



Designation: D 4910 – 07^{ε2}

Standard Tables of Body Measurements for Children, Infant Sizes—Preemie to 24 Months¹

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^{ε1} NOTE—This standard was editorially corrected in December 2007.

^{ε2} NOTE—This standard was editorially corrected in March 2008.

INTRODUCTION

These tables were developed from data published by the U.S. Department of Commerce. These data were based on original research conducted by the U.S. Department of Agriculture² in the 1930s. This standard takes into consideration infants' growth patterns reflected in the 1980 charts for the National Center for Health Statistics,³ the 1977 Anthropometric Study of U.S. Infants and Children conducted by the University of Michigan,⁴ and the 2000 CDC Growth Charts for the United States.⁵ All sudden shifts of proportion have been eliminated so as to reflect the gradual growth and development of the infant. To verify the proposed body measurements, a limited sampling of infants was measured and fitted with garments made as directed in these tables.

1. Scope

1.1 These tables list body measurements of infants' sizes. Although these are body measurements, they can be used as a baseline in designing apparel for infants 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 infant sizing.

1.3 The values stated in either acceptable SI units or inch-pound units shall be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ These tables are under the jurisdiction of ASTM Committee D13 on Textiles and are the direct responsibility of Subcommittee D13.55 on Body Measurement for Apparel Sizing.

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² U.S. Department of Commerce, *Voluntary Product Standard: Body Measurement for the Sizing of Children's Apparel*, NIST Publication No. PS 54–172, Washington, D.C.

³ Available from National Center for Health Statistics.

⁴ Snyder, Lawrence, *Anthropometry of Infants, Children, and Youth to Age 18*, University of Michigan, May 1977.

⁵ 2000 CDC Growth Charts for the United States: Methods and Development, National Center for Health Statistics, *Vital Health Stat*, 11 (246), 2002.

2. Referenced Documents

2.1 *ASTM Standards*:⁶

D 123 Terminology Relating to Textiles

D 5219 Terminology Relating to Body Dimensions for Apparel Sizing

2.2 *ISO Standard*:

ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures⁷

3. Terminology

3.1 *Definitions*:

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

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

4. Significance and Use

4.1 The use of the body measurement information in Tables 1 and 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

⁶ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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

TABLE 1 Infant Sizes Premie to 24 Months Body Measurements, SI Units

Size	Premie	Newborn	3M	6M	9M	12M	18M	24M
Stature/Height, cm	Up to 45.72	46.99 to 55.88	57.15 to 60.96	62.23 to 68.58	69.85 to 73.66	74.93 to 77.47	78.74 to 83.82	85.09 to 90.17
Stature for height calculations	45.72	55.88	60.96	68.58	73.66	77.47	83.82	88.90
Body Weight, kg	up to 2.49	2.72 to 4.31	4.54 to 6.58	6.80 to 8.16	8.39 to 9.98	10.21 to 11.34	11.57 to 12.70	12.93 to 13.61
Girth Measurements		cm						
Chest/Bust	36.83	40.64	43.18	45.72	46.99	48.26	50.17	52.07
Waist	38.10	41.91	44.45	46.99	48.26	49.53	51.44	53.34
Hip/Seat	38.10	41.91	44.45	46.99	48.26	49.53	51.44	53.34
Head (circumference)	37.47	38.74	42.23	44.77	46.04	47.31	48.58	49.53
Neck Base	20.32	20.64	20.96	22.23	22.86	23.50	24.45	25.40
Armscye (circumference)	14.29	14.61	15.24	16.83	17.46	18.42	20.00	21.59
Upper-Arm	12.38	12.70	13.02	13.65	13.97	14.29	14.92	15.56
Elbow	13.97	14.29	14.61	15.24	15.56	15.88	16.5	17.15
Wrist	9.53	9.84	10.16	10.48	10.64	10.80	11.11	11.43
Thigh	22.23	22.86	23.50	25.09	25.72	26.67	28.26	29.85
Knee	10.80	11.11	11.43	16.51	17.78	18.73	20.32	21.27
Calf	10.80	11.11	11.43	16.51	17.78	18.73	20.32	21.27
Ankle	10.80	11.11	11.43	12.07	12.38	12.70	13.34	13.97
Total Vertical Trunk Length	59.69	61.60	63.50	68.58	71.12	73.66	78.74	83.82
Total Crotch Length	26.35	27.31	28.26	31.12	32.39	33.97	36.83	39.69
Vertical Measurements		cm						
Cervicale Height	31.75	41.59	46.36	53.34	58.10	61.60	67.31	71.76
Head and Neck Length	13.97	14.29	14.61	15.24	15.56	15.88	16.51	17.15
Center Back Waist Length	13.65	14.61	15.24	16.51	18.42	19.05	20.32	20.96
Center Front Waist Length	13.65	13.97	14.61	16.51	17.78	18.74	20.32	20.96
Scye Depth	8.59	8.59	8.89	9.53	9.84	10.16	10.80	11.43
Waist Height	18.10	26.99	31.12	36.83	39.68	42.55	46.99	50.80
Hip Height	13.02	21.27	24.77	29.85	32.07	34.93	38.74	42.55
Crotch Height (inseam)	12.70	20.32	23.50	26.67	29.21	30.48	33.02	36.83
True Rise Height	5.40	6.67	7.62	10.16	10.48	12.07	13.97	13.97
Knee Height	8.89	13.34	13.97	15.88	17.78	19.05	20.32	22.86
Ankle Height	3.18	3.18	3.493	3.810	4.128	4.128	4.445	4.763
Cervicle to Knee	22.86	28.26	32.29	37.47	40.32	42.55	46.99	48.90
Waist to Knee	9.21	13.65	17.15	20.96	21.91	23.50	26.67	27.94
Waist to Hip	5.08	5.72	6.350	6.99	7.620	7.620	8.255	8.255
Width and Length Measurements		cm						
Shoulder Length	6.35	6.35	6.67	6.99	7.144	7.30	7.62	7.94
Across Back Shoulder	15.24	17.15	18.42	19.69	20.32	20.96	22.23	23.82
Front Chest Width	13.97	15.88	17.15	18.42	19.05	19.69	20.64	21.28
Arm Length	13.34	15.88	18.42	20.32	22.23	23.50	26.04	29.21
Cervicale to Wrist Length	21.91	24.45	26.99	30.48	32.07	33.97	37.47	40.96
Shoulder and Arm Length	19.72	22.26	25.12	27.35	29.26	30.85	33.71	37.21
Hand Length	6.03	6.35	7.30	7.94	8.89	8.89	9.21	9.21
Hand Width	3.18	3.49	3.81	4.13	4.45	4.45	4.45	4.77
Foot Length	8.57	8.89	9.53	10.80	11.43	12.07	13.34	14.61
Foot Width	3.81	4.13	4.45	4.76	5.08	5.40	5.72	6.03

dissatisfaction related to apparel sizing. (Also refer to **ISO 3635 Size Designation Procedures**.)

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 Goniometer*, 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 measurements 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 *Height*—Measure the straight distance from the top of the head to the soles of the feet, taken while subject is lying down flat with legs extended and foot positioned at 1.57 rad (90°) to the leg.

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

6.2.3 *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.

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

6.2.5 *Hip Girth*—Measure the maximum horizontal circumference around the body at hip height.

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

TABLE 2 Infant Sizes Preemie to 24 Months Body Measurements, Inch-Pound Units

Size	Preemie	Newborn	3M	6M	9M	12M	18M	24M
Stature/Height, in.	up to 18	18½ to 22	22½ to 24	24½ to 27	27½ to 29	29½ to 30½	31 to 33	33½ to 35½
Stature for height calculations	18	22	24	27	29	30½	33	25
Body Weight, lb	up to 5½	6 to 9½	10 to 14½	15 to 18	18½ to 22	22½ to 25	25½ to 28	28½ to 30
Girth Measurements					in.			
Chest/Bust	14½	16	17	18	18½	19	19¾	20½
Waist	15	16½	17½	18½	19	19½	20¼	21
Hip/Seat	15	16½	17½	18½	19	19½	20¼	21
Head (circumference)	14¾	15¼	16⅝	17⅞	18⅞	18⅞	19⅞	19½
Neck Base	8	8⅞	8¼	8¾	9	9¼	9⅝	10
Armscye (circumference)	5⅝	5¾	6	6⅝	6⅞	7¼	7⅞	8½
Upper-Arm	4⅞	5	5⅝	5⅞	5½	5⅝	5⅞	6⅞
Elbow	5½	5⅝	5¾	6	6⅞	6¼	6½	6¾
Wrist	3¾	3⅞	4	4⅞	4¾	4¼	4⅞	4½
Thigh	8¾	9	9¼	9⅞	10⅞	10½	11⅞	11¾
Knee	4¼	4⅞	4½	6½	7	7⅞	8	8⅞
Calf	4¼	4⅞	4½	6½	7	7⅞	8	8⅞
Ankle	4¼	4⅞	4½	4¾	4⅞	5	5¼	5½
Total Vertical Trunk Length	23½	24¼	25	27	28	29	31	33
Total Crotch Length	10⅝	10¼	11⅞	12¼	12¾	13⅝	14½	15⅞
Vertical Measurements					in.			
Cervicale Height	12½	16⅝	18¼	21	22⅞	24¼	26½	28¼
Head and Neck Length	5½	5⅞	5¾	6	6⅞	6¼	6½	6¾
Center Back Waist Length	5⅝	5¾	6	6½	7¼	7½	8	8¼
Center Front Waist Length	5⅝	5½	5¾	6½	7	7⅞	8	8¼
Scye Depth	3⅞	3⅞	3½	3¾	3⅞	4	4¼	4½
Waist Height	7⅞	10⅝	12¼	14½	15⅝	16¾	18½	20
Hip Height	5⅞	8⅞	9¾	11¾	12⅝	13¾	15¼	16¾
Crotch Height (inseam)	5	8	9¼	10½	11½	12	13	14½
True Rise Height	2½	2⅝	3	4	4⅞	4¾	5½	5½
Knee Height	3½	5¼	5½	6¼	7	7½	8	9
Ankle Height	1¼	1¼	1⅝	1½	1⅞	1⅞	1¾	1⅞
Cervicle to Knee	9	11⅞	12¾	14¾	15⅞	16¾	18½	19¼
Waist to Knee	3⅞	5⅞	6¾	8¼	8⅞	9¼	10½	11
Waist to Hip	2	2¼	2½	2¾	3	3	3¼	3¼
Width and Length Measurements					in.			
Shoulder Length	2½	2½	2⅝	2¾	2¾	2⅞	3	3⅞
Across Back Shoulder	6	6¾	7¼	7¾	8	8¼	8¾	9⅞
Front Chest Width	5½	6¼	6¾	7¼	7½	7¾	8⅞	8⅞
Arm Length	5¼	6¼	7¼	8	8¾	9¼	10¼	11½
Cervicale to Wrist Length	7¾	8¾	9⅞	10¾	11½	12⅞	13¼	14⅞
Shoulder and Arm Length	7¾	9⅞	10⅞	12	12⅞	13⅞	14¾	16⅞
Hand Length	2⅞	2½	2⅞	2⅞	3⅞	3½	3⅞	3⅞
Hand Width	1¼	1⅞	1½	1⅞	1¾	1¾	1¾	1⅞
Foot Length	3⅞	3½	3¾	4¼	4½	4¾	5¼	5¾
Foot Width	1½	1⅞	1¾	1⅞	2	2⅞	2¼	2⅞

6.2.7 *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.

6.2.8 *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.

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

6.2.10 *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°).

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

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

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

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

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

6.2.16 *Trunk Length (Total Vertical)*—Measure the circumference taken from a point on the right shoulder midway between the neck base and 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.

6.2.17 *Crotch Length (Total Vertical)*—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.