



# SLOVENSKI STANDARD SIST EN ISO 15536-2:2007

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Ergonomics - Computer manikins and body templates - Part 2: Verification of functions and validation of dimensions for computer manikin systems (ISO 15536-2:2007)

Ergonomie - Computer-Manikins und Körperumriss-Schablonen - Teil 2: Prüfung der Funktionen und Validierung der Maße von Computer-Manikin-Systemen (ISO 15536-2:2007)  
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Ergonomie - Mannequins informatisés et gabarits humains - Partie 2: Vérification des fonctions et validation des dimensions pour les systèmes de mannequins informatisés (ISO 15536-2:2007)

Ta slovenski standard je istoveten z: EN ISO 15536-2:2007

**ICS:**

13.180 Ergonomija Ergonomics

SIST EN ISO 15536-2:2007 en,fr,de

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ICS 13.180

English Version

Ergonomics - Computer manikins and body templates - Part 2:  
Verification of functions and validation of dimensions for  
computer manikin systems (ISO 15536-2:2007)

Ergonomie - Mannequins informatisés et gabarits humains  
- Partie 2: Vérification des fonctions et validation des  
dimensions pour les systèmes de mannequins informatisés  
(ISO 15536-2:2007)

Ergonomie - Computer-Manikins und Körperumriss-  
Schablonen - Teil 2: Prüfung der Funktionen und  
Validierung der Maße von Computer-Manikin-Systemen  
(ISO 15536-2:2007)

This European Standard was approved by CEN on 17 February 2007.

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.



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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

## Foreword

This document (EN ISO 15536-2:2007) 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 September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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 United Kingdom.

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**Ergonomics — Computer manikins and  
body templates —**

Part 2:

**Verification of functions and validation of  
dimensions for computer manikin  
systems**

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*Ergonomie — Mannequins informatisés et gabarits humains —*

*Partie 2: Vérification des fonctions et validation des dimensions pour les  
systèmes de mannequins informatisés*

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Published in Switzerland

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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 15536-2 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

ISO 15536-2 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 3, *Anthropometry and biomechanics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 15536 consists of the following parts, under the general title *Ergonomics — Computer manikins and body templates*:

- *Part 1: General requirements*
- *Part 2: Verification of functions and validation of dimensions for computer manikin systems*



## Introduction

In order to apply computer manikins with confidence and trust to equipment design, designers need to know the accuracy and reliability of these tools. The needed accuracy depends on the purpose of their use. Some designers need high degrees of accuracy (e.g. quantitative clearance analyses), while others need less (e.g. training simulations). A method of checking the basic degree of accuracy is given in ISO 15536-1:2005. It is based on the comparison between anthropometric data used in creation of the manikin and the corresponding measurements taken from the manikin itself. These data and measurements apply to the standardized measurement postures only, i.e. standing and sitting (see ISO 7250:1996).

However, computer manikins are used to simulate a wider range of human postures and movements during equipment design than standardized postures, and it is essential that designers know the level of their anthropometric accuracy also in these conditions. Moreover, problems arise when trying to assess the accuracy and repeatability of computer manikins and their associated applications because of the many anthropometric and biomechanical parameters used in constructing them. Many specialized tests are required to accurately measure every possible size, shape and working posture that people can exhibit. This problem is further compounded when manikin data or algorithms are changed, requiring additional tests assessing their dimensional accuracy.

Because it is not economically feasible for one organization to test every manikin parameter under every possible test condition, developers and users need to share the responsibility for assessing computer manikin accuracy. Developers may test manikin system accuracy for the most common situations, but it is essential that the users be provided with the means to test the accuracy and repeatability of manikin systems for their specific applications, too. Therefore, users need to measure manikin accuracy for their specific applications and developers need to provide computer manikins and simple processes for measuring and assessing manikin accuracy.

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# Ergonomics — Computer manikins and body templates —

## Part 2:

## Verification of functions and validation of dimensions for computer manikin systems

### 1 Scope

This part of ISO 15536 establishes the requirements for the verification of the functions and validation of dimensions of computer manikins. These requirements concern the documentation of the data employed to construct computer manikins and the methods employed to verify and validate their functions with regards to their dimensional accuracy.

This part of ISO 15536 extends to anthropometric and biomechanical data and to software functions as they are applied to create computer manikins. Although this document primarily refers to anthropometric data and methods, some biomechanical parameters are required to build and apply computer manikins and are therefore included.

This part of ISO 15536 provides a framework for reporting computer manikin accuracy and human-source data. The standard is intended to enable even non-specialist users of the manikin systems to independently perform measurements of each function under field testing conditions using automated software tools provided by developers.

It is not intended to require developers to perform specific verification and validation of their manikin systems.

### 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).

ISO 7250:1996, *Basic human body measurements for technological design*

ISO 15535, *General requirements for establishing anthropometric databases*

ISO 15536-1:2005, *Ergonomics — Computer manikins and body templates — Part 1: General requirements*