

Ergonomics - Evaluation of thermal strain by physiological measurements

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 9886:2004 sisaldab Euroopa standardi EN ISO 9886:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2004 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 9886:2004 consists of the English text of the European standard EN ISO 9886:2004.</p> <p>This document is endorsed on 18.05.2004 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>Käsitlusala:</p> <p>This International Standard describes methods for measuring and interpreting the following physiological parameters: - body core temperature; - skin temperatures; - heart rate; - body-mass loss.</p>	<p>Scope:</p> <p>This International Standard describes methods for measuring and interpreting the following physiological parameters: - body core temperature; - skin temperatures; - heart rate; - body-mass loss.</p>
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ICS 13.180

Võtmesõnad:

English version

Ergonomics

**Evaluation of thermal strain by physiological measurements
(ISO 9886 : 2004)**

Ergonomie – Evaluation de l'astreinte thermique par mesures physiologiques (ISO 9886 : 2004)

Ergonomie – Ermittlung der thermischen Beanspruchung durch physiologische Messungen (ISO 9886 : 2004)

This European Standard was approved by CEN on 2004-02-19.

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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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 9886 : 2004 Ergonomics – Evaluation of thermal strain by physiological measurements, 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 August 2004 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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 9886 : 2004 was approved by CEN as a European Standard without any modification.

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Introduction

This document is part of a series of standards concerned with the assessment of thermal stress and strain.

This series of International Standards aims in particular at

- a) establishing specifications for the methods of measuring physical parameters characterising thermal environments;
- b) establishing methods for assessing thermal stress in cold, moderate and hot environments.

The analysis methods described by these latter standards allow the prediction of the average physiological response of subjects exposed to a thermal environment. Some of these methods are not applicable under exceptional climatic circumstances, when the characteristics of the exposed subjects differ greatly from the average or when special means of protection are used.

In these cases, or for the sake of research, it may be useful or even necessary to measure directly the physiological strain experienced by the subject.

This International Standard gives a series of specifications concerning the methods of measurement and interpretation of the physiological parameters considered as reflecting the response of the human organism placed in a hot or cold environment.

1 Scope

This International Standard describes methods for measuring and interpreting the following physiological parameters:

- body core temperature;
- skin temperatures;
- heart rate;
- body-mass loss.

The choice of variables to be measured and techniques to be used is at the discretion of those responsible for the health of the employees. These persons will have to take into account not only the nature of the thermal conditions, but also the degree of acceptance of these techniques by the employees concerned.

It should be emphasised that direct measurements on the individual can only be carried out on two conditions.

- a) If the person has been fully informed about the discomfort and the potential risks associated with the measurement technique and gives free consent to such measurements.
- b) If the measurements present no risk for the person which is unacceptable in view of general or specific codes of ethics.

In order to simplify this choice, Annex A presents a comparison of the different methods concerning their field of application, their technical complexity, the discomfort and the risks that they might involve.

This standard defines the conditions which are to be met in order to ensure the accuracy of the data gathered from the different methods. The measurement methods are described in Annex B. Limit values are proposed in Annex C (informative).

This standard is not concerned with experimental conditions for which investigators may develop alternative methods intended to improve knowledge in this area. It is however recommended, when conducting such studies in the laboratory, to use the methods described below as references, so that results may be compared.

Before using the evaluations methods described in this International Standard, the user is required to follow the ethics and legal rules in force in his country or institution. Accordingly, ethical committees will be consulted and rules concerning free written consent, freedom of participation, confidentiality, etc. will be strictly followed.

2 Normative references

The following referenced documents are indispensable for the application 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 7933, *Ergonomics of the thermal environment — Analytical determination and interpretation of heat stress using calculation of the predicted heat strain*