SLOVENSKI STANDARD
SIST EN ISO 7250:2000

01-junij-2000

Osnovne meritve ļ loveġkega telesa za tehnoloġko naļ rtovanje (ISO 7250:1996)

Basic human body measurements for technological design (ISO 7250:1996)

Wesentliche Maße des menschlichen Körpers für die technische Gestaltung (ISO 7250:1996)

Mesurages de base du corps humain pour la conception technologique (ISO 7250:1996)

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Basic human body measurements for technological design (ISO 7250:1996)

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This European Standard was approved by CEN on 1997-06-12. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CEN

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

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

The text of the International Standard from Technical Committee ISO/TC 159 "Ergonomics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 122 "Ergonomics", the secretariat of which is held by DIN.

The European Standard has been prepared in co-operation with CEN/TC 122 "Ergonomics", and supersedes prEN 979.

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of an identical text or by endorsement, at the latest by January 1998, and conflicting national standards shall be withdrawn at the latest by January 1998.

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

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 7250:1996 has been approved by CEN as a European Standard without any modification.

Annex ZA (informative)

Clauses of this European standard addressing essential requirements or other provisions of EU directives

This European standard has been prepared under a mandate given to CEN by the European Commision and the European Free Trade Association and supports essential requirements of EU directives:

> Council Directive of 14 June 1989 on the approximation of the laws of the Member States relating to Machinery (89/392/EEC)
>
> Council Directive of 20 June 1991 amending Directive 89/392/EEC on the approximation of the laws of the Member States relating to Machinery (91/368/EEC)
>
> Council Directive of 14 June 1993 amending Directive 89/392/EEC on the approximation of the laws of the Member States relating to Machinery (93/44/EEC)

WARNING: Other requirements and other EU directives may be applicable to the products falling within the scope of this standard.

The clauses of this standard are likely to support requirements of the three directives mentioned above.

Compliance with this standard provides one means of conforming with the specific essential requirements of the directives concerned and associated EFTA regulations.

INTERNATIONAL STANDARD

ISO 7250

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Basic human body measurements for technological design

Mesurages de base du corps humain pour la conception technologique

Reference number
ISO 7250:1996(E)

Contents

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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.

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.

The International Standard ISO 7250 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

Annex A of this International Standard is for information only.

Introduction

The well-being of people is greatly dependent on their geometrical relationship with various factors such as clothing, places of work, transportation, homes and recreational activities. To ensure harmony between people and their environments, it is necessary to quantify the size and shape of people for optimization of the technological design of the workplace and the home environment.

Basic human body measurements for technological design

1 Scope

This International Standard provides a description of anthropometric measurements which can be used as a basis for comparison of population groups.

The basic list specified in this International Standard is intended to serve as a guide for ergonomists who are required to define population groups and apply their knowledge to the geometric design of the places where people work and live.

This list is not intended to serve as a guide for how to take anthropometric measurements, but it gives information to the ergonomist and designer on the anatomical and anthropometrical bases and principles of measurement which are applied in the solution of design tasks.

This International Standard may be used in conjunction with national or international regulations or agreements to assure harmony in defining population groups. In its various applications, it is anticipated that the basic list will be supplemented by specific additional measurements.

2 Definitions

For the purposes of this International Standard, the following definitions apply.

2.1 population group: Group of people having some common environment or activity.

NOTE 1 These groups may be as diverse as geographically defined populations or specified age groups.

2.2 Anthropometric terms[1)]

2.2.1 acromion: Most lateral point of the lateral edge of the spine of the scapula.

NOTE 2 The height of the acromion is usually equated with shoulder height.

2.2.2 anterior; ventral: Towards the front of the body.

2.2.3 bi: Prefix denoting connection with or relation to each of two symmetrical paired parts.

NOTE 3 For example, biacromial, bitragion.

2.2.4 biceps femoris: One of the large posterior muscles in the thigh of the leg.

2.2.5 cervicale: Prominent bone at the base of the back of the neck (spinous process of the seventh cervical vertebra).

2.2.6 deltoid muscle: Large muscle on the lateral border of the upper arm in the shoulder region.

2.2.7 distal: Away from the main mass of the body.

2.2.8 Frankfurt plane: Standard horizontal plane at the level of the upper edge of the opening of the external auditory meatus (external ear opening) and the lower border of the orbital margin (lower edge of the eye socket), when the median plane of the head is held vertically.

2.2.9 glabella: Most anterior point of the forehead between the brow ridges in the midsagittal plane.

2.2.10 gluteal fold: Skin furrow between the buttock and the thigh.

2.2.11 grip axis: Axis of the fist corresponding with the longitudinal axis of a rod held in the hand.

2.2.12 inferior; caudal: Away from the head, towards the bottom.

2.2.13 inion: Lowest point in the midsagittal plane of the occiput that can be palpated amid the nuchal muscles.

2.2.14 lateral: Towards the side of the body.

1) A detailed glossary of terms is found in the publications listed in annex A.

2.2.15 medial: Towards the midline of the body.

2.2.16 menton; gnathion: Lowest point of the tip of the chin in the midsagittal plane.

2.2.17 mesosternal: Point on the union of the third and fourth sternebrae.

2.2.18 metacarpal: Pertaining to the long bones of the hand between the carpals (wristbones) and the phalanges.

2.2.19 nasion; sellion: Point of greatest indentation of the nasal root depression.

2.2.20 phalanx; phalange: Bone of the fingers or toes.

2.2.21 posterior; dorsal: Towards the back of the body.

2.2.22 process: Marked prominence of a bone.

2.2.23 proximal: Towards the main mass of the body.

2.2.24 radius: Long bone in the forearm on the thumb side.

2.2.25 sagittal: Pertaining to the anteroposterior (front to back) median plane of the body (midsagittal), or to a plane parallel to the median (parasagittal).

2.2.26 styloid process: Most distal protuberance of the radius or the ulna at the wrist.

2.2.27 superior; cranial: Towards the head, towards the top.

2.2.28 thyroid cartilage: Prominent cartilage on the anterior surface of the neck.

2.2.29 tibiale: Point at the upper inside (medial) edge on the proximal end of the tibial bone of the lower leg.

2.2.30 tragion: Notch just above the tragus (the small cartilaginous flap in front of the ear hole).

2.2.31 ulna: Long bone in the forearm on the little finger side.

2.2.32 vertex: Highest level of the head in the midsagittal plane, with the head oriented in the Frankfurt plane.

3 Measuring conditions

It is important that the following conditions are documented together with the numerical results of any survey. Photographs or detailed sketches of measurements and procedures are recommended.

3.1 Clothing of subject

During measurement, the subject shall be nude or shall wear only minimal clothing and shall be bareheaded and without shoes.

3.2 Support surfaces

Standing surfaces (floors), platforms or sitting surfaces shall be flat, horizontal and not compressible.

3.3 Body symmetry

For measurements which may be taken on either side of the body, it is recommended that both sides are measured. If this is not possible, it should be indicated on which side the measurement was taken.

3.4 Measuring tools

The standard measuring tools which are recommended are the anthropometer, sliding calipers, spreading calipers, weighing scale and tape measure.

3.4.1 The anthropometer is a specialized tool for measuring linear distances between points on the body and standard reference surfaces, such as the floor or a seat platform.

3.4.2 Sliding and spreading calipers are used for measuring the breadth and depth of body segments, as well as the distances between reference marks.

3.4.3 A tape measure is used for measuring body circumferences. To determine the maximal posterior protrusion of a seated person, a measuring cube 200 mm on each side is used. To determine grip measurements, a rod 20 mm in diameter is used[2].

3.5 Further conditions

For chest and other measurements affected by breathing, it is recommended that they are taken during gentle breathing.

4 Basic anthropometric measurements

4.1 Measurements taken while subject stands

4.1.1 Body mass (weight)

Description: Total mass (weight) of the body.

Method: Subject stands on a weighing scale.

Instrument: Weighing scale.

2) For a detailed description of the measuring methods, see reference [2], annex A.