SLOVENSKI STANDARD
SIST EN ISO 13732-1:2008

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Nadomeġļa:
SIST EN ISO 13732-1:2007

Ergonomija toplotnega okolja - Metode za ocenjevanje ļlovekovega odziva na dotik s povrġinami - 1. del: Vroļe povrġine (ISO 13732-1:2006)

Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)

Ergonomie der thermischen Umgebung - Bewertungsverfahren für menschliche Reaktionen bei Kontakt mit Oberflächen - Teil 1: Heiße Oberflächen (ISO 13732-1:2006)

Ergonomie des ambiances thermiques - Méthodes d'évaluation de la réponse humaine au contact avec des surfaces - Partie 1: Surfaces chaudes (ISO 13732-1:2006)

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13.180	Ergonomija	Ergonomics

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EUROPEAN STANDARD

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EN ISO 13732-1

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Supersedes EN ISO 13732-1:2006

English Version

Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)

Ergonomie des ambiances thermiques - Méthodes d'évaluation de la réponse humaine au contact avec des surfaces - Partie 1: Surfaces chaudes (ISO 13732-1:2006)

This European Standard was approved by CEN on 25 August 2008.

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 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 Management Centre has the same status as the official versions.

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

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

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

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Foreword

The text of ISO 13732-1:2006 has been prepared by Technical Committee ISO/TC 159 “Ergonomics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13732-1:2008 by 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 March 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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

This document supersedes EN ISO 13732-1:2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral part of this document.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 13732-1:2006 has been approved by CEN as a EN ISO 13732-1:2008 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 98/37/EC on machinery, amended by 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 98/37/EC, amended by 98/79/EC

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 98/37/EC, amended by 98/79/EC	Qualifying remarks/Notes
3, 4, 5.2 to 5.7, and Annex B	1.5.5	-

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Annex ZB
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard given in Table ZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

Table ZB.1 — Correspondence between this European Standard and Directive 2006/42/EC

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 2006/42/EC	Qualifying remarks/Notes
All clauses	Annex I: 1.1.6, 1.5.5, 1.7.2	-

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

INTERNATIONAL STANDARD

ISO 13732-1

First edition
2006-09-01

Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces —

Part 1: Hot surfaces

Ergonomie des ambiances thermiques — Méthodes d'évaluation de la réponse humaine au contact avec des surfaces —

Partie 1: Surfaces chaudes

Reference number
ISO 13732-1:2006(E)

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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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 13732-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 122, *Ergonomics*, in collaboration with Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 13732 consists of the following parts, under the general title *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces*:

— *Part 1: Hot surfaces*

— *Part 2: Human contact with surfaces at moderate temperature* [Technical Specification]

— *Part 3: Cold surfaces*

Introduction

When human skin comes into contact with a hot solid surface, burns may occur. Whether or not they do depends on a number of factors, the most important of which are

— the temperature of the surface,

— the material of the surface,

— the period of contact between the skin and the surface,

— the structure of the surface, and

— the sensitivity of the human being who comes into contact with the surface (e.g. child or adult).

Other factors can also play a part but are of minor importance. In Annex A the scientific background is presented and in the Bibliography publications concerning the objective are listed.

This part of ISO 13732 contains a collection of temperature threshold values for burns when the skin is in contact with a hot solid surface (Clause 4). It also contains a method for the assessment of the risk of burning, i.e. the application of the provided ergonomics data within a risk assessment procedure (Clause 5). A further application of the data may be the specification of temperature limit values for hot surfaces. Such temperature limit values may be specified in product standards or in regulations in order to prevent human beings sustaining a burn when in contact with the surface of a hot product. Guidance on how to select reasonable temperature limit values for that purpose is given in Clause 7. For different products with the same risk of burning it is reasonable to establish identical surface temperature limit values. Therefore, this part of ISO 13732 provides the possibility of harmonizing such temperature limit values for all kind of products.

Touching a hot surface may take place intentionally, e.g. to operate an electrically or gas powered machine or tool, or unintentionally, when a person is near a hot object. The period of contact with the hot surface will be different if the object is touched intentionally than if it is touched unintentionally. Considering human reaction times and their distribution in the population, 0,5 s is the minimum applicable contact period for unintentional touching of a hot surface for healthy adults on an acceptable safety level. For intentional touching the minimum applicable contact period will be longer. For the application of this part of ISO 13732, it is essential to select a contact period which best represents the real circumstances when a hot product is touched. Guidance for such selection is given in Annex B.

The ergonomics data provided in this part of ISO 13732 are mainly based on scientific research and represent, as far as is known, the behaviour of the human skin when in contact with a hot surface. Some of the data (e.g. burn threshold data for very short contacts of 0,5 s) are not directly based on scientific research but are deduced by extrapolation of the known threshold curves or by reasonable conclusion using scientific results.

The temperature threshold values provided in this part of ISO 13732 are valid for burning the skin when in contact with hot surfaces. For the time being there are not sufficient scientific data available on the effects of discomfort and pain to for them to be included in this part of ISO 13732. Some data for pain can be derived from national standards (see Annexes A and the Bibliography). Research projects are planned for obtaining data for discomfort and pain. When the results of these projects are available, this part of ISO 13732 may be revised in order to also include discomfort and pain temperature threshold values. ISO 13732-2 deals also with discomfort.

This part of ISO 13732 does not provide burn data on the skin that comes into contact with liquids or gases.

NOTE With the exception of water there are no such data available up to now. For water and liquids with similar heat capacity and heat flow properties burn threshold values for bare metals can be chosen.

Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces —

Part 1: Hot surfaces

1 Scope

This part of ISO 13732 provides temperature threshold values for burns that occur when human skin is in contact with a hot solid surface.

It also describes methods for the assessment of the risks of burning, when humans could or might touch hot surfaces with their unprotected skin.

This part of ISO 13732 also gives guidance for cases where it is necessary to specify temperature limit values for hot surfaces; it does not set surface temperature limit values.

NOTE 1 Such temperature limit values can be specified in specific product standards or in regulations in order to prevent human beings sustaining burns when in contact with the hot surface of a product.

This part of ISO 13732 deals with contact periods of 0,5 s and longer.

It is applicable to contact when the surface temperature is essentially maintained during the contact (see 4.1).

It is not applicable if a large area of the skin (approximately 10 % or more of the skin of the whole body) can be in contact with the hot surface. Neither does it apply to skin contact of more than 10 % of the head or contact which could result in burns of vital areas of the face.

NOTE 2 In some cases, the results of contact with a hot surface can be more serious for the individual, for example:

— burns resulting in the restriction of airways;

— large burns (more than 10 % of the body surface) that can impair the circulation by fluid loss;

— heating of a large proportion of the head or whole body that could lead to unacceptable heat strain even in the absence of burning.

This part of ISO 13732 is applicable to the hot surfaces of all kind of objects: equipment, products, buildings, natural objects, etc. For the purposes of simplification, it mentions only products; nevertheless, it applies to all other objects as well.

It is applicable to products used in any environment, e.g. in the workplace, in the home.

It is applicable to hot surfaces of products that may be touched by healthy adults, children, elderly people and also by people with physical disabilities.

It does not provide data for the protection against discomfort or pain.