



Designation: D4910/D4910M – 08 (Reapproved 2013)

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

This standard is issued under the fixed designation D4910/D4910M; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

These tables were developed from data published by various research organizations. This standard takes into consideration infants' growth patterns reflected in the 2002 charts for the National Center for Health Statistics,² the 1977 Anthropometric Study of U.S. Infants and Children conducted by the University of Michigan,³ AnthroKids, Anthropometric Data of Children⁴, 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 three-dimensional Avatar was created in the size range by Alvanon Inc.⁶ for a visual reference and is displayed in the documentation.1

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 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 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.*

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2. Referenced Documents

2.1 *ASTM Standards:*⁷

[D123 Terminology Relating to Textiles](#)

[D5219 Terminology Relating to Body Dimensions for Apparel Sizing](#)

2.2 *ISO Standard:*

[ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures](#)⁷

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions relating to body dimensions, refer to Terminology [D5219](#).

3.1.2 For definitions of other textile terms used in this standard, refer to Terminology [D123](#).

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

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.

⁶ Alvanon, Inc. 145 W 30th Street, Suite 1000, New York, NY 10001.

⁷ 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.

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

Size	Preemie	Newborn	3M	6M	9M	12M	18M	24M
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								
Head Girth	34.93	38.10	42.23	44.77	46.04	47.31	48.58	50.80
Neck Base Girth	18.42	20.32	21.27	22.54	23.18	23.81	24.77	25.72
Chest/Bust	34.93	39.37	43.18	45.72	46.99	48.26	50.17	52.07
Waist	35.56	40.64	44.45	46.99	48.26	49.53	51.44	53.34
Hip/Seat	35.56	40.64	44.45	46.99	48.26	49.53	51.44	53.34
Thigh	17.78	20.32	23.81	25.72	26.67	27.62	28.89	29.85
Knee	12.70	15.24	17.15	18.42	19.05	19.69	20.64	21.59
Calf	11.43	14.29	16.83	18.10	19.05	19.69	20.64	20.96
Ankle	9.53	11.11	11.43	12.38	12.70	13.02	13.65	13.97
Armhole Girth	12.70	13.97	15.88	17.46	19.05	19.69	20.96	21.59
Upper-Arm	10.16	12.07	13.02	13.65	13.97	14.29	14.92	15.56
Elbow	10.16	11.75	13.02	13.65	13.97	14.29	14.92	15.88
Wrist	8.57	9.21	9.53	9.84	10.48	10.80	11.11	11.43
Trunk Length (total vertical)	46.99	54.93	60.96	66.99	71.12	73.98	78.74	85.73
Vertical Measurements								
Height, cm	up to 44.45	46.99 to 52.07	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
Height for calculations	44.45	52.07	60.96	68.58	73.66	77.47	83.82	88.90
Head and Neck Length	13.02	13.34	14.61	15.24	15.56	16.19	16.51	17.15
Cervicale Height	31.43	38.74	46.36	53.34	57.79	61.25	67.31	71.76
Cervicale to Knee	22.86	28.26	32.70	37.15	40.01	42.23	46.04	50.17
Center Back Waist Length	12.38	13.97	15.56	17.15	18.42	19.37	20.96	22.54
Center Front Waist Length	11.11	13.02	14.61	15.88	16.83	17.46	18.73	20.32
Scye Depth	4.76	5.40	6.03	6.67	7.30	7.62	7.62	7.94
Waist to Hip	2.86	4.76	5.72	6.99	7.62	7.94	8.26	8.89
Waist to Knee	10.80	14.61	17.15	20.32	22.23	23.50	25.72	28.26
Waist Height	19.37	25.08	30.80	36.51	40.01	42.55	46.99	49.85
Hip Height	16.51	20.32	25.08	29.53	32.39	34.61	38.74	40.96
Crotch Height	13.03	17.15	21.59	25.72	28.58	30.48	33.97	35.56
Rise Height	6.35	8.26	9.21	10.80	11.43	12.07	13.02	13.97
Knee Height	8.57	10.48	13.65	16.19	17.78	19.05	21.27	21.59
Ankle Height	2.54	2.54	3.49	3.81	4.13	4.13	4.45	5.08
Width and Length Measurements								
Crotch Length (total)	19.37	25.50	26.04	28.89	30.80	31.75	33.66	37.47
Shoulder Length	3.49	4.45	4.76	5.72	6.03	6.35	5.99	7.30
Across Back Shoulder	14.92	16.83	18.10	19.69	20.64	21.59	22.54	23.50
Upper Front Chest Width	12.07	14.29	15.56	17.15	18.42	19.05	20.32	20.64
Cervicale to Wrist Length	22.86	27.31	30.16	33.34	35.56	37.15	39.69	44.45
Shoulder and Arm Length	19.37	23.50	26.35	29.21	31.75	33.02	35.56	40.01
Arm Length	15.88	19.05	21.59	23.81	25.72	26.67	28.58	32.70
Hand Length	4.76	5.40	6.03	6.99	7.94	8.57	9.53	9.84
Hand Width	4.45	4.45	5.08	5.72	6.35	6.99	7.30	7.94
Foot Length	7.30	8.26	8.89	10.16	11.11	11.43	12.38	13.34
Foot Width	3.49	4.13	4.45	4.76	5.08	5.08	5.40	5.72

5. Apparatus

5.1 *Tape Measure*, dimensionally stable and approximately 1.5-cm [$\frac{1}{2}$ -in.] wide and graduated accurately in cm [$\frac{1}{16}$ -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 **D5219** 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 *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.

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

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

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

Size	Premie	Newborn	3M	6M	9M	12M	18M	24M
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.			
Head Girth	13¾	15	16⅝	17⅝	18⅞	18⅝	19⅞	20
Neck Base Girth	7¼	8	8¾	8⅞	9⅞	9⅞	9¾	10⅞
Chest/Bust	13¾	15½	17	18	18½	19	19¾	20½
Waist	14	16	17½	18½	19	19½	20¼	21
Hip/Seat	14	16	17½	18½	19	19½	20¼	21
Thigh	7	8	9¾	10⅞	10½	10⅞	11⅞	11¾
Knee	5	6	6¾	7¼	7½	7¾	8⅞	8½
Calf	4½	5⅞	6⅞	7⅞	7½	7¾	8⅞	8¼
Ankle	3¾	4⅞	4½	4⅞	5	5⅞	5⅞	5½
Armhole Girth	5	5½	6¼	6⅞	7½	7¾	8¼	8½
Upper-Arm	4	4¾	5⅞	5⅞	5½	5⅞	5⅞	6⅞
Elbow	4	4⅞	5⅞	5⅞	5½	5⅞	5⅞	6¼
Wrist	3¾	3⅞	3¾	3⅞	4⅞	4¼	4⅞	4½
Trunk Length (total vertical)	18½	21⅞	24	26⅞	28	29⅞	31	33¾
Vertical Measurements					in.			
Height, in	up to 17½	18 ½ to 20½	22 ½ to 24	24 ½ to 27	27 ½ to 29	29 ½ to 30½	31 to 33	33 ½ to 35 ½
Height for Calculations	17½	20½	24	27	29	30½	33	35
Head and Neck Length	5⅞	5¼	5¾	6	6⅞	6⅞	6½	6¾
Cervicale Height	12¾	15¼	18¼	21	22¾	24⅞	26½	28¼
Cervicale to Knee	9	11⅞	12⅞	14⅞	15¾	16⅞	18⅞	19¾
Center Back Waist Length	4⅞	5½	6⅞	6¾	7¼	7⅞	8¼	8⅞
Center Front Waist Length	4⅞	5⅞	5¾	6¼	6⅞	6⅞	7⅞	8
Scye Depth	1⅞	2⅞	2¾	2⅞	2⅞	3	3	3⅞
Waist to Hip	1⅞	1⅞	2¼	2¾	3	3⅞	3¼	3½
Waist to Knee	4¼	5¾	6¾	8	8¾	9¼	10⅞	11⅞
Waist Height	7⅞	9⅞	12⅞	14⅞	15¾	16¾	18½	19⅞
Hip Height	6½	8	9⅞	11⅞	12¾	13⅞	15¼	16⅞
Crotch Height	5⅞	6¾	8½	10⅞	11¼	12	13⅞	14
Rise Height	2½	3¼	3⅞	4¼	4½	4¾	5⅞	5½
Knee Height	3¾	4⅞	5⅞	6⅞	7	7½	8⅞	8½
Ankle Height	1	1	1⅞	1½	1⅞	1⅞	1¾	2
Width and Length Measurements					in.			
Crotch Length (total)	7⅞	9¼	10¼	11⅞	12⅞	12½	13¼	14¾
Shoulder Length	1⅞	1¾	1⅞	2¼	2⅞	2½	2¾	2⅞
Across Back Shoulder	5⅞	6⅞	7⅞	7¾	8⅞	8½	8⅞	9¼
Upper Front Chest Width	4¾	5⅞	6⅞	6¾	7¼	7½	8	8⅞
Cervicale to Wrist Length	9	10¾	11⅞	13⅞	14	14⅞	15⅞	17½
Shoulder and Arm Length	7⅞	9¼	10⅞	11½	12½	13	14	15¾
Arm Length	6¼	7½	8½	9⅞	10⅞	10½	11¼	12⅞
Hand Length	1⅞	2⅞	2¾	2¾	3⅞	3⅞	3¾	3⅞
Hand Width	1¾	1¾	2	2¼	2½	2¾	2⅞	3⅞
Foot Length	2⅞	3¼	3½	4	4⅞	4½	4⅞	5¼
Foot Width	1⅞	1⅞	1¾	1⅞	2	2	2⅞	2¼

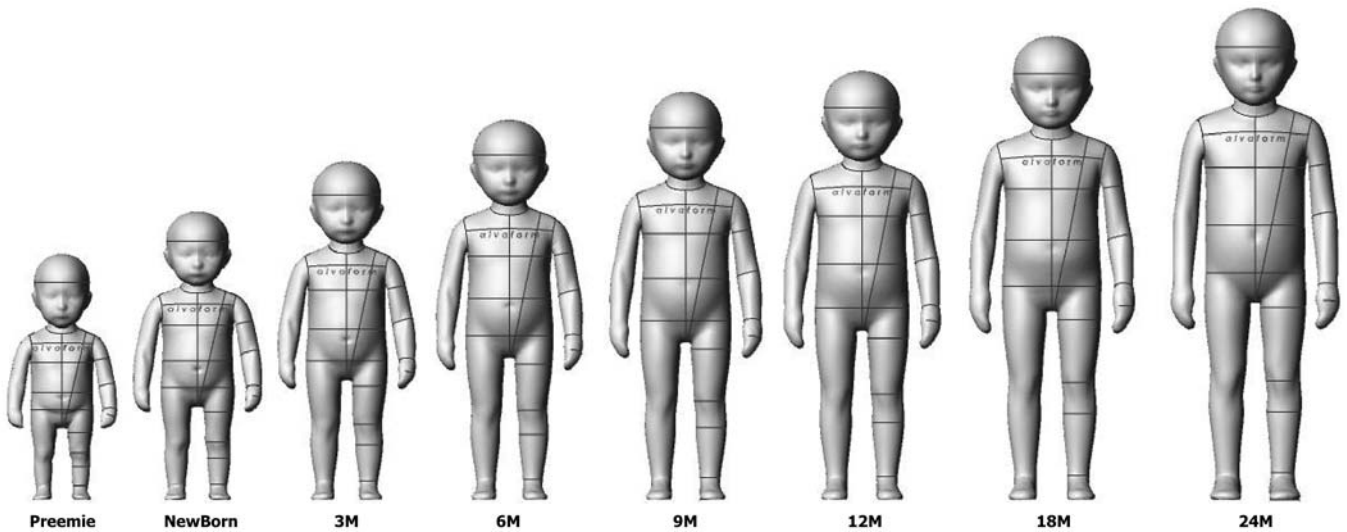


FIG. 1 Avatar 1 – Infant Front View