7726:2025)

Ergonomie des ambiances thermiques - Appareils et méthodes de mesure et de surveillance des grandeurs physiques (ISO 7726:2025)

Ergonomie der thermischen Umgebung - Instrumente zur Messung und Überwachung physikalischer Größen (ISO 7726:2025)

This European Standard was approved by CEN on 16 September 2025.

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

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

Ref. No. EN ISO 7726:2025 E

European foreword

This document (EN ISO 7726:2025) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 “Ergonomics” the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.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

This document supersedes EN ISO 7726:2001.

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, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 7726:2025 has been approved by CEN as EN ISO 7726:2025 without any modification.

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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.

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 document 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 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 122, *Ergonomics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 7726:1998), which has been technically revised.

The main changes are as follows:

— the physical quantities characterizing heat exchanges between a system and its environment have been divided into basic and derived. The basic quantities (like air temperature, irradiation and plane radiant temperature) are measured directly, while the derived quantities (like mean radiant temperature, operative temperature, humidity ratio, etc.) are measured indirectly (see 6.1 and 6.2);

— the concept of measurement uncertainty has been introduced (see Clause 11).

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 is one of a group of International Standards on the ergonomics of the thermal environment intended for use in the study of thermal environments.

This group of International Standards covers:

— definitions for the terms to be used in the methods of measurement, testing or interpretation, taking into account standards already in existence or in the process of being drafted;

— the laying down of specifications relating to the methods for measuring the physical quantities which characterize thermal environments;

— the selection of one or more methods for interpreting the parameters;

— the specification of recommended values or limits of exposure for the thermal environments coming within the comfort range and for extreme environments (both hot and cold);

— the specification of methods for measuring the efficiency of devices or processes for personal or collective protection from heat or cold.

The aim of this group of standards is simply to standardize the process of recording information leading to the determination of values of physical quantities. Other International Standards give details of the methods that make use of the information obtained in accordance with this standard.

This document can be used as a reference when establishing:

a) specifications for manufacturers and users of instruments for measuring the physical quantities of the environment;

b) a written contract between two parties for the measurement of these quantities.

It applies to the influence of hot, moderate, comfortable or cold environments on people. This document is applied in cases wherein comfort or human strain are the main concern.

Any measuring instrument which achieves the accuracy indicated in this document may be used. The description or listing of certain instruments in the annexes only signifies that they are "recommended", since characteristics of these instruments can vary according to the measuring principle, their construction and the way in which they are used. It is up to users to compare the quality of the instruments available on the market at any given moment and to check that they conform to the specifications contained in this document.

Ergonomics of the thermal environment — Instruments for measuring and monitoring physical quantities

1 Scope

This document specifies the minimum characteristics of instruments for measuring physical quantities characterizing an environment, as well as the methods for measuring the physical quantities of this environment.

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 13731, *Ergonomics of the thermal environment — Vocabulary and symbols*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13731 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/

4 Symbols and abbreviation

For the purposes of this document, the symbols and units listed in Table 1 apply.

Table 1 — Symbols and units

Symbol	Term	Unit
A_{pr}	surface area projected on one direction	m^2
A_r	total radiant surface area	m^2
C	convective heat flow	$W{\cdot}m^{-2}$
C_{res}	respiratory convective heat flow	$W{\cdot}m^{-2}$
E	evaporative heat flow at the skin	$W{\cdot}m^{-2}$
E_{res}	respiratory evaporative heat flow	$W{\cdot}m^{-2}$
K	conductive heat flow	$W{\cdot}m^{-2}$
M	metabolic rate	$W{\cdot}m^{-2}$
p	atmospheric pressure	Pa
p_a	water vapour partial pressure	Pa
p_{as}	saturated water vapour pressure	Pa
$p_{as,w}$	saturated water vapour pressure at the wet-bulb temperature	Pa
R	radiative heat flow	$W{\cdot}m^{-2}$
R_h	relative humidity	%