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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.

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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 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																
Height, cm	40.80	44.45	46.99	52.07	57.15	60.96	62.23	68.58	69.85	73.66	74.93	77.47	78.74	83.82	85.09	90.17
Total Vertical Trunk Length	59.69	61.60	63.50	68.58	71.12	73.66	78.74	83.82	88.90							
Height for calculations	44.45	52.07	60.96	68.58	71.12	73.66	77.47	83.82	88.90							
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	20.64								
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								

