



Designation: D 5585 – 11

## Standard Tables of Body Measurements for Adult Female Misses Figure Type, Size Range 00–20<sup>1</sup>

This standard is issued under the fixed designation D 5585; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### INTRODUCTION

These body measurement tables were developed from evaluation of data currently used in the apparel industry. These tables were developed from data published by the U.S. Department of Commerce,<sup>2</sup> Caesar Study<sup>3</sup>, Size USA Study,<sup>4</sup> Current USA industry and studies, and scans and documentation from Alvanon Inc.<sup>5</sup> This standard takes into consideration Misses figure at a standard height of 5 ft 5 in. ( 65 % of average USA population) taking into account the decrease and increase in body weight that shift a person from one size to another, while this person does not gain in height. Also included is a definition of body type, Curvy or Straight as applied to waist, high hip, hip seat, thigh and mid-thigh girths that result in a different body shape (silhouette). Major review and evaluation was done. The incremental growth at different key body points has been addressed and defined, which resulted in identifying increases and decreases at different rates in specific areas; bust, waist, high hip and hip/seat. Additionally, to better serve the industry, incremental movement between sizes was reviewed ensuring smooth transition between sizes. To verify the proposed body measurements, a three-dimensional Avatar was created in the Misses size range 00 through 20 (Curvy and Straight) by Alvanon Inc. for a visual reference and is also attached in the documentation.

### 1. Scope

1.1 These tables list body measurements of adult female misses figure Type sizes 00 through 20. Although these are body measurements, they can be used as a baseline in designing apparel for Missy in this size range when considering such factors as fabric type, ease for body movement, styling, and fit.

1.2 These tables list body measurements for the complete range of Missy sizing.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each

system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

### 2. Referenced Documents

- 2.1 *ASTM Standards*:<sup>6</sup>
- D 123 Terminology Relating to Textile Materials
  - D 5219 Terminology Relating to a Body Dimension for Apparel Sizing
- 2.2 *ISO Standards*:<sup>7</sup>
- ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures

### 3. Terminology

#### 3.1 Definitions

3.1.1 For definitions relating to body dimensions, refer to Terminology D 5219.

<sup>1</sup> This table is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.55 on Body Measurement for Apparel Sizing.

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<sup>2</sup> U.S. Department of Commerce, Voluntary Product Standard: Body Measurements for Sizing of Girls' Apparel, NIST Publication No. PS 54-172, Washington DC.

<sup>3</sup> Caesar: Summary Statistics for the Adult population (Ages 18-65) of the United States of America, 2002.

<sup>4</sup> Available from: <http://www.tc2.com/sizeusa.html>

<sup>5</sup> Alvanon, Inc., 145 W. 30th Street, Suite 1000, New York, NY 10001.

<sup>6</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>7</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3.1.2 For definitions of other textile terms used in this standard, refer to Terminology **D 123–03**.

#### 4. Significance and Use

4.1 The use of the body measurement information in **Table 1** and **Table 2** will assist manufacturers in developing patterns and garments that are consistent with the current anthropometric characteristics of the population of interest. This practice should in turn reduce or minimize consumer confusion and dissatisfaction related to apparel sizing. (Also refer to **ISO 3635**.)

4.2 Three-dimensional avatars depicting each of the missy sizes and sub category curvy and straight on certain measures, were created by Alvanon, Inc. and included in this standard to assist manufacturers in visualizing the posture, shape, and proportions generated by the measurements charts in the accompanying tables. (Avatar 1-6) See **Fig. 1** and **Fig. 2**.

#### 5. Apparatus

5.1 *Tape Measure*, dimensionally stable and approximately 1.5 cm (1/2-in.) wide and graduated accurately in cm (1/16 in.).

5.2 *Plastic Goniometry*, to measure the radian (degree) of shoulder slope.

5.3 *Scale*, standard, calibrated, body weight type.

5.4 *Metal Ruler*.

#### 6. Procedure

##### 6.1 General:

6.1.1 For all vertical and most horizontal measurements, subject is to be standing erect without shoes and with feet approximately 15 cm (6 in.) apart. (for Infant special cases) For all vertical and most horizontal measurements, subject is to be lying down flat with legs extended and foot positioned at 1.57 rad (90°) to the leg.

6.1.2 Take measurements over regular undergarments normally worn.

6.1.3 Take all measurements from the same side of the body for consistency.

6.1.4 Refer to Terminology **D 5219** for the location of all points to be measured.

##### 6.2 Body Measurements:

6.2.1 *Body Weight*—Weight as measured on a calibrated scale taken with the subject in undergarments.

6.2.2 *Head Girth*—Measure the maximum horizontal circumference of the head above the ears.

6.2.3 *Neck Base Girth*—Measure the circumference of the neck, taken over the cervicale at the back and the top of the collarbone at the front.

6.2.4 *Mid-Neck Girth*—Measure the horizontal circumference of the neck, taken approximately 25 mm (1 in.) above the neck base level.

6.2.5 *Shoulder Girth*—Measure the horizontal circumference around the shoulders, taken at the front break-point level with the arms down.

6.2.6 *Chest/Bust Girth*—Measure the horizontal circumference around the body, taken under the arms and across the fullest part of the chest/bust apex including the lower portion of the shoulder blades.

6.2.7 *Under-Bust Girth*—Measure the horizontal circumference around the body under the arms and bust.

6.2.8 *Upper-Chest Girth*—Measure the horizontal circumference around the body, taken under the arms and above the fullest part of the chest/bust including the lower portion of the shoulder blades.

6.2.9 *Waist Girth*—Measure the minimum horizontal circumference around the body at waist height.

6.2.10 *High-Hip Girth*—Measure the maximum horizontal circumference around the body, taken at high hip level approximately 7.5 cm (3 in.) below the waist level including the abdominal extension.

6.2.11 *Hip/Seat Girth*—Measure the maximum horizontal circumference around the body at hip height.

6.2.12 *Thigh Girth*—Measure the maximum horizontal circumference of the upper leg, taken close to the crotch.

6.2.13 *Mid-Thigh Girth*—the maximum horizontal circumference of the upper leg, taken midway between the hip girth level and the midpoint (or crease) of the knee.

6.2.14 *Knee Girth*—Measure the maximum horizontal circumference of the knee, taken over the kneecap with the leg straight.

6.2.15 *Calf Girth*—Measure the maximum horizontal circumference of the lower leg, taken between the knee and the ankle.

6.2.16 *Ankle Girth*—Measure the maximum horizontal circumference of the ankle, taken over the greatest prominence of the anklebones.

6.2.17 *Armscye Girth*—Measure the circumference from the shoulder joint through the front break-point, the armpit, the back break-point and to the starting point, taken with the arms down.

6.2.18 *Upper-Arm Girth*—Measure the maximum circumference of the arm, taken midway between the elbow and the shoulder joints with the arm bent 1.57 rad (90°).

6.2.19 *Elbow Girth*—Measure the maximum circumference of the elbow, taken over the outer prominence of the elbow bone with the arm bent 1.57 rad (90°).

6.2.20 *Wrist Girth*—Measure the maximum circumference of the wrist, taken over the inner and outer prominence of the wrist bones.

6.2.21 *Hand Girth*—Measure the maximum circumference of the hand around the knuckles excluding the thumb, taken with the fingers together.

6.2.22 *Trunk Length (total vertical)*—Measure the circumference taken from a point on the right shoulder midway between the neck base and the shoulder joint, down the back through the crotch and up over the prominence of the right chest/bust apex to the starting point, avoiding constriction at the crotch.

6.2.23 *Height*—Measure the vertical distance from the crown of the head to the floor, taken with subject standing and without shoes.

6.2.24 *Head and Neck Length*—Measure the distance from the crown of the head to the cervicale (contour), taken with the head erect and the neck unbent.

6.2.25 *Cervicale Height*—Measure the vertical distance from the cervicale to the floor, taken with subject standing and without shoes.

6.2.26 *Cervicale to Knee*—Measure the vertical distance from the cervicale to a point level with the mid-point of the back of the knee (or crease).

6.2.27 *Center Back Waist Length*—Measure from the cervicale to the center back waist level, taken along the spine (contour).

6.2.28 *Center Front Waist Length*—Measure from the center front neck base line to the center front waist level (contour).

6.2.29 *Scye Depth*—Measure the vertical distance from the cervicale to the back break-point level, taken with the arms down.

6.2.30 *Side Waist Length*—Measure the distance from the mid-underarm point of the armscye to the waist level, taken along the side of the body (contour).

6.2.31 *Waist to Hip/Seat Height*—Measure the distance from the waist level to the hip girth level, taken along the side of the body (contour).

6.2.32 *Waist to Knee Height*—Measure the vertical distance from the waist level to a point level with the midpoint of the back of the knee (or crease), taken along the side of the body.

6.2.33 *Waist Height*—Measure the distance from the waist level to the hip girth level along the side of the body (contour) then vertically to the floor, taken with subject standing and without shoes.

6.2.34 *High-Hip Height*—Measure the distance from the high-hip girth level to the hip girth level along the side of the body (contour) then vertically to the floor, taken with the subject standing and without shoes.

6.2.35 *Hip/Seat Height*—Measure the vertical distance from the hip girth level to the floor along the side of the body, taken with subject standing and without shoes.

6.2.36 *Crotch Height*—Measure the vertical distance from the midpoint of the crotch to the floor, taken with the subject standing and without shoes.

6.2.37 *Rise Height*—Measure the vertical distance from the waist level at the side of the torso to the flat surface, taken with subject sitting on hard, flat surface.

6.2.38 *Knee Height*—Measure the vertical distance from the midpoint of the back of the knee (or crease) to the floor, taken with subject standing and without shoes.

6.2.39 *Ankle Height*—Measure the vertical distance from the prominence of the outer ankle bone to the floor, taken with subject standing and without shoes.

6.2.40 *Crotch Length (total)*—Measure the distance from waist level at the center front, through the crotch and to the waist level at the center back, avoiding constriction at the crotch.

6.2.41 *Shoulder Length*—Measure the distance from the side of the neck base to the top of the shoulder joint, taken with the arm down.

6.2.42 *Shoulder Slope*—Measure the degree of difference between the shoulder slant and the horizontal line that originates at the side neck base, taken with a goniometer positioned on the shoulder and moved until the baseline is parallel to the floor.

6.2.43 *Shoulder Drop*—Measure the vertical distance from the side of the neck base to the top of the shoulder joint, taken with the arm down.

6.2.44 *Across Back Shoulder Width*—Measure the horizontal distance across the back from the top of one shoulder joint to the top of the other shoulder joint, taken with the arms down.

6.2.45 *Upper Back Width*—Measure the horizontal distance across the back from back break-point to back break-point over the shoulder blades, taken with the arms down.

6.2.46 *Upper Front Chest Width*—Measure the horizontal distance across the chest from the front break-point, taken with the arms down.

6.2.47 *Back Width*—Measure the horizontal distance across the back from back break-point to back break-point over the shoulder blades, taken with the arms down.

6.2.48 *Front Chest Width*—Measure the horizontal distance across the chest from the front break-point, taken with the arms down.

6.2.49 *Bust Point to Bust Point*—Measure the horizontal distance from bust apex to bust apex, taken with the arms down.

6.2.50 *Neck to Bust Point*—Measure the distance from the side of the neck base to the bust apex (contour), taken with the arms down.

6.2.51 *Bust Point to Bust Point (Halter)*—Measure the distance from the bust apex around the neck base to the bust apex (contour), taken with the arms down.

6.2.52 *Cervicale to Wrist*—Measure the distance from the cervicale over the top of the shoulder joint, along the outside of the arm, over the elbow to the prominent wrist bone, taken with the arm bent 1.57 rad (90°) and the hand placed on the hip.

6.2.53 *Shoulder and Arm Length*—Measure the distance from the side of the neck base across the shoulder joint and along the outside of the arm over the elbow to the prominent wrist bone, taken with the arm bent 1.57 rad (90°) and the hand placed on the hip.

6.2.54 *Arm Length*—Measure the distance from the top of the shoulder joint along the outside of the arm over the elbow to the prominent wrist bone, taken with the arm bent (1.57 rad or 90°) and the hand placed on the hip.

6.2.55 *Hand Length*—Measure the straight distance from the prominence of the longest finger to the inner wrist bone, taken across the palm of the hand with fingers together and palm flat (use a stable, flat ruler).

6.2.56 *Hand Width*—Measure the maximum width across the palm of the hand excluding the thumb, taken with fingers together and palm flat (use a stable, flat ruler).

6.2.57 *Foot Length*—Measure the straight distance from the prominence of the back of the heel to the prominence of the longest toe, taken with the foot on a flat surface without shoes (use stable, flat ruler).

6.2.58 *Foot Width*—Measure the straight distance from one side of the foot to the other side at the widest part, taken with the subject standing and without shoes (use stable, flat ruler).

## 7. Keywords

7.1 apparel; body measurements; garment sizes; size range; tables