



~~Designation: D4910-07^{ε2}~~ **Designation: D 4910 – 08**

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

This standard is issued under the fixed designation D 4910; 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.

~~^{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 Agriculture~~

~~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 in the 1930s. This standard takes into consideration infants' growth patterns reflected in the 1980 charts for the National Center for Health Statistics, 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 limited sampling of infants was measured and fitted with garments made as directed in these tables. 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. 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.

~~Current edition approved Jan. 1, 2007. Published April 2007. Originally approved in 1989. Last previous edition approved in 2002 as D4910-02.~~

~~Current edition approved July 1, 2008. Published October 2008. Originally approved in 1989. Last previous edition approved in 2008 as D 4910 – 07^{ε2}.~~

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 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.

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

2. Referenced Documents

2.1 ASTM Standards:⁷

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 Procedures](#)⁷

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 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 (½-in.) wide and graduated accurately in cm (¼-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.

6.2.2 *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.

6.2.4

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

6.2.5

6.2.6 *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.

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

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

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

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

6.2.11 *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

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

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 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	
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									
Stature-for-height calculations	45.72	55.88	60.96	68.58	73.66	77.47	83.82	88.90	
Head Girth	34.93	38.10	42.23	44.77	46.04	47.31	48.58	50.80	
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	
Neck Base Girth	18.42	20.32	21.27	22.54	23.18	23.81	24.77	25.72	
Girth Measurements									
cm									
Chest/Bust	36.83	40.64	43.18	45.72	46.99	48.26	50.17	52.07	
Chest/Bust	34.93	39.37	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	
Waist	35.56	40.64	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	
Hip/Seat	35.56	40.64	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	
Thigh	17.78	20.32	23.81	25.72	26.67	27.62	28.89	29.85	
Neck-Base	20.32	20.64	20.96	22.23	22.86	23.50	24.45	25.40	
Knee	12.70	15.24	17.15	18.42	19.05	19.69	20.64	21.59	
Armscye (circumference)	14.29	14.61	15.24	16.83	17.46	18.42	20.00	21.59	
Calf	11.43	14.29	16.83	18.10	19.05	19.69	20.64	20.96	
Upper-Arm	12.38	12.70	13.02	13.65	13.97	14.29	14.92	15.56	
Ankle	9.53	11.11	11.43	12.38	12.70	13.02	13.65	13.97	
Elbow	13.97	14.29	14.61	15.24	15.56	15.88	16.5	17.15	
Armscye Girth	12.70	13.97	15.88	17.46	19.05	19.69	20.96	21.59	
Wrist	9.53	9.84	10.16	10.48	10.64	10.80	11.11	11.43	
Upper-Arm	10.16	12.07	13.02	13.65	13.97	14.29	14.92	15.56	
Thigh	22.23	22.86	23.50	25.09	25.72	26.67	28.26	29.85	
Elbow	10.16	11.75	13.02	13.65	13.97	14.29	14.92	15.88	
Knee	10.80	11.11	11.43	16.51	17.78	18.73	20.32	21.27	
Wrist	8.57	9.21	9.53	9.84	10.48	10.80	11.11	11.43	
Calf	10.80	11.11	11.43	16.51	17.78	18.73	20.32	21.27	
Trunk Length (total vertical)	46.99	54.93	60.96	66.99	71.12	73.98	78.74	85.73	
Ankle Measurements									
cm									
Vertical Measurements									
cm									
Height, cm	40.80	44.11	44.43	42.07	42.38	42.70	43.34	43.97	
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	
Total Vertical Trunk Length	59.69	61.60	63.50	68.58	71.12	73.66	78.74	83.82	
Height for calculations	44.45	52.07	60.96	68.58	71.12	73.66	77.47	83.82	
Total Crotch Length	26.35	27.31	28.26	31.12	32.39	33.97	36.83	39.69	
Head and Neck Length	13.02	13.34	14.61	15.24	15.56	16.19	16.51	17.15	
Vertical Measurements									
cm									
Cervicale Height	31.75	41.59	46.36	53.34	58.10	61.60	67.31	71.76	
Cervicale Height	31.43	38.74	46.36	53.34	57.79	61.25	67.31	71.76	
Head and Neck Length	13.97	14.29	14.61	15.24	15.56	15.88	16.51	17.15	
Cervicale to Knee	22.86	28.26	32.70	37.15	40.01	42.23	46.04	50.17	
Center-Back-Waist Length	13.65	14.61	15.24	16.51	18.42	19.05	20.32	20.96	
Center-Back-Waist Length	12.38	13.97	15.56	17.15	18.42	19.37	20.96	22.54	
Center-Front-Waist Length	13.65	13.97	14.61	16.51	17.78	18.74	20.32	20.96	
Center-Front-Waist Length	11.11	13.02	14.61	15.88	16.83	17.46	18.73	20.32	
Seye-Depth	8.59	8.59	8.89	9.53	9.84	10.16	10.80	11.43	
Scye-Depth	4.76	5.40	6.03	6.67	7.30	7.62	7.62	7.94	
Waist-Height	18.10	26.99	31.12	36.83	39.68	42.55	46.99	50.80	
Waist-to-Hip	2.86	4.76	5.72	6.99	7.62	7.94	8.26	8.89	
Hip-Height	13.02	21.27	24.77	29.85	32.07	34.93	38.74	42.55	
Waist-to-Knee	10.80	14.61	17.15	20.32	22.23	23.50	25.72	28.26	
Crotch-Height (inseam)	12.70	20.32	23.50	26.67	29.21	30.48	33.02	36.83	
Waist-Height	19.37	25.08	30.80	36.51	40.01	42.55	46.99	49.85	
True-Rise-Height	5.40	6.67	7.62	10.16	10.48	12.07	13.97	13.97	
Hip-Height	16.51	20.32	25.08	29.53	32.39	34.61	38.74	40.96	
Knee-Height	8.89	13.34	13.97	15.88	17.78	19.05	20.32	22.86	
Crotch-Height	13.03	17.15	21.59	25.72	28.58	30.48	33.97	35.56	
Ankle-Height	3.18	3.18	3.493	3.810	4.128	4.128	4.445	4.763	
Rise-Height	6.35	8.26	9.21	10.80	11.43	12.07	13.02	13.97	
Cervicale-to-Knee	22.86	28.26	32.29	37.47	40.32	42.55	46.99	48.90	
Knee-Height	8.57	10.48	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-Knee	9.21	13.65	16.19	17.78	19.05	21.27	21.67	27.59	
Waist-to-Hip	5.08	5.72	6.350	6.99	7.620	7.620	8.255	8.255	
Ankle-Height	2.54	2.54	3.49	3.81	4.13	4.13	4.45	5.08	
Width and Length Measurements									
cm									
Crotch Length (total)	19.37	25.50	26.04	28.89	30.80	31.75	33.66	37.47	
Width and Length Measurements									
cm									
Shoulder-Length	6.35	6.35	6.67	6.99	7.144	7.30	7.62	7.94	
Shoulder Length	3.49	4.45	4.76	5.72	6.03	6.35	5.99	7.30	
Across-Back-Shoulder	15.24	17.15	18.42	19.69	20.32	20.96	22.23	23.82	
Across-Back-Shoulder	14.92	16.83	18.10	19.69	20.64	21.59	22.54	23.50	
Front-Chest-Width	13.97	15.88	17.15	18.42	18.42	19.05	19.69	20.6421.28	
Upper-Front-Chest-Width	12.07	14.29	15.56	17.15	18.42	19.05	20.32	20.64	
Arm-Length	13.34	15.88	18.42	20.32	22.23	23.50	26.04	29.21	
Cervicale-to-Wrist Length	22.86	27.31	30.16	33.34	35.56	37.15	39.69	44.45	
Cervicale-to-Wrist Length	21.91	24.45	26.99	30.48	32.07	33.97	37.47	40.96	

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

Size	Premie	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													
Head Girth	13¾	15	16⅝	17⅞	18½	18⅝	19⅞	20					
Neck Base Girth	7¼	8	8⅝	8⅞	9⅞	9⅞	9¾	10⅞					
Chest/Bust	14½	16	17	18	18½	19	19¾	20½					
Chest/Bust	13¾	15½	17	18	18½	19	19¾	20½					
Waist	15	16½	17½	18½	19	19½	20¼	21					
Waist	14	16½	17½	18½	19	19½	20¼	21					
Hip/Seat	15	16½	17½	18½	19	19½	20¼	21					
Hip/Seat	14	16½	17½	18½	19	19½	20¼	21					
Head (circumference)	7	8	9⅝	10⅞	10½	10⅞	11⅞	11¾					
Thigh	7	8	9⅝	10⅞	10½	10⅞	11⅞	11¾					
Knee	15	6	6¾	7¼	7¼	7¾	8⅞	8½					
Knee	5	6	6¾	7¼	7½	7¾	8⅞	8½					
Gaff	4½	5⅝	6⅝	7⅞	7½	7¾	8⅞	8½					
Calf	4½	5⅝	6⅝	7⅞	7½	7¾	8⅞	8½					
Neck Base	8	8⅞	8¼										
Neck Base	7¾	8⅞	8¼										
Ankle	8¾	9	9¼	9⅝	105	5⅞	5⅞	5½					
Ankle	3¾	4⅞	4½	4½	4⅞	5⅞	5⅞	5½					
Armseye (circumference)	5⅞	5½	6¼	6⅝	6⅞	7½	7¾	8¼	8½				
Armseye Girth	5⅞	5½	6¼	6⅝	6⅞	7½	7¾	8¼	8½				
Upper-Arm	4⅞	5	5⅝	5⅞	5½	5⅞	5⅞	6⅞					
Upper-Arm	4⅞	4¾	5⅞	5⅞	5½	5⅞	5⅞	6⅞					
Elbow	5½	5⅞	5¾	6	6⅞	6¼	6½	5⅞	5⅞	6¼			
Elbow	4	4⅞	5¾	6	6⅞	5⅞	5½	5⅞	5⅞	6¼			
Wrist	3⅞	3⅞	3¾	3¾	4	4⅞	4⅞	4⅞	4⅞	4⅞			
Thigh	8½	9	9¼	9⅞	10⅞	10½	11⅞	11	¾				
Trunk Length (total vertical)	18½	21⅞	24	26⅞	28	10½	1129⅞	31	33¾				
Vertical Measurements													
Knee	4¼	4⅞	4 ½ ½	6 ½	7	7⅞	8	8⅞					
Height, in	up to 17½	4⅞	418 ½ to 20½	22 ½ to 24	7	7⅞	8	8⅞					
Gaff	4¼	4⅞	4 ½	6 ½	7	7⅞	8	8⅞					
Calf	4¼	4⅞	24 ½ to 27	27 ½ to 29	7	7⅞	8	8⅞					
Ankle	4¼	4⅞	4 ½ ½	4¾	4⅞	5	5¼	5 ½ ½					
Ankle	4¼	4⅞	429 ½ to 30½	31 to 33	4⅞	5	5¼	533 ½ to 35 ½					
Total-Vertical-Trunk-Length	23½	20½	24¼	25	27	28	29	31	33				
Height for Calculations	17½	20½	24¼	25	27	28	29	30½	33	35			
Total-Crotch-Length	10⅞	10¾	11⅞	12¼	12¾	136	6⅞	6⅞	14½	15⅞			
Head and Neck Length	10⅞	10¾	115⅞	5¼	5¾	6	6⅞	6⅞	6½	6¾			
Vertical Measurements													
Cervicale-Height	12⅞	16⅞	18¼	21	22¾	24⅞	26½	28¼					
Cervicale Height	12⅞	15¼	18¼	21	22¾	24⅞	26½	28¼					
Head-and-Neck-Length	5½	511⅞	12⅞	14⅞	5¾	6⅞	6⅞	6¼	6½	6¾			
Cervicale to Knee	9	11⅞	12⅞	14⅞	15¾	16⅞	18⅞	6¼	6½	619¾			
Center-Back-Waist-Length	5⅞	5½	6⅞	6¾	7¼	7⅞	8¼	8⅞					
Center Back Waist Length	4⅞	5½	6⅞	6¾	7¼	7⅞	8¼	8⅞					
Center-Front-Waist-Length	5⅞	5⅞	5¾	6¼	7	7⅞	8¼	88¼					
Center Front Waist Length	4⅞	5⅞	5¾	6¼	6⅞	6⅞	7⅞	8					
Scye-Depth	3⅞	32¼	2⅞	3½	3¾	3	3	3⅞					
Scye Depth	1⅞	2⅞	2⅞	2⅞	2⅞	3	3	3⅞					
Waist-to-Hip	1⅞	1⅞	4	42¾	3	3⅞	3¼	4½					
Waist to Hip	1⅞	1⅞	2¼	2¾	3	3⅞	3¼	3½					
Waist to Knee	4¼	5¼	6¾	8	8¾	9¼	10⅞	11⅞					
Waist Height	7⅞	10⅞	12⅞	14⅞	15¾	16¾	18½	20					
Waist Height	7⅞	9⅞	12⅞	14⅞	15¾	16¾	18½	19⅞					
Hip Height	5⅞	8⅞	9⅞	11⅞	12¾	13⅞	15¼	16⅞					
Hip Height	6½	8⅞	9⅞	11⅞	12¾	13⅞	15¼	16⅞					
Crotch Height (inseam)	5⅞	¾	8½	9¼	10⅞	11¼	12	13⅞		14			
Crotch Height	5⅞	6¾	8½	9¼	10⅞	11¼	12	13⅞		14			
True-Rise-Height	2½	2⅞	3⅞	4¼	4½	4¾	5⅞	5½					
Rise Height	2½	3¼	3⅞	4¼	4½	4¾	5⅞	5½					
Knee Height	3⅞	5¼	5⅞	6⅞	7	7½	8⅞	9					
Knee Height	3⅞	4⅞	5⅞	6⅞	7	7½	8⅞	8½					
Ankle Height	1¼	1¼	1⅞	1½	1⅞	1⅞	1¾	1⅞					
Ankle Height	1¼	1¼	1⅞	1½	1⅞	1⅞	1¾	2					
Width and Length Measurements													
Cerviceto-Knee	⅞	9¼	¾	11⅞	12⅞	14¾	15⅞	16¾	16¾	18½	19¼	14¾	
Crotch Length (total)	7⅞	9¼	10¼	11⅞	12⅞	14¾	15⅞	16¾	16¾	182½	13¼	14¾	
Waist-to-Knee	3⅞	5⅞	6¾	8¼	8⅞	9¼	10½	11					
Shoulder Length	3⅞	51⅞	1¾	1⅞	8⅞	9¼	10½	11					
Waist-to-Hip	2	2¼	2⅞	2¾	3	3	3¼	3¼					
Width and Length Measurements													
Shoulder Length	2½	2½	2⅞	2¾	2¾	2⅞	3	3⅞					
Across-Back-Shoulder	6	6⅞	7⅞	7¾	8¼	8⅞	8⅞	9¼					
Across Back Shoulder	5⅞	6⅞	7⅞	7¾	8¼	8⅞	8⅞	9¼					
Front-Chest-Width	¾	5⅞	6⅞	6¾	7¼	7½	7¾	8⅞	8⅞				
Upper Front Chest Width	4¾	5⅞	6⅞	6¾	7¼	7½	7¾	8⅞	8⅞				
Arm Length	5¼	6¼	7¼	8	8¾	9¼	10¼	11½					