

საქართველოს სტანდარტი

ერგონომიკა - კომპიუტერული მანეკენები და სხეულის ნიმუშები -
ნაწილი 1: ზოგადი მოთხოვნები (ისო 15536:2005)

საქართველოს სტანდარტებისა და მეტროლოგიის
ეროვნული სააგენტო
თბილისი

სსტ ენ ისო 15536-1:2008/2019

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2019 წლის 6 დეკემბრის № 98 განკარგულებით

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4 პირველად

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დაუშვებელია წინამდებარე სტანდარტის სრული ან ნაწილობრივი კვლავწარმოება, ტირაჟირება და გავრცელება სსიპ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე

English Version

Ergonomics - Computer manikins and body templates - Part 1:
General requirements (ISO 15536-1:2005)

Ergonomie - Mannequins informatisés et gabarits humains
- Partie 1: Exigences générales (ISO 15536-1:2005)

Ergonomie - Computer-Manikins und
Körperumrisschablonen - Teil 1: Allgemeine
Anforderungen (ISO 15536-1:2005)

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.

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Foreword

The text of ISO 15536-1:2005 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 15536-1:2008 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of an identical text or by endorsement, at the latest by March 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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 15536-1:2005.

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 15536-1:2005 has been approved by CEN as a EN ISO 15536-1:2008 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
All clauses	Annex I: 1.1.2.d, 3.2, 4.2.1.1, 4.2.1.2, 1.6.1, 1.6.2	-

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

საინფორმაციო ნაწილი. სრული ტექსტის სახსრად შეიძინეთ სტანდარტი.

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, 1.6.1, 1.6.2, 1.1.7, 1.1.8, 3.2	Computer manikins and body templates as described in this standard support a correct design of the operators work space, access openings and manholes.

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

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

INTERNATIONAL STANDARD

ISO
15536-1

First edition
2005-05-01

Ergonomics — Computer manikins and body templates —

Part 1: General requirements

*Ergonomie — Mannequins informatisés et gabarits humains —
Partie 1: Exigences générales*

საინფორმაციო ნაწილი. სრული ტექსტის სახსრად შეიძინეთ სტანდარტი.



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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 15536-1 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 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*

The following parts are under preparation:

- *Part 2: Structures and dimensions*

საინფორმაციო ტექნოლოგიების განვითარების ევროპული საზოგადოება

Introduction

The structure of safety standards in the field of machinery is as follows.

- a) Type-A standards (basis standards) give basic concepts, principle for design, and general aspects that can be applied to machinery.
- b) Type-B standards (generic safety standards) dealing with one or more safety aspect(s) or one or more type(s) of safeguards that can be used across a wide range of machinery:
 - type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);
 - type-B2 standards on safeguards (e.g. two-hand controls, interlocking devices, pressure-sensitive devices, guards).
- c) Type-C standards (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This part of ISO 15536 is a type-B standard as stated in ISO 12100-1.

When provisions of a type-C standard are different from those which are stated in type-A or type-B standards, the provisions of the type-C standard take precedence over the provisions of the other standards for machines that have been designed and built according to the provisions of the type-C standard.

This part of ISO 15536 concerns requirements which are, to a great extent, independent both of the state of the art in the currently rapidly developing field of computer manikins and body templates, and of the availability of up-to-date, detailed and representative anthropometric data.

The physical characteristics of the human body are one of the starting points in the design of spaces, furniture, machines and other equipment. Computer technology is advancing rapidly and allows the construction of computer manikins to model the human body and to simulate human activities. Anthropometrically accurate manikins or body templates can be used, for example, to visualize the geometric relationship between the human body and the physical environment. Various functions of evaluation can also be integrated into the manikin and manikin system, for example, indication of reach zones, visualization of viewing fields, biomechanical calculation of required strength, and simulation of movements.

Computer manikins are intended to reduce the need for real test persons and the evaluation of physical models and prototypes. However, real persons provide not only their true physical dimensions but also their differing functional and perceptual capabilities as well as their assessment of the ease of performance, comfort and other properties of the design (see ISO 15537).

The computer manikin permits quick, easy and early identification of possible dimensional shortcomings. Critical dimensions restricting operations, such as fitting into a confined space or reaching objects can be quickly assessed in relation to extreme body measurements. The dimensioning would otherwise require tests with a large number of test persons.

In the use of manikins, several ergonomic aspects (e.g. anthropometric, postural, visual, strength-related, dynamic) are addressed in one and the same test situation. As a universal design tool, the manikin is particularly useful for entirely novel designs, when no recommendations on the dimensions exist and no reference situations for full-scale evaluation are available. In the design process, the use of computer modelling with a manikin facilitates information exchange and collaboration between different specialists and users.

When used appropriately, computer manikins accelerate the entire design process and reduce the costs of designing. The ergonomic design process is presented as a whole in EN 614-1.

The use of computer manikins does not ensure appropriate design solutions automatically, and they can even be misused. The designer may use them inappropriately, for example, by permitting awkward postures, or by providing too little space for movements. It is possible that he or she is not aware of the inherent limitations of computer manikins, either in anthropometric, postural or biomechanical respects. As the complexity of the manikin systems increases, the links to the data on these human characteristics can also become difficult or impossible to trace.

The manikins and manikin systems available so far vary with respect to the functions and features they afford, as well as to their accuracy and usability. At the present developmental stage, the most sophisticated manikin systems may require powerful hardware and specially trained users, and they may be unavailable to many designers. The most simple ones may be easy to use but are of restricted value for designing. The systems may also differently emphasise such components as anthropometric accuracy, biomechanical capabilities, graphical visualisation, geometric design, simulation and animation. The choice of manikin and the associated design system is, to a great extent, a trade-off between these different features.

Broad experience of the field and a high level of care are necessary when choosing and using the manikin system, and for controlling the effects of other external parameters, however sophisticated the manikin system may be.

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.