

Basic human body measurements for technological design

Part 1: Body measurement definitions and landmarks (ISO 7250-1:2008)

ICS 13.180

National foreword

This British Standard is the UK implementation of EN ISO 7250-1:2010. It is identical to ISO 7250-1:2008. It supersedes BS EN ISO 7250:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PH/9/4, Ergonomics - Anthropometry and Biomechanics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

The text of ISO 7250-1:2008 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 7250-1:2010 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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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Endorsement notice

The text of ISO 7250-1:2008 has been approved by CEN as a EN ISO 7250-1:2010 without any modification.

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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.

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ISO 7250-1 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

This first edition of ISO 7250-1 cancels and replaces ISO 7250:1996, of which it constitutes a minor revision.

ISO 7250 consists of the following parts, under the general title *Basic human body measurements for technological design*:

— *Part 1: Body measurement definitions and landmarks*

Statistical summaries of body measurements from individual ISO populations and worldwide and regional design values for use in ISO equipment standards are to form the subjects of future Parts 2 and 3.

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 —

Part 1: Body measurement definitions and landmarks

1 Scope

This part of ISO 7250 provides a description of anthropometric measurements which can be used as a basis for comparison of population groups.

The basic list specified in this part of ISO 7250 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 part of ISO 7250 is intended to 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 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

population group

group of people having some common environment or activity

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

2.2 Anthropometric terms¹⁾

2.2.1

acromion

most lateral point of the lateral edge of the spine of the scapula

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

2.2.2

anterior

ventral

towards the front of the body

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

2.2.3

bi

prefix denoting connection with, or relation to, each of two symmetrical paired parts

NOTE 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

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