
**Size designation of clothes —
Part 1: Anthropometric definitions for
body measurement**

(Identical with ISO 8559-1:2017)

ICS: 61.020

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Foreword

This Ethiopian Standard has been prepared under the direction of Technical Committee for Made-up-Textiles & Ready-Made Garments (TC 72) and published by the Ethiopian Standards Agency (ESA).

The standard is identical with ISO 8559-1:2017 *Size designation of clothes —Part 1: Anthropometric definitions for body measurement*, published by the International Organization for Standardization (ISO).

For the purpose of this Ethiopian Standard, the adopted ISO text shall be modified as follows:

- The phrase “International Standard” shall be read as “Ethiopian Standard” and
- A full stop (.) shall substitute comma (,) as decimal maker.

Introduction

This document is the first of a three-part International Standard (ISO 8559-1, ISO 8559-2 and ISO 8559-3). It comprises the definition and generation of anthropometric measurements that can be used for the creation of size and shape profiles and their application in the field of clothing. It forms a foundation for ISO 8559-2, *Primary and secondary dimension indicators*, and ISO 8559-3, *Methodology for creating body measurement tables and intervals*. Reference is made to measurements and procedures in ISO 7250-1.

Size designation of clothes —

Part 1:

Anthropometric definitions for body measurement

1 Scope

This document provides a description of anthropometric measurements that can be used as a basis for the creation of physical and digital anthropometric databases. The list of measurements specified in this document is intended to serve as a guide for practitioners in the field of clothing who are required to apply their knowledge to select population market segments and to create size and shape profiles for the development of all garment types and their equivalent fit mannequins. The list provides a guide for how to take anthropometric measurements, as well as give information to clothing product development teams and fit mannequin manufacturers on the principles of measurement and their underlying anatomical and anthropometrical bases.

[Annex A](#) describes the use of the pictogram (standardized and modified) based on the selection of most usual body dimensions used for clothing size designation.

This document is intended to be used in conjunction with national, regional or international regulations or agreements to ensure harmony in defining population groups and to allow comparison of anthropometric data sets.

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 terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

NOTE [Annex C](#) summarizes the mapping of the terms related to body landmark points, levels ([3.1](#)) and lines and planes ([3.2](#)) with listed measurements:

- [Table C.1](#) — Vertical measurements ([5.1](#)), breadths, widths and depths ([5.2](#));
- [Table C.2](#) — Girth measurements ([5.3](#));
- [Table C.3](#) — Distances measured following the surface of the body ([5.4](#));
- [Table C.4](#) — Other measurements ([5.6](#)), calculated measurements ([5.7](#)).

3.1 Landmark points and levels ([Figures 1](#) to [26](#))

NOTE See [Annex C](#) for mapping of points and levels to measurements.

3.1.1

shoulder point

most lateral point of the lateral edge of the spine (acromial process) of the scapula, projected vertically to the surface of the skin

Note 1 to entry: See [Figure 1](#).

Note 2 to entry: Identical to acromion in ISO 7250-1.

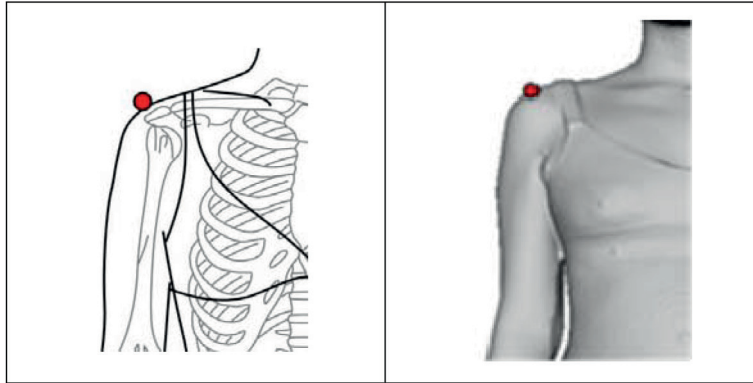


Figure 1 — Shoulder point

3.1.2

centre point of brow ridge

most anterior point of the forehead between the brow ridges in the mid-sagittal plane

Note 1 to entry: See [Figure 2](#).

Note 2 to entry: Identical to Glabella in ISO 7250-1.

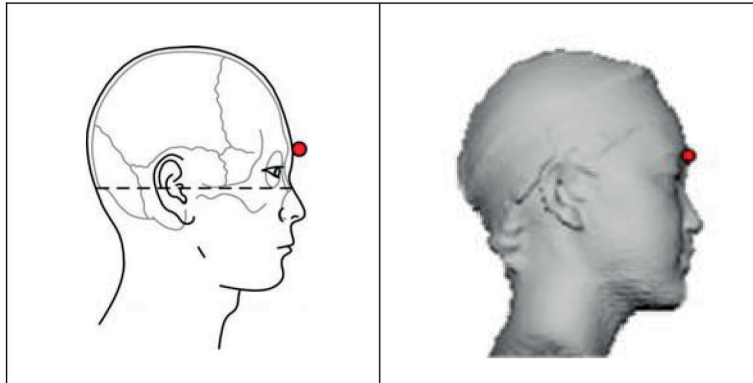


Figure 2 — Centre point of brow ridge

3.1.3

tragion

point of the notch just above the tragus (the small cartilaginous flap in front of the ear hole)

Note 1 to entry: See [Figure 3](#).

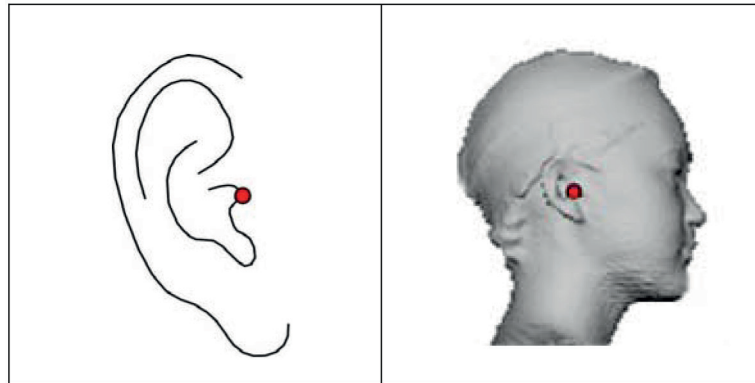


Figure 3 — Tragion

3.1.4**orbitale**

lowest point of the lower border of the orbital margin (lower edge of the eye socket)

Note 1 to entry: See [Figure 4](#).

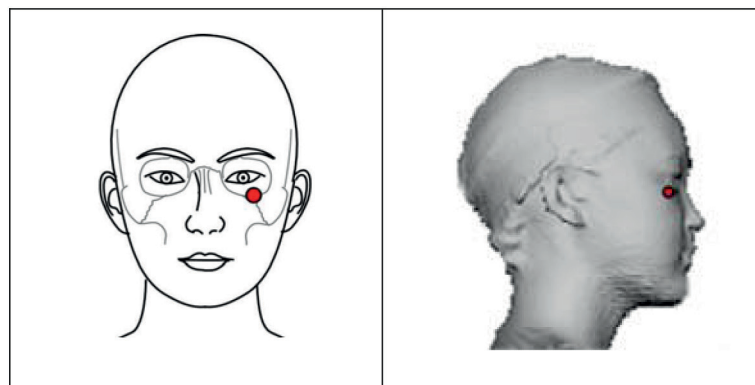


Figure 4 — Orbitale

3.1.5**lowest point of chin**

lowest point of the tip of the chin in the midsagittal plane, projected anteriorly when the head is held in the Frankfurt plane

Note 1 to entry: See [Figure 5](#).

Note 2 to entry: Identical to menton in ISO 7250-1.

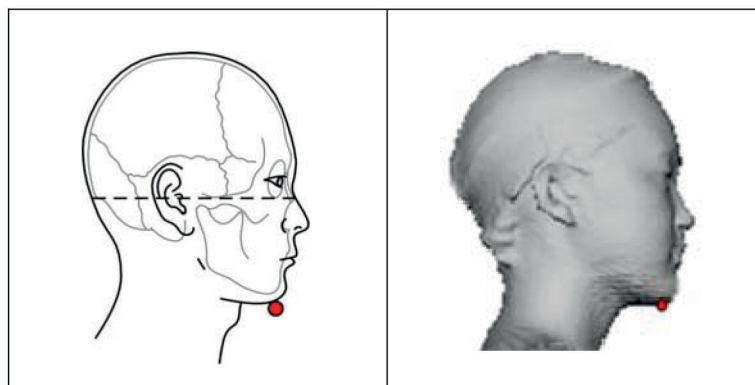


Figure 5 — Lowest point of chin

3.1.6

back neck point

tip of the prominent bone at the base of the back of the neck (spinous process of the seventh cervical vertebra) in the mid-sagittal plane, and projected posteriorly to the surface of the skin

Note 1 to entry: See [Figure 6](#).

Note 2 to entry: Identical to cervicale in ISO 7250-1.

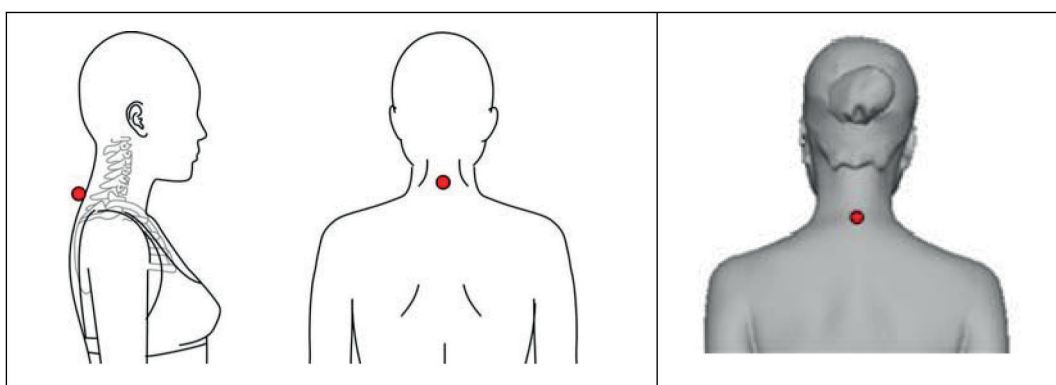


Figure 6 — Back neck point

3.1.7

side neck point

crossing point of the neck base line and the anterior border of the trapezius muscle

Note 1 to entry: See [Figure 7](#).

Note 2 to entry: Side neck points are determined when locating neck base line ([3.2.1](#)).

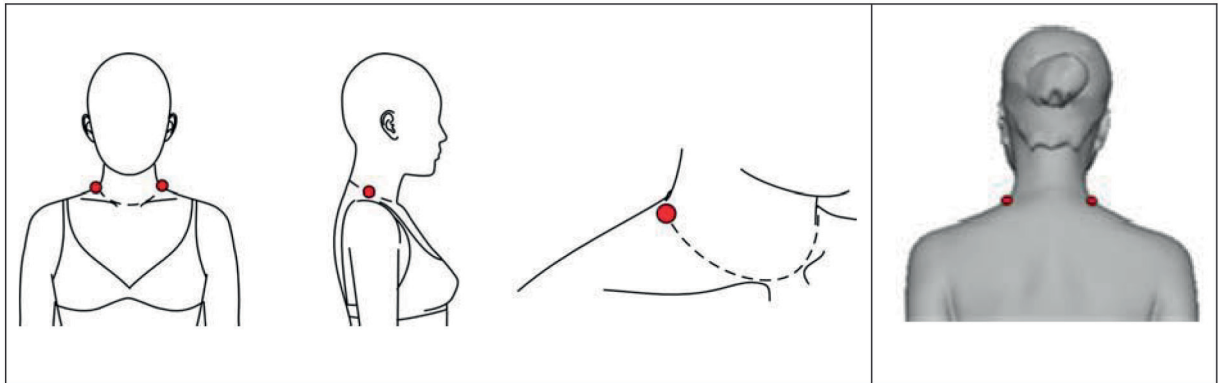


Figure 7 — Side neck point

3.1.8**front neck point**

crossing point of the line connecting medial superior borders of the left and right clavicles and front median line

Note 1 to entry: See [Figure 8](#).

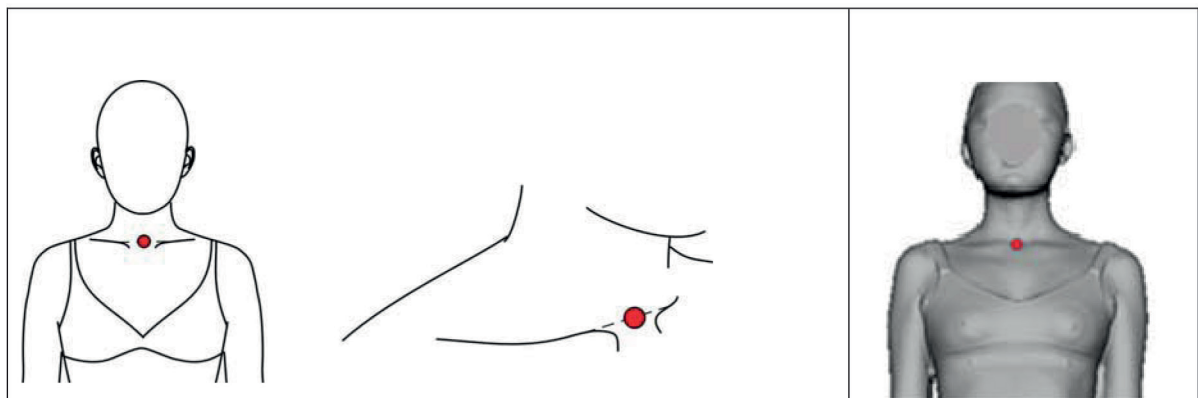


Figure 8 — Front neck point

3.1.9**'Adam's apple' point**

most anterior point of the thyroid cartilage

Note 1 to entry: See [Figure 9](#).

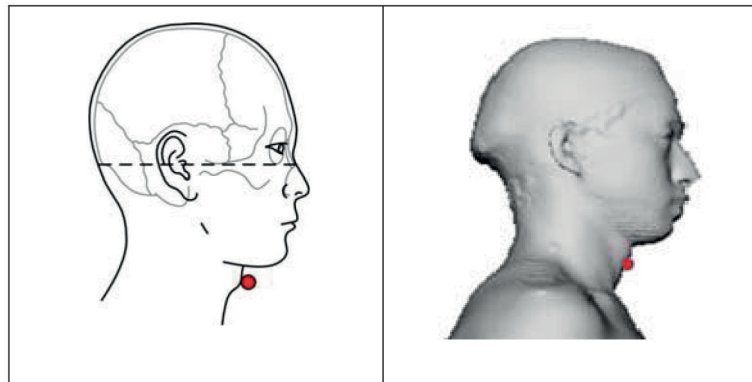


Figure 9 — 'Adam's apple' point

3.1.10

elbow point

most prominent point of the olecranon of ulna

Note 1 to entry: See [Figure 10](#).

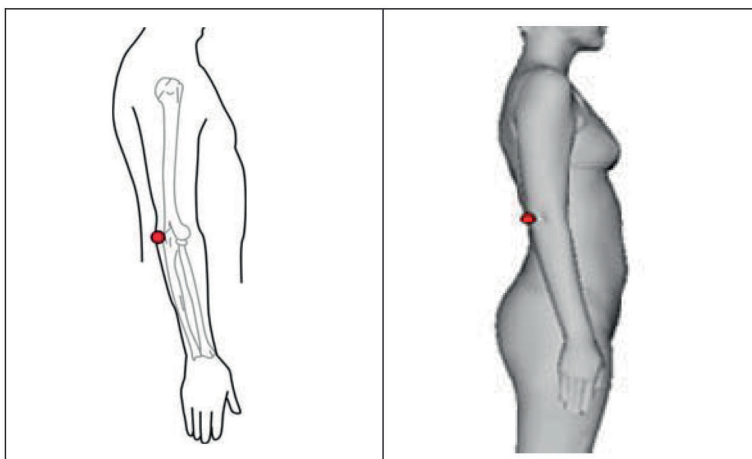


Figure 10 — Elbow point

3.1.11

bust point

most anterior point of the bust when wearing bra

Note 1 to entry: See [Figure 11](#).

Note 2 to entry: For information relating to type of bra to be worn, see [4.1.1](#).

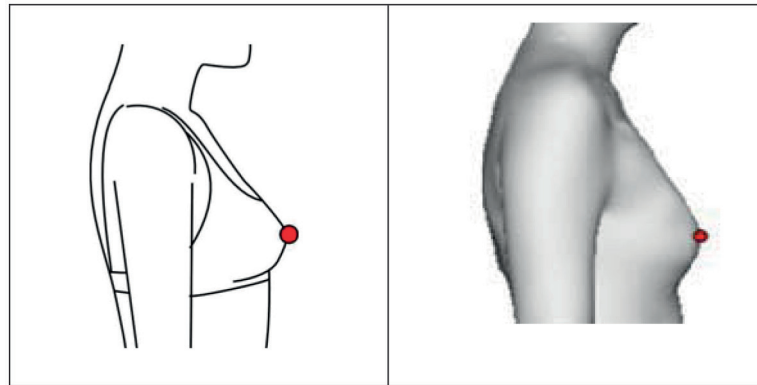


Figure 11 — Bust point

3.1.12**centre chest point**

point on the union of the third and fourth sternebrae, in the midsagittal plane

Note 1 to entry: See [Figure 12](#).

Note 2 to entry: Identical to mesosternale in ISO 7250-1.

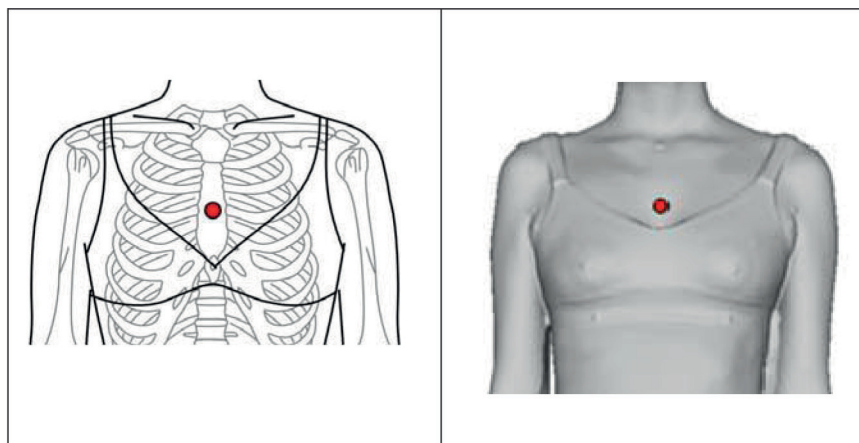


Figure 12 — Centre chest point

3.1.13**armpit front fold point**

front fold point of the armpit on arm scye line determined using a scale placed under arm

Note 1 to entry: The level is decided as the upper edge of a rule placed under the armpit.

Note 2 to entry: See [Figure 13](#).

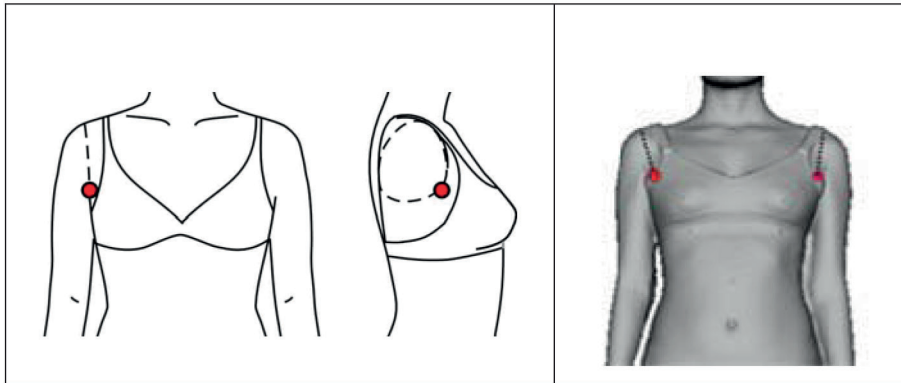


Figure 13 — Armpit front fold point

3.1.14

armpit back fold point

back fold point of the armpit on arm scye line determined using a scale placed under arm

Note 1 to entry: The level is decided as the upper edge of a rule placed under the armpit.

Note 2 to entry: See [Figure 14](#).

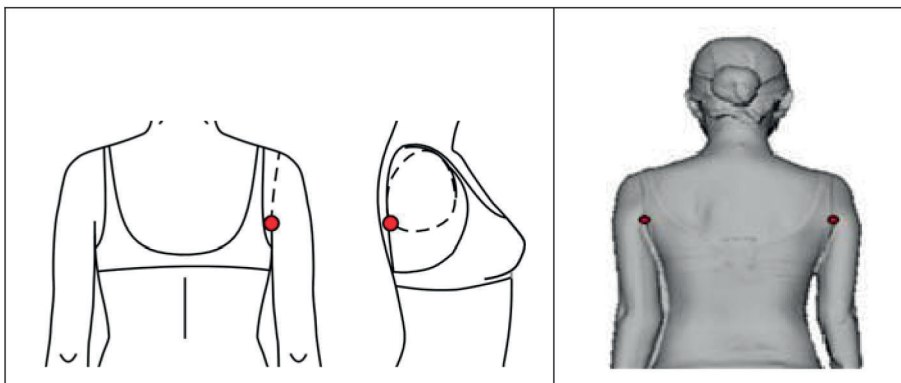


Figure 14 — Armpit back fold point

3.1.15

lowest rib point

inferior point of the bottom of the rib cage (tenth rib) projected horizontally, 45° from the midsagittal plane, to the surface of the skin

Note 1 to entry: See [Figure 15](#).

Note 2 to entry: Identical to lowest point of rib cage in ISO 7250-1.

Bibliography

- [1] ISO 7250-1, *Basic human body measurements for technological design — Part 1: Body measurement definitions and landmarks*
- [2] ISO 20685 (all parts), *3D scanning methodologies for internationally compatible anthropometric databases*
- [3] ISO 15535, *General requirements for establishing anthropometric databases*
- [4] ISO/TS 19408, *Footwear — Sizing — Vocabulary and terminology*
- [5] LEE, Y-S. Advanced protocol for 2015 Size Korea anthropometric data survey, Korea, KATS Report, 2015
- [6] BOUGOURD, J. Anthropometry, apparel sizing and design -Chapter 6, Cambridge England, Woodhead publishing, 2014
- [7] KOUCHI, M. Anthropometry, apparel sizing and design-Chapter 3, Cambridge England, Woodhead publishing, 2014
- [8] TAKABU, H. Clothing Construction (theory)-Chapter 3, Japan, Japan Association of Specialists in Textiles and Apparel, 2013 (in Japanese)

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes. Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

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