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General requirements for establishing anthropometric databases

Exigences générales pour la création de bases de données anthropométriques

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 122, *Ergonomics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 15535:2012), which has been technically revised.

The main changes are as follows:

— recommendation of tabulation for sex combined statistics in 9.4 has been removed;

— term “sex” has been replaced with “gender”;

— term “subject” has been replaced with “participant”;

— term “examination” has been replaced with “measurement”;

— Annex A has been revised to add another method for estimating a necessary sample size;

— Table C.1 has been revised to correspond with dimension numbers in ISO 7250-1 and minor technical revisions have been made;

— former Annexes G and H have been removed.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The well-being of people is very much dependent on their proportional and geometric relationship with several factors, such as growth, design principles for clothing, transportation, workplace and homes, as well as sporting and recreational activities. Implementation of databases on the body dimensions of a population supports essential health and safety requirements, as well as International Standards in the field of machinery safety and personal protective equipment and has acquired importance in the devising of computer-generated manikins of the human body.

One of the major difficulties in formulating international databases on anthropometry is that the numerous existing studies are rarely comparable in the strictest sense. Difficulties arise in comparing one study with another because either the methods used differ or they are not sufficiently well described. The anthropometric standards used for the data collection are fundamental to setting up any anthropometric databases.

This document is intended to be used in close conjunction with ISO 7250-1. The ultimate goal is that a database developed by one researcher can be easily used by other researchers. This would be in a form that is readily accessible by those responsible for developing standards in support of good design and health and safety requirements (e.g. the ISO 15534 series and ISO 14738). To achieve this goal, it has been necessary to develop an appropriate International Standard to ensure that anthropometric databases and their associated reports are internationally compatible.

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General requirements for establishing anthropometric databases

1 Scope

This document specifies general requirements for anthropometric databases and their associated reports that contain measurements taken in accordance with ISO 7250-1.

It provides necessary information, such as characteristics of the user population, sampling methods, measurement items and statistics, to make international comparison possible among various population segments. The population segments specified in this document are people who are able to hold the postures specified in ISO 7250-1.

NOTE The traditional anthropometry defined in ISO 7250-1 is considered to be a necessary complement to 3-D methods, which are used in some countries. Scanned data are verified according to the definitions given in ISO 7250-1 (see ISO 20685-1). State-of-the-art software allows integration of traditional anthropometric measures with those obtained by 3-D imaging.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country code*

ISO 7250-1:2017, *Basic human body measurements for technological design — Part 1: Body measurement definitions and landmarks*

ISO 8601-1, *Date and time — Representations for information interchange — Part 1: Basic rules*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
population segment
group of people having one or more common background characteristics that influence their anthropometric distributions

3.2
user population
population segment (3.1) or segments for whom a technological design is intended

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