

**Ergonomics of the thermal environment -  
Principles and application of relevant  
International Standards**

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and application of relevant International Standards

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11399:2001 sisaldab Euroopa standardi EN ISO 11399:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 04.04.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11399:2001 consists of the English text of the European standard EN ISO 11399:2000.</p> <p>This document is endorsed on 04.04.2001 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>The purpose of this International Standard is to specify information which will allow the correct, effective and practical use of International Standards concerned with the ergonomics of the thermal environment.</p>	<p><b>Scope:</b></p> <p>The purpose of this International Standard is to specify information which will allow the correct, effective and practical use of International Standards concerned with the ergonomics of the thermal environment.</p>
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**Võtmesõnad:** environments, ergonomics, human body, implementation, international standards, temperature, thermal comfort, thermal environments, workplaces

ICS 13.180

**English version**

**Ergonomics of the thermal environment**

Principles and application of relevant International Standards  
(ISO 11399 : 1995)

Ergonomie des ambiances  
thermiques – Principes et application  
des Normes internationales  
pertinentes (ISO 11399 : 1995)

Ergonomie des Umgebungsklimas –  
Grundlagen und Anwendung relevanter  
Internationaler Normen  
(ISO 11399 : 1995)

This European Standard was approved by CEN on 2000-10-18.

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 Management Centre or to any CEN member.

The European Standards exist 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Management Centre: rue de Stassart 36, B-1050 Brussels**

## Foreword

International Standard

ISO 11399 : 1995 Ergonomics of the thermal environment – Principles and application of relevant International Standards,

which was prepared by ISO/TC 159 'Ergonomics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 122 'Ergonomics', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by May 2001 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 11399 : 1995 was approved by CEN as a European Standard without any modification.

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## Introduction

This International Standard is one of a series of standards which specify methods of measuring and evaluating hot, moderate or cold thermal environments. It provides the underlying principles behind the assessment of human response to thermal environments in general and, in particular, those used in the development of each International Standard. It also demonstrates the relationships between the standards and how they can be used in a complementary way to evaluate the whole range of thermal environments.

## 1 Scope

The purpose of this International Standard is to specify information which will allow the correct, effective and practical use of International Standards concerned with the ergonomics of the thermal environment.

This includes:

- a) a description of each relevant International Standard and the complementary way in which these standards can be used in the ergonomic assessment of thermal environments;
- b) a description of the underlying principles used in each relevant International Standard;
- c) a description of the underlying principles concerning the ergonomics of the thermal environment.

This International Standard applies to the application of those International Standards listed in clause 2. These standards cover thermal environments over the whole range of ergonomics investigation.

The information provided in this International Standard is not sufficient for the assessment of thermal environments. For that purpose, the appropriate International Standard should be used (see clause 2).

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements

based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7243:1989, *Hot environments — Estimation of the heat stress on working man, based on the WBGT-index (wet bulb globe temperature)*.

ISO 7726:1985, *Thermal environments — Instruments and methods for measuring physical quantities*.

ISO 7730:1994, *Moderate thermal environments — Determination of the PMV and PPD indices and specification of the conditions for thermal comfort*.

ISO 7933:1989, *Hot environments — Analytical determination and interpretation of thermal stress using calculation of required sweat rate*.

ISO 8996:1990, *Ergonomics — Determination of metabolic heat production*.

ISO 9886:1992, *Evaluation of thermal strain by physiological measurements*.

ISO 9920:1995, *Ergonomics of the thermal environment — Estimation of the thermal insulation and evaporative resistance of a clothing ensemble*.

ISO 10551:1995, *Ergonomics of the thermal environment — Assessment of the influence of the thermal environment using subjective judgement scales*.

ISO/TR 11079:1993, *Evaluation of cold environments — Determination of requisite clothing insulation (IREC)*.