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GB/T 5703-2023

Replacing GB/T 5703-2010

Basic Human Body Measurements for Technological Design

用于技术设计的人体测量基础项目

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

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document serves as a replacement of GB/T 5703-2010 *Basic Human Body Measurements for Technological Design*. In comparison with GB/T 5703-2010, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

- “longitudinal axis of the foot” is added and “styloid process” is deleted from “Terms and Definitions”, and the terms of ten bony landmark points, including “acromion” are moved to Chapter 5 “Landmarks” (see Chapter 3 and Chapter 5; Chapter 2 of Version 2010);
- The requirements for body posture are added to “measuring conditions” (see 4.1);
- The Chapter “Landmarks” is added, which provides general requirements for landmarks, as well as definitions and corresponding position diagrams of 21 landmarks (see Chapter 5);
- The form of the schematic diagrams of anthropometric measurements is modified (see Chapter 6; Chapter 4 of Version 2010);
- Six basic anthropometric measurements “thumb length”, “thumb breadth”, “hand thickness”, “hand breadth including thumb”, “arm circumference flexed” and “forearm circumference flexed” are added (see 6.3).

This document modifies and adopts ISO 7250-1:2017 *Basic Human Body Measurements for Technological Design - Part 1: Body Measurement Definitions and Landmarks*.

This document makes the following editorial modifications:

- The title of the Standard is modified from “*Basic Human Body Measurements for Technological Design - Part 1: Body Measurement Definitions and Landmarks*” into “*Basic Human Body Measurements for Technological Design*”;
- Appendix A (informative) “Correspondence between ISO 7250-1 Dimension Names and Numbers and ISO 14738 and ISI 15534 Anthropometric Dimension Codes” of ISO 7250-1:2017 is deleted.
- Appendix A (informative) “Recommended Anthropometric Terminology” is added.

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by and shall be under the jurisdiction of National Technical Committee 7 on Ergonomics of Standardization Administration of China (SAC/TC 7).

Basic Human Body Measurements for Technological Design

1 Scope

This document provides a description of anthropometric measurements which can be used as a basis for comparison of population groups and for the creation of anthropometric databases (see GB/T 22187).

The basic list of measurements specified in this document 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. In addition, the list serves as a basis for extracting one- and two-dimensional measurements from three-dimensional scans (specified in GB/T 23698).

It serves as a guide on how to take anthropometric measurements, but also 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 document is intended to ensure harmony in defining population groups and to allow comparison of anthropometric data among member bodies. In its various applications, it is anticipated that the basic list will be supplemented by specific additional measurements.

NOTE: Appendix A provides the relevant terminology of recommended anthropometric measurements (including landmarks and items of measurement) in addition to the basic list.

2 Normative References

This document does not have normative references.

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 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.

3.2 anterior

ventral

referring to the long bone in the forearm on the little finger side

4 Measuring Conditions and Instruments

4.1 Conditions

It is important that the following conditions be documented together with the numerical results of any survey.

Photographs or detailed sketches of measurements and procedures are recommended.

- a) **Clothing of subject:** during measurement, the subject shall be nude or shall wear only minimal clothing and shall be bareheaded and without shoes.
- b) **Support surfaces:** standing surfaces (floors), platforms or sitting surfaces shall be flat, horizontal and not compressible.
- c) **Body symmetry:** for measurements which may be taken on either side of the body, it is recommended that both sides be measured. If this is not possible, it should be indicated on which side the measurement was taken.

NOTE: unilateral measurement usually takes the right side.

- d) **Body posture:** for standing measurements, the posture should generally include looking straight ahead, heels together, upper body relaxed and normal breathing. For sitting postures, the torso is erect, the shoulders relaxed, the subject looks straight ahead, and the feet are supported so that the femora are horizontal and parallel to each other. Horizontal femora can be achieved with an adjustable foot platform, or with a series of platforms of varying thickness that can be combined to achieve the desired posture.

4.2 Instruments¹⁾

4.2.1 Anthropometer

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

4.2.2 Sliding and spreading calipers

These instruments are used for measuring the breadth and depth of body segments, as well as the distances between reference marks.

4.2.3 Tape measure

¹⁾ The standard measuring instruments recommended are the anthropometer, sliding calipers, spreading calipers, weighing scale and tape measure.

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