

TECHNICAL REPORT

CEN ISO/TR 7250-2

RAPPORT TECHNIQUE

TECHNISCHER REPORT

April 2024

ICS 13.180

Supersedes CEN ISO/TR 7250-2:2011, CEN ISO/TR
7250-2:2011/A1:2013

English Version

Basic human body measurements for technological design
- Part 2: Statistical summaries of body measurements from
national populations (ISO/TR 7250-2:2024)

Définitions des mesures de base du corps humain pour
la conception technologique - Partie 2: Résumés
statistiques des mesurages du corps de populations
nationales (ISO/TR 7250-2:2024)

Grundlegende menschliche Körpermaße für die
technische Planung - Teil 2: Statistische
Zusammenfassungen von Körpermaßen nationaler
Populationen (ISO/TR 7250-2:2024)

This Technical Report was approved by CEN on 9 March 2024. It has been drawn up by the Technical Committee CEN/TC 122.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (CEN ISO/TR 7250-2:2024) 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN ISO/TR 7250-2:2011 and CEN ISO/TR 7250-2:2011/A1:2013.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

Endorsement notice

The text of ISO/TR 7250-2:2024 has been approved by CEN as CEN ISO/TR 7250-2:2024 without any modification.

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Anthropometric measurements	1
5 Statistical procedures	2
5.1 Data editing.....	2
5.2 Statistics.....	2
5.3 Population stratification.....	2
5.4 Age stratification.....	2
5.5 Body measurements for representative body forms.....	2
6 Background information	2
6.1 General.....	2
6.2 Background of database.....	2
6.2.1 Time period of measurement.....	2
6.2.2 Location of measurement.....	2
6.2.3 Demographic data.....	3
6.2.4 Publication on the anthropometric research.....	3
6.3 Representativeness of the sample.....	3
6.3.1 Sampling method.....	3
6.3.2 Information on secular change.....	3
6.4 Accuracy and reliability of measurements.....	3
6.4.1 Skill of measurers.....	3
6.4.2 Measurements from 3D scanners.....	3
7 Procedure for presenting member body statistics	3
7.1 General.....	3
7.2 Submission of data.....	4
7.3 One data set from each member body.....	4
7.4 Meeting the criteria outlined in 5.2 , 5.3 and 5.4	4
7.5 Measurement of possible errors.....	4
7.5.1 General.....	4
7.5.2 Minima and maxima.....	4
7.5.3 Percentile values.....	4
7.5.4 Standard deviation (SD).....	4
7.5.5 Comparison of mean or P50 values from member bodies.....	4
7.6 Marks on values likely to be in error.....	4
8 Statistics for ISO national members	5
8.1 General.....	5
8.2 Austria.....	5
8.3 Germany.....	5
8.4 Italy.....	9
8.5 Japan.....	15
8.6 Kenya.....	20
8.7 The Republic of Korea.....	24
8.8 The Netherlands.....	29
8.9 Thailand.....	33
8.10 The United States of America.....	37
8.11 China.....	42
8.12 India.....	46
8.13 Sweden.....	51
8.14 Brazil.....	55

Annex A (informative) Maximum allowable difference between values obtained by the method described in ISO 7250-1 and by other methods	61
Annex B (informative) Scan-derived data not evaluated for comparability with traditional manual measurements	62
Bibliography	68

This document is a preview generated by EVS

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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 second edition cancels and replaces the first edition (ISO/TR 7250-2:2010), which has been technically revised. It also incorporates the Amendment ISO/TR 7250-2:2010/Amd 1:2013.

The main changes are as follows:

- measurement item numbers have been updated to harmonize with ISO 7250-1;
- statistics for the male and female combined data have been deleted;
- data from the Republic of Korea have been updated;
- new data from Sweden and Brazil have been added;
- scan-derived data not evaluated for comparability with traditional manual measurements from Canada have been included in Annex B (informative).

A list of all parts in the ISO 7250 series can be found on the ISO website.

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.

Introduction

Anthropometric data used for technological design have been included in many ISO product standards. However, different review cycles make it impossible for simultaneous revision of these product standards as new anthropometric data become available. This document is intended to serve as a continually updated repository of the most current national anthropometric data. It is intended to make current and updated anthropometric data available for inclusion by reference in the various ISO product standards requiring ISO 7250-1 body measurement input, wherever national specificity of design parameters is required.

Body dimensions of people have been increasing in many countries over the past few decades. The rate of increase differs from country to country. In areas experiencing significant secular change, the statistical summaries described in this document will become outdated sooner. Therefore, it is intended that statistical summaries of human body measurements described in this document be updated as new data become available.

This document provides body dimensions data for people of "working age". In order to provide practical data, the working age population is not defined and the decision is left to each country, because working age differs between countries. However, data for children under 16 years are not included.

To ensure the comparability of measurements, body dimensions in this document are measured according to ISO 7250-1. To ensure the reliability of statistical data, databases from which statistics are calculated adhere to ISO 15535:2012 and ISO 15535:2023.

Basic human body measurements for technological design —

Part 2: Statistical summaries of body measurements from national populations

1 Scope

This document provides statistical summaries of body measurements measured according to ISO 7250-1, together with database background information for working age people prepared according to ISO 15535:2012 in the national populations of individual ISO member bodies. This document also describes the process of the measurement and preparation of statistical summaries.

2 Normative references

There are no normative references in this document.

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 secular change

change in mean body dimensions of a specific group over time

Note 1 to entry: The direction of change can be positive or negative.

4 Anthropometric measurements

Measuring conditions and definitions of measurements in this document are the same as those described in ISO 7250-1. Body measurements are described in millimetres (mm) or kilograms (kg).

Body measurements obtained from 3D systems or obtained using instruments different from those described in ISO 7250-1 are confirmed by member bodies to be sufficiently close to those produced by the traditional methods of ISO 7250-1 according to ISO 20685-1:2018, Clause 5. [Annex B](#) provides further information on scan-derived databases.

Sometimes a measurement is not performed exactly as described in ISO 7250-1, but is very similar. In such cases, the measurement may be substituted for the ISO 7250-1 measurement if its value is adequately close. To judge closeness, the method described in ISO 20685-1 is used. The criteria for the judgment are given in [Annex A](#).

The measured side (right or left) is described.