

U.S. Department of Commerce (DoC)
National Institute of Standards and Technology-NIST
(formerly National Bureau of Standards-NBS)
Office of Standards Services

Body Measurements for the Sizing of Apparel

The commercial standard (CS) and products standards (PS) on the body measurements for the sizing of apparel for the following: Infants, Babies, Toddlers and Children (CS151-50); Boys (PS36-70); Young Men (PS45-71); Girls (PS54-72); and Women (PS42-70) maintained by NBS under the Voluntary Product Standards (VPS) Program were **withdrawn**. This was in accordance with the procedures announced on January 20, 1983 by the U.S. Department of Commerce (DoC) to withdraw these standards after sponsorship was assumed by the private industry sector.

The American Society for Testing and Materials (ASTM) is developing standards on sizing of apparel. In October 1982, ASTM established Subcommittee D13.55 on Body Measurement and Apparel Sizes within Technical Committee D13 on Textiles to take over the work previously handled by the U.S. Department of Commerce, National Bureau of Standards (NBS).

For assistance on related or additional standards (see page 2) under the jurisdiction of ASTM Subcommittee D13.55 - Body Measurement for Apparel Sizing and/or copies, please contact:

American Society for Testing and Materials (renamed **ASTM International**)
100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, USA
Telephone: (610) 832-9500; Information Center (610) 832-9550
ASTM Fax: (610) 832-9555
Internet: <http://www.astm.org> (click on Standards, Technical Committees, etc.)

Technical Committee ASTM D13 on Textiles
Staff Manager: Maxie Topping (mtopping@astm.org)
Telephone: (610) 832-9737; Fax: (610) 832-9666

Technical information and questions, contact:

Ms. Sirvart Mellian
Chairperson, Subcommittee ASTM D13.55
U.S. Natick Clothing and Textile Research Facility
43 Boyd Street, Watertown, Massachusetts 02172, USA
Telephone: (508) 233-4133; Fax: (508) 233-4783

The following organization may provide additional information sources on the subject, contact:
American Apparel Manufacturers Association and the Footwear Industries of America (now the **American Apparel and Footwear Association-AAFA**), 1601 North Kent Street, Suite 1200, Arlington, Virginia 22209, USA Telephone: (800) 520-2262 (ext. 1034-Publications Dept.); (703) 524-1864 (ext.1034-Publications Dept.); Fax: (703) 522-6741.

The activity on body-size standards began in the late 1940's under the Department of Commerce with NBS serving as a coordinator and point of contact for copies of the documents. The VPS body-size standards were developed by committees made up of textile manufacturers, designers, and retailers, and based on measurements obtained from the Department of Agriculture. The Mail Order Association provided the support for the body-size standards.

Listed below are various standards under the jurisdiction of ASTM Subcommittee D13.55:

D4910-99, Standard Tables of Body Measurements for Infants, Sizes 0 to 24

D5219-99, Standard Terminology Relating to Body Dimensions for Apparel Sizing

D5585-95 (2001), Standard Table of Body Measurements for Adult Female Misses Figure Type, Sizes 2-20

D5586-95, Standard Tables of Body Measurements for Women Aged 55 and Older (All Figure Types)

D5826-00, Standard Tables of Body Measurements for Children, Sizes 2 to 6x7

D6192-98, Standard Tables of Body Measurements for Girls, Sizes 7 to 16

D6240-98, Standard Tables of Body Measurements for Men Sizes Thirty-Four to Sixty (34 to 60) Regular

D6458-99, Standard Tables of Body Measurements for Boys, Sizes 8 to 14 Slim and 8 to 20 Regular

Department of Defense– DOD:

HDBK-743A-1991, Anthropometry of U.S. Military Personnel (Metric)

MIL-STD-984A-1994, Size Labeling for Women's Uniform Clothing, Provisions for

International Market Research (IMR) Reports

IMR reports are original studies of growth export markets for selected U.S. industries. They are prepared on the spot, in the country of research, by market consultants under contract to the U.S. Department of Commerce or by the U.S. Foreign Commercial Service. The reports reflect the opinions and view of the surveyed country's end users, importers, agents, distributors and government officials. Fees for such reports are between \$50 and \$100, depending on length of the report.

Stephen B. Strauss,
Deputy Assistant Secretary for Trade Information and Analysis.

(FR Doc. 83-1565 Filed 1-19-83; 8:45 am)
BILLING CODE 3510-25-M

National Bureau of Standards**Status Report on Voluntary Product Standards**

AGENCY: National Bureau of Standards, Commerce.

ACTION: Development, maintenance, and withdrawal of certain voluntary standards.

SUPPLEMENTARY INFORMATION: On August 30, 1982, the Department of Commerce (Department) announced in the *Federal Register* (47 FR 38171) the status of 28 standards classified as voluntary standards. The announcement was made in accordance with the revised "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10).

The August 30, 1982, notice specified the retention of specific standards for fixed periods of time. The updated status of all existing voluntary standards is indicated below.

The following Voluntary Product Standards will continue to be maintained by the Department:

Standard and Proponent Organization

- PS 1-74 "Construction and Industrial Plywood", American Plywood Association
PS 20-70 "American Softwood Lumber Standard", American Lumber Standards Committee
PS 73-77 "Carbonated Soft Drink Bottles", Glass Packaging Institute

The Department has agreed to sponsor the development of a Voluntary Product Standard for the production of carbonated soft drinks in glass bottles, which was requested by the National Soft Drink Association. It has been determined that this standards project meets the six requirements for

Department sponsorship stated in § 10.0(b) of the mentioned Procedures.

The following standards will be retained by the Department until January 20, 1984, to permit the orderly transfer of sponsorship of such standards from the Department to the identified organizations.

- PS 56-73 "Structural Glued Laminated Timber", American Institute of Timber Construction
PS 67-76 "Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases", Jewelers Vigilance Committee
PS 68-76 "Marking of Articles Made of Silver in Combination with Gold", Jewelers Vigilance Committee
PS 69-76 "Marking of Articles Made Wholly or in Part of Platinum" Jewelers Vigilance Committee
PS 70-76 "Marking of Articles Made of Karat Gold", Jewelers Vigilance Committee
PS 71-76 "Marking of Jewelry and Novelties of Silver", Jewelers Vigilance Committee
PS 72-76 "Toy Safety", American Society for Testing and Materials

In accordance with § 10.13 of the mentioned Procedures, notice is hereby given of the withdrawal of the following standards. This action is taken in furtherance of the Department's announced intentions as set forth in the August 30, 1982, notice to withdraw these standards. The effective date for the withdrawal of the standards will be March 21, 1983. This withdrawal action terminates the authority to refer to these standards as voluntary standards developed under the Department of Commerce procedures. The organizations listed below have assumed responsibility for the standards.

- PS 36-70 "Body Measurements for the Sizing of Boys' Apparel", American Society for Testing and Materials
PS 42-70 "Body Measurements for the Sizing of Women's Patterns and Apparel", American Society for Testing and Materials
PS 45-71 "Body Measurements for the Sizing of Apparel for Young Men (Students)", American Society for Testing and Materials
PS 51-71 "Hardwood and Decorative Plywood", Hardwood Plywood Manufacturers Association
PS 54-72 "Body Measurements for the Sizing of Girls' Apparel", American Society for Testing and Materials
PS 63-75 "Latex Foam Mattresses for Hospitals", American Society for Testing and Materials
PS 66-75 "Safety Requirements for Home Playground Equipment", American Society for Testing and Materials
CS 151-50 "Body Measurements for the Sizing of Apparel for Infants, Babies, Toddlers and Children (for the Knit

Underwear Industry)", American Society for Testing and Materials

FOR FURTHER INFORMATION CONTACT:

Karl G. Newell, Jr., Office of Product Standards Policy, National Bureau of Standards, Washington, D.C. 20234, Telephone: (301) 921-2368.

Dated: January 6, 1983.

Ernest Ambler,

Director.

(FR Doc. 83-827 Filed 1-19-83; 8:45 am).

BILLING CODE 3510-13-M

Office of the Secretary**President's Private Sector Survey on Cost Control; Open Meeting**

AGENCY: Office of the Secretary, Commerce.

ACTION: Notice of Public meeting of the Executive Committee of the President's Private Sector Survey on Cost Control.

SUMMARY: The President's Private Sector Survey on Cost Control was established by the President pursuant to Executive Order 12369 of June 30, 1982, and extended by Executive Order 12398 of December 31, 1982. The Executive Committee of the Survey is chartered by the Department of Commerce as a public advisory committee in accord with the Federal Advisory Committee Act.

The purpose of the President's Private Sector Survey on Cost Control is to conduct a private sector survey on cost control in the Federal Government and to advise the President, the Secretary of Commerce, and other Executive agency heads with respect to improving management and reducing costs.

Time and Place

February 4, 1983 at 11:00 a.m. The meeting will take place at the U.S. Department of Commerce Auditorium, First Floor, Herbert C. Hoover Building, 14th Street and Constitution Avenue, N.W., Washington, D.C. 20230.

Agenda

(1) Receive a status report on activities of the President's Private Sector Survey.

(2) Establish a Subcommittee of the Executive Committee. The purposes of the Subcommittee are: (i) To review the recommendations submitted, including task force reports and public comments, and (ii) determine which recommendations should be made to the President and Departments and Agencies.

SUPPLEMENTARY INFORMATION: To accomplish the President's objective that the survey be funded, to the

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WITHDRAWN

UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION



**NBS
Voluntary
Product
Standard**

PS 45-71

**Body Measurements
for the Sizing of
Apparel for
Young Men (Students)**

**A Voluntary Standard
Developed by Producers,
Distributors, and Users
With the Cooperation of the
National Bureau of Standards**

**U.S.
DEPARTMENT
OF
COMMERCE
National
Bureau
of Standards**

UNITED STATES DEPARTMENT OF COMMERCE • Maurice H. Stans, *Secretary*

NATIONAL BUREAU OF STANDARDS • Lewis M. Branscomb, *Director*

Voluntary Product Standard

PS 45-71

Body Measurements for the Sizing of Apparel for Young Men (Students)

Technical Standards Coordinator: C. W. Devereux

Abstract

This Voluntary Product Standard covers size categories, size designations, and body measurements for the sizing of apparel for boys designated young men or students. The young men (students) category is intended to include those boys and young men who have achieved most of their adult height, but not adult girth. The Standard includes the following: applications of the body sizing system, methods of measuring the body, an explanation of the development of the Standard (appendix A) and sizing grades (appendix B). Also included is a method of identifying products that are sized using the measurements and designations in this Standard.

Key words: Apparel, young men's (students'); body measurements, young men's (students'); classification, young men's (students') size; grading charts, young men's (students') size; size designations, young men's (students').

Nat. Bur. Stand. (U.S. Prod. Stand. 45-71, 16 pages (January, 1972)
CODEN: XNPSAX

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Order by SD Catalog No. C13.20/2:45-71. Price 30 cents.

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VOLUNTARY PRODUCT STANDARDS

Voluntary Product Standards are standards developed under procedures established by the Department of Commerce (15 CFR Part 10, as amended, May 28, 1970). The standards may include (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements, and (3) methods of testing, grading, and marking. The objective of a *Voluntary Product Standard* is to establish requirements which are in accordance with the principal demands of the industry and, at the same time, are not contrary to the public interest.

Development of a VOLUNTARY PRODUCT STANDARD

The Office of Engineering Standards Services of the National Bureau of Standards has been assigned by the Department of Commerce the responsibility to work closely with scientific and trade associations and organizations, business firms, testing laboratories, and other appropriate groups to develop *Voluntary Product Standards*. The Bureau has the following role in the development process: It (1) provides editorial assistance in the preparation of the standard; (2) supplies such assistance and review as is required to assure the technical soundness of the standard; (3) acts as an unbiased coordinator in the development of the standard; (4) sees that the standard is representative of the views of producers, distributors, and users or consumers; (5) seeks satisfactory adjustment of valid points of disagreement; (6) determines the compliance with the criteria established in the Department's procedures cited above; and (7) publishes the standard.

Industry customarily (1) initiates and participates in the development of a standard; (2) provides technical counsel on a standard; and (3) promotes the use of, and support for, the standard. (A group interested in developing a *Voluntary Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234.)

A draft of a proposed standard is developed in consultation with interested trade groups. Subsequently, a Standard Review Committee is established to review the proposed standard. The committee, appropriately balanced, includes qualified representatives of producers, distributors, and users or consumers of the product being standardized. When the committee approves a proposal, copies are distributed for industry consideration and acceptance. When the acceptances show general industry agreement, and when there is no substantive objection deemed valid by the Bureau, the Bureau announces approval of the *Voluntary Product Standard* and proceeds with its publication.

Use of a VOLUNTARY PRODUCT STANDARD

The adoption and use of a *Voluntary Product Standard* is completely voluntary. *Voluntary Product Standards* have been used most effectively in conjunction with legal documents such as sales contracts, purchase orders, and building codes. When a standard is made part of such a document, compliance with the standard is enforceable by the purchaser or the seller along with other provisions of the document.

Voluntary Product Standards are useful and helpful to purchasers, manufacturers, and distributors. Purchasers may order products that comply with *Voluntary Product Standards* and determine for themselves that their requirements are met. Manufacturers and distributors may refer to the standards in sales catalogs, advertising, invoices, and labels on their product. Commercial inspection and testing programs may also be employed, together with grade labels and certificates assuring compliance, to promote even greater public confidence. Such assurance of compliance promotes better understanding between purchasers and sellers.

Body Measurements for the Sizing of Apparel for Young Men (Students)

Effective May 10, 1971 (See section 8.)

(This Standard, initiated by the Mail Order Association of America, has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the U.S. Department of Commerce. See Section 9, *History of Project*, for further information.)

1. PURPOSE

The purpose of this Voluntary Product Standard is to establish nationally recognized size categories, size designations, and body measurements for the sizing of apparel for young men. It is also intended to provide consumers with a means of associating young men's body types with standard size designations so that they may obtain the best fit, irrespective of type or style of garment, price or quality of merchandise, or producer.

2. SCOPE AND CLASSIFICATION

2.1. **Scope**—This Voluntary Product Standard covers size categories, size designations, and body measurements¹ for the sizing of apparel for boys designated young men or students. The young men (students) category is intended to include those boys and young men who have achieved most of their adult height, but not adult girth. The Standard includes the following: applications of the body sizing system, methods of measuring the body, an explanation of the development of the Standard (appendix A), and sizing grades (appendix B). Also included is a method of identifying products that are sized using the measurements and designations in this Standard.

2.2. **Classification**—The primary classification in this sizing Standard is young men (students). There are three subclassifications based on the range of stature of the boys covered:

“Shorts” (S) for boys 64½ to 67½ inches tall
 “Regulars” (R) for boys 68 to 71 inches tall
 “Longs” (L) for boys 71½ to 74½ inches tall

¹The measurements are based on the anthropometric data contained in *Body Measurements of American Boys and Girls for Garment and Pattern Construction*, U.S. Department of Agriculture (USDA) Miscellaneous Publication No. 366, 1941 (see appendix A). The body measurements for sizes 34 to 40 are based on the data of 16- and 17-year-olds contained in the Department of Agriculture's publication. The measurements for sizes 32, 33, 41, and 42 are extrapolated from that data.

It should be noted that the individual chest and waist girths remain constant within each of the three categories for the size designated. Only the stature and those measurements affected by stature change from category to category.

2.3. **Size designations and ranges**—The basic size designations in this Standard are identified by number. The numbers are based on the chest girths of the boys covered by the system (e.g., a size 34 has a 34-inch chest, and the corresponding body measurements shown in tables 1, 2, and 3).

2.4. **Grading**—A guide to grading has been included in appendix B. The difference between similar body measurements of consecutive sizes within a classification is called the grade.

3. TABLES OF SIZES AND CORRESPONDING BODY MEASUREMENTS

The size designations and corresponding body measurements for 28 dimensions are given in tables 1 to 3 for the three height categories as follows:

Table 1—“Regulars”
 Table 2—“Longs”
 Table 3—“Shorts”

4. APPLICATION

The measurements and size designations given herein are applicable to:

- Sizing or grading garment patterns.
- Preparing specifications for apparel and model forms.
- Coordinating body measurements of boys, as defined, with size designations for their apparel.
- Providing consumers with information concerning the sizing of garments.

TABLE 1. REGULARS—YOUNG MEN'S (STUDENTS') BODY MEASUREMENTS FOR SIZES 32-42

| SIZE (number) | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
|--|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|
| Stature—in inches | 68 | 68 | 68 | 68½ | 69 | 69½ | 70 | 70½ | 71 | 71 | 71 |
| Weight—in pounds | 113 | 118 | 123 | 130 | 137 | 144 | 152 | 160 | 170 | 180 | 190 |
| GIRTH MEASUREMENTS—inches | | | | | | | | | | | |
| Chest | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| Waist | 26½ | 27 | 27½ | 28 | 28½ | 29 | 30 | 31 | 32 | 33 | 34 |
| Hip | 34 | 34½ | 35 | 35½ | 36 | 36½ | 37½ | 38½ | 39½ | 40½ | 41½ |
| Vertical trunk | 59% | 59½ | 60% | 61¼ | 62½ | 63 | 63¾ | 64¾ | 65% | 66¼ | 66¾ |
| Neckbase | 15 | 15¼ | 15½ | 15¾ | 16 | 16¼ | 16½ | 16¾ | 17 | 17¼ | 17½ |
| Armscye | 15¼ | 15½ | 16 | 16% | 16¾ | 17¼ | 17½ | 17¾ | 18¼ | 18½ | 19 |
| Upper arm | 8¾ | 9¼ | 9½ | 10 | 10% | 10¾ | 11½ | 11½ | 11¾ | 12¼ | 12½ |
| Elbow | 10¼ | 10½ | 10¾ | 11 | 11¼ | 11½ | 11¾ | 12 | 12¼ | 12½ | 12¾ |
| Thigh | 18¾ | 19¼ | 19½ | 20 | 20% | 20¾ | 21¾ | 22 | 22½ | 23¼ | 23¾ |
| Calf, maximum | 12½ | 12¾ | 13 | 13¼ | 13½ | 13¾ | 14 | 14¾ | 14¾ | 15½ | 15½ |
| Knee, tibiale | 13 | 13¼ | 13½ | 13¾ | 14 | 14¼ | 14½ | 14¾ | 15 | 15¼ | 15½ |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | | |
| Shoulder length | 4½ ^a | 4% | 4% | 4¾ | 4¾ | 4¾ | 4¾ | 5 | 5 | 5½ | 5½ ^b |
| Shoulder slope (degrees) | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Cross-back width | 13¾ | 13% | 13¾ | 14¼ | 14¾ | 14¾ | 14¾ | 15¼ | 15¾ | 15% | 15¾ |
| Cross-chest width | 12¾ | 12¾ | 12¾ | 12¾ | 13¾ | 13¾ | 13¾ | 13¾ | 14¾ | 14¾ | 14¾ |
| Crotch length, total | 28¼ | 28½ | 28¾ | 29¼ | 29½ | 29¾ | 30¼ | 30¾ | 31 | 31¼ | 31½ |
| Cervicale to wrist length | 31½ | 31¾ | 31¾ | 32¼ | 32¾ | 33 | 33¾ | 33¾ | 34¼ | 34¼ | 34¼ |
| VERTICAL MEASUREMENTS—inches | | | | | | | | | | | |
| Head and neck length | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ | 9¾ |
| Cervicale height | 58½ | 58½ | 58½ | 58¾ | 59½ | 59¾ | 60½ | 60% | 61½ | 61½ | 61½ |
| Scye depth, along spine | 7¾ | 7½ | 7½ | 7¾ | 7¾ | 7¾ | 8 | 8¼ | 8¼ | 8¼ | 8¾ |
| Waist length, posterior | 15½ | 15½ | 15½ | 15% | 15¾ | 15¾ | 16 | 16½ | 16¼ | 16¼ | 16¼ |
| Waist length, anterior | 13½ | 13½ | 13½ | 13% | 13¾ | 13¾ | 14 | 14½ | 14¼ | 14¼ | 14¼ |
| Waist height | 43¼ | 43¼ | 43¼ | 43½ | 43¾ | 44 | 44¼ | 44¾ | 45 | 45 | 45 |
| Waist to hips, along side of body | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ |
| Crotch height | 31¾ | 31¾ | 31¾ | 31¾ | 32 | 32¼ | 32¼ | 32¼ | 32¼ | 32¼ | 32¼ |
| Knee height | 18¾ | 18¾ | 18¾ | 18¾ | 19 | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ | 19¼ |

^a 1 inch equals 2.54 centimeters, 1 pound equals 0.45 kilograms.

^b 1/16 inch pattern grade per size between sizes marked with this footnote.

TABLE 2. LONGS '—YOUNG MEN'S (STUDENTS') BODY MEASUREMENTS FOR SIZES 32-42

| SIZE (number) | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
|--|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|
| Stature—in inches ----- | 71½ | 71½ | 71½ | 72 | 72½ | 73 | 73½ | 74 | 74½ | 74½ | 74½ |
| Weight—in pounds ----- | 121 | 126 | 131 | 133 | 145 | 152 | 160 | 168 | 178 | 188 | 198 |
| GIRTH MEASUREMENTS—inches | | | | | | | | | | | |
| Chest ----- | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| Waist ----- | 26½ | 27 | 27½ | 28 | 28½ | 29 | 30 | 31 | 32 | 33 | 34 |
| Hip ----- | 34 | 34½ | 35 | 35½ | 36 | 36½ | 37½ | 38½ | 39½ | 40½ | 41½ |
| Vertical trunk ----- | 61¾ | 61¾ | 62¾ | 63¼ | 64½ | 65 | 65¾ | 66¾ | 67¾ | 68¼ | 68¾ |
| Neckbase ----- | 15 | 15¼ | 15½ | 15¾ | 16 | 16¼ | 16½ | 16¾ | 17 | 17¼ | 17½ |
| Armscye ----- | 15½ | 15¾ | 16¼ | 16½ | 17 | 17¾ | 17¾ | 18¾ | 18½ | 18¾ | 19¼ |
| Upper arm ----- | 8¾ | 9¼ | 9¾ | 10 | 10¾ | 10¾ | 11¾ | 11½ | 11¾ | 12¼ | 12¾ |
| Elbow ----- | 10¼ | 10½ | 10¾ | 11 | 11¼ | 11½ | 11¾ | 12 | 12¼ | 12½ | 12¾ |
| Thigh ----- | 18¾ | 19¼ | 19¾ | 20 | 20¾ | 20¾ | 21¾ | 22 | 22¾ | 23¼ | 23¾ |
| Calf, maximum ----- | 12½ | 12¾ | 13 | 13¼ | 13½ | 13¾ | 14 | 14¾ | 14¾ | 15¼ | 15½ |
| Knee, tibiale ----- | 13 | 13¼ | 13½ | 13¾ | 14 | 14¼ | 14½ | 14¾ | 15 | 15¼ | 15½ |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | | |
| Shoulder length ----- | 4½ ^b | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 5 | 5 | 5½ | 5½ ^b |
| Shoulder slope (degrees) ----- | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Cross-back width ----- | 13¾ | 13¾ | 13¾ | 14¼ | 14¾ | 14¾ | 14¾ | 15½ | 15¾ | 15¾ | 15¾ |
| Cross-chest width ----- | 12¾ | 12¾ | 12¾ | 12¾ | 13¾ | 13¾ | 13¾ | 13¾ | 14¾ | 14¾ | 14¾ |
| Crotch length, total ----- | 29½ | 29¾ | 29¾ | 30 | 30¾ | 30¾ | 31¾ | 31½ | 31¾ | 32¾ | 32¾ |
| Cervicale to wrist length ----- | 32¾ | 33 | 33¾ | 33½ | 33¾ | 34¼ | 34¾ | 35 | 35¾ | 35½ | 35¾ |
| VERTICAL MEASUREMENTS—inches | | | | | | | | | | | |
| Head and neck length --- | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ | 10¼ |
| Cervicale height ----- | 61¼ | 61¼ | 61¼ | 61¾ | 62¼ | 62¾ | 63¼ | 63¾ | 64¼ | 64¼ | 64¼ |
| Scye depth, along spine - | 7¾ | 7¾ | 7¾ | 8 | 8¼ | 8¼ | 8¾ | 8½ | 8¾ | 8¾ | 8¾ |
| Waist length, posterior -- | 16¼ | 16¼ | 16¼ | 16¾ | 16½ | 16¾ | 16¾ | 16¾ | 17 | 17 | 17 |
| Waist length, anterior --- | 14 | 14 | 14 | 14½ | 14¼ | 14¾ | 14½ | 14¾ | 14¾ | 14¾ | 14¾ |
| Waist height ----- | 45¾ | 45¾ | 45¾ | 46 | 46¼ | 46½ | 46¾ | 47¼ | 47½ | 47½ | 47½ |
| Waist to hips, along side of body ----- | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 8¾ | 9 | 9 | 9 |
| Crotch height ----- | 33¾ | 33¾ | 33¾ | 33¾ | 33¾ | 34 | 34¾ | 34¾ | 34¾ | 34¾ | 34¾ |
| Knee height ----- | 19¾ | 19¾ | 19¾ | 19¾ | 20 | 20¾ | 20¼ | 20½ | 20¼ | 20¾ | 20¾ |

^a 1 inch equals 2.54 centimeters, 1 pound equals 0.45 kilograms.

^b 1/16 inch pattern grade per size between sizes marked with this footnote.

TABLE 3. SHORTS '—YOUNG MEN'S (STUDENTS') BODY MEASUREMENTS FOR SIZES 32-42

| SIZE (number) | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
|--|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|
| Stature—in inches | 64½ | 64½ | 64½ | 65 | 65½ | 66 | 66½ | 67 | 67½ | 67½ | 67½ |
| Weight—in pounds | 106 | 111 | 116 | 123 | 130 | 137 | 144 | 152 | 162 | 172 | 182 |
| GIRTH MEASUREMENTS—inches | | | | | | | | | | | |
| Chest | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| Waist | 26½ | 27 | 27½ | 28 | 28½ | 29 | 30 | 31 | 32 | 33 | 34 |
| Hip | 34 | 34½ | 35 | 35½ | 36 | 36½ | 37½ | 38½ | 39½ | 40½ | 41½ |
| Vertical trunk | 57% | 57% | 58% | 59% | 60% | 61 | 61% | 62% | 63% | 64% | 64% |
| Neckbase | 15 | 15¼ | 15½ | 15¾ | 16 | 16¼ | 16½ | 16¾ | 17 | 17¼ | 17½ |
| Armseye | 15 | 15% | 15% | 16% | 16½ | 16¾ | 17¼ | 17% | 18 | 18% | 18% |
| Upper arm | 8% | 9¼ | 9% | 10 | 10% | 10¾ | 11% | 11½ | 11% | 12¼ | 12% |
| Elbow | 10¼ | 10½ | 10¾ | 11 | 11¼ | 11½ | 11¾ | 12 | 12¼ | 12½ | 12¾ |
| Thigh | 18% | 19¼ | 19% | 20 | 20% | 20¾ | 21% | 22 | 22% | 23¼ | 23% |
| Calf, maximum | 12½ | 12% | 13 | 13¼ | 13½ | 13¾ | 14 | 14% | 14% | 15¼ | 15½ |
| Knee, tibiale | 13 | 13¼ | 13½ | 13¾ | 14 | 14¼ | 14½ | 14¾ | 15 | 15¼ | 15½ |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | | |
| Shoulder length | 4½ ^b | 4% | 4% | 4% | 4% | 4% | 4% | 5 | 5 | 5½ | 5½ ^b |
| Shoulder slope (degrees) | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Cross-back width | 13% | 13% | 13% | 14% | 14% | 14% | 14% | 15% | 15% | 15% | 15% |
| Cross-chest width | 12% | 12% | 12% | 12% | 13% | 13% | 13% | 13% | 14% | 14% | 14% |
| Crotch length, total | 27½ | 27¾ | 28 | 28% | 28¾ | 29½ | 29½ | 29% | 30¼ | 30¼ | 30¾ |
| Cervicale to wrist length | 30¼ | 30½ | 30% | 31 | 31% | 31¾ | 32½ | 32½ | 32% | 33 | 33¼ |
| VERTICAL MEASUREMENTS—inches | | | | | | | | | | | |
| Head and neck length | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ | 9½ |
| Cervicale height | 55 | 55 | 55 | 55½ | 56 | 56½ | 57 | 57½ | 58 | 58 | 58 |
| Scye depth, along spine | 7 | 7½ | 7½ | 7¾ | 7% | 7½ | 7% | 7% | 7% | 7% | 8 |
| Waist length, posterior | 14% | 14¾ | 14% | 14% | 15 | 15½ | 15¼ | 15% | 15½ | 15½ | 15½ |
| Waist length, anterior | 13 | 13 | 13 | 13½ | 13¼ | 13% | 13½ | 13% | 13% | 13% | 13% |
| Waist height | 40% | 40¾ | 40% | 41 | 41¼ | 41½ | 41¾ | 42% | 42½ | 42½ | 42½ |
| Waist to hips, along side of body | 7% | 7% | 7% | 7½ | 7% | 7½ | 7% | 7½ | 8 | 8 | 8 |
| Crotch height | 29% | 29% | 29% | 30 | 30% | 30¼ | 30% | 30% | 30% | 30% | 30% |
| Knee height | 17% | 17¾ | 17% | 17% | 18 | 18% | 18% | 18% | 18½ | 18½ | 18½ |

* 1 inch equals 2.54 centimeters. 1 pound equals 0.45 kilograms.
^b 1/16 inch pattern grade per size between sizes marked with this footnote.

5. PRINCIPAL BODY LANDMARKS

Principal body landmarks are identified on figure 1 by capital letters A to E as follows:

A. **Crown**—Top of head.

B. **Cervicale**—The prominence on the seventh or lowest cervical vertebra at the back of the neck, which becomes more prominent when the head is bent forward. (Cervicale height measurements are taken only when the head is in an erect position.)

C. **Waist**—The lower edge of lower floating rib, located at the side of the body in a line directly below the center of the armpit.

D. **Crotch**—The level of the base of the left buttock.

E. **Knee**—The inner bony prominence at the upper end of the tibia, the larger of the two bones of the leg extending from knee to ankle.

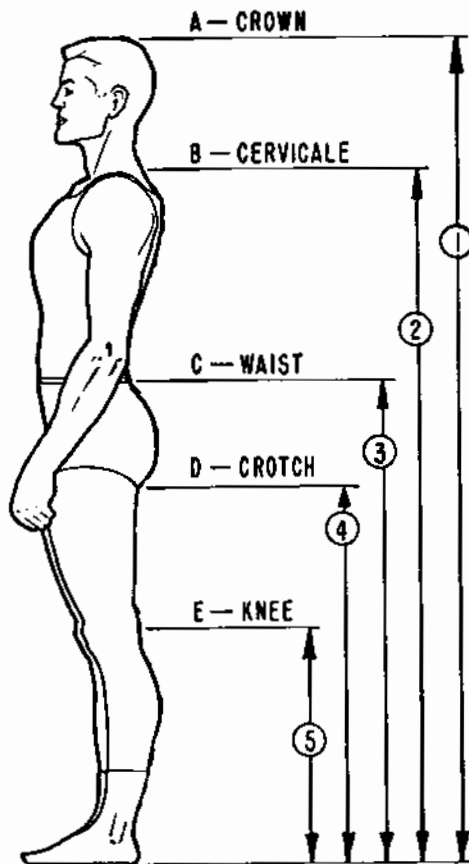


FIGURE 1. Key body landmarks and measurements.

6. METHODS OF MEASURING THE BODY ²

6.1. **General**—Body measurements are identified on figures 1 to 9 by circled numbers (1 to 26).

6.2. **Vertical measurements**

² More complete information regarding the methods of measuring the body may be obtained from Miscellaneous Publication No. 366 of the USDA.

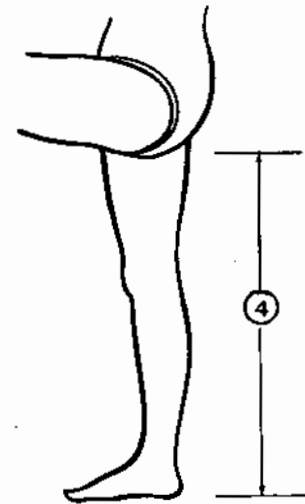


FIGURE 2. Crotch height.

6.2.1. **Stature**—Measure from crown to soles of feet (1, figure 1).

6.2.2. **Cervicale height**—Measure from cervicale to soles of feet (2, figure 1).

6.2.3. **Waist height**—Measure from waist to

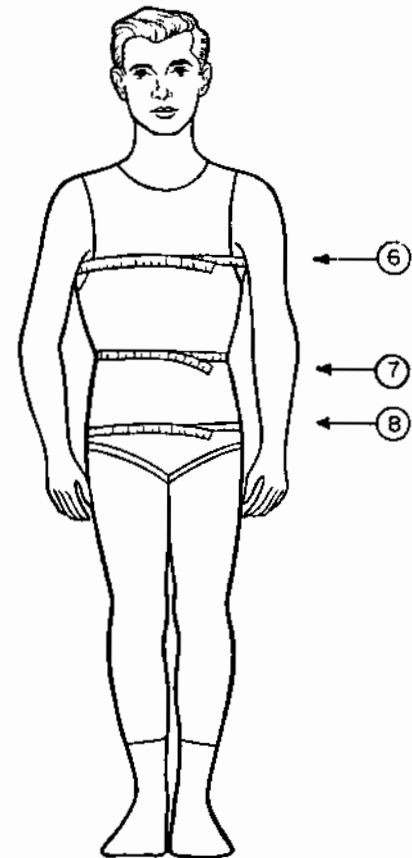


FIGURE 3. Chest, waist, and hip girths.

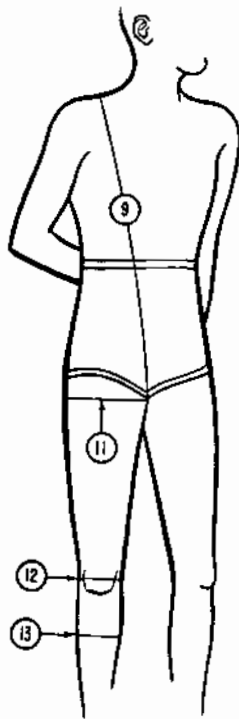


FIGURE 4. Vertical trunk, thigh, knee, and calf girths.

soles of feet (3, figure 1). This waist height establishes the waist level around the body.

6.2.4. **Crotch height**—Measure from the midpoint of the crotch to soles of feet (4, figure 2). The end of the tape measure (or anthropometer) should be raised until it firmly presses against the flesh of the left buttock when the upper left thigh is in a horizontal position.

6.2.5. **Knee height**—Measure from knee to soles of feet (5, figure 1).

6.3. **Girth measurements**—(See figures 3 and 4 for typical garments worn at the time of measuring.)

6.3.1. **Chest**—Measure horizontally close up under arms. The measurements should include the lower portion of the shoulder blades (6, figure 3).

6.3.2. **Waist**—Measure horizontally at waist height with belt removed (7, figure 3).

6.3.3. **Hip**—Measure at the side of the body, directly over great trochanter, a rough prominence at the upper part of the femur (8, figure 3).

6.3.4. **Vertical trunk**—Measure from a point on the shoulder midway between the neck and the normal armhole line, down through the crotch, and back to the shoulder point (9, figure 4). The measurement should be taken without constriction at the crotch.

6.3.5. **Total crotch length (girth of crotch)**—Measure from waist level at front through the crotch to the waist level at back (10, figure 9).

6.3.6. **Thigh**—Measure horizontally around the upper part of the leg, close up to the crotch (11, figure 4).

6.3.7. **Knee**—Measure horizontally around the leg at knee height (12, figure 4).

6.3.8. **Calf**—Measure horizontally around the leg at the level of maximum girth (13, figure 4).

6.3.9. **Neckbase**—Measure around the neck, touching the cervicale at the back and the upper borders of the collar bone at the front, and following the curve that would be made by a fine-link chain passing over these landmarks (14, figures 5 and 6).

6.3.10. **Armscye**—Measure from a point at the armhole edge of the shoulder, midway between the acromion (the outer extremity of the shoulder blade) and the highest prominence at the lateral end of the collar bone, and through the underarm midpoint (15, figures 5 and 6).

6.3.11. **Upper arm**—Measure horizontally without constriction, when the arms are relaxed, midway between the shoulder and the elbow (16, figure 5).

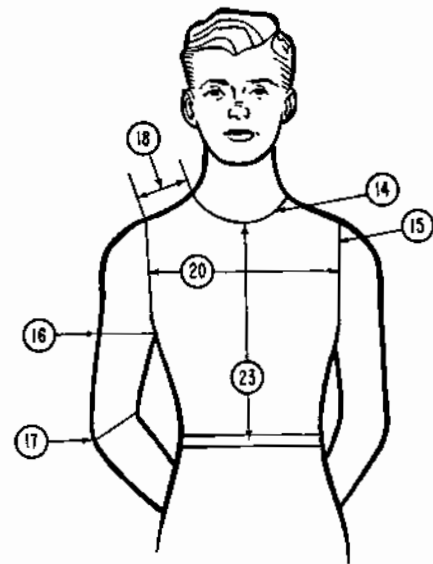


FIGURE 5. Neck, armscye, upper arm, and elbow girths. Shoulder and collar bone to waist lengths. Cross-chest width.

6.3.12. **Elbow**—With the arm flexed at approximately a 90° angle, measure around the arm over the elbow (17, figure 5).

6.4. **Width and length measurements**

6.4.1. **Shoulder length**—Measure along the line corresponding to the customary shoulder line of a garment from the neckbase line to the armscye line (18, figure 5).

6.4.2. **Cross-back width**—Measure across the back from armscye to armscye, halfway between

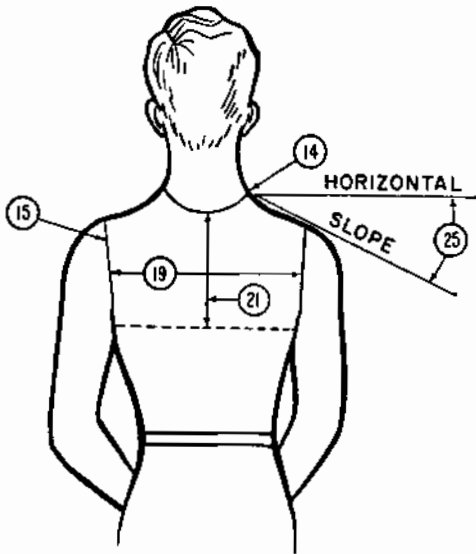


FIGURE 6. Neck and armseye girths. Shoulder slope. Cross-back width. Scye depth.

the cervicale and the bottom of the armseye (19, figure 6).

6.4.3. **Cross-chest width**—Measure across the chest from armseye to armseye, halfway between the high shoulder point and the bottom of the armseye (20, figure 5).

6.4.4. **Scye depth**—Measure from the cervicale to point where chest line crosses the "center back" line (21, figure 6).

6.4.5. **Cervicale to waist, including curve of spine (posterior waist length)**—Measure along the spine from cervicale to waist (22, figure 9).

6.4.6. **Collar bone to waist, along front of body (anterior waist length)**—Measure from

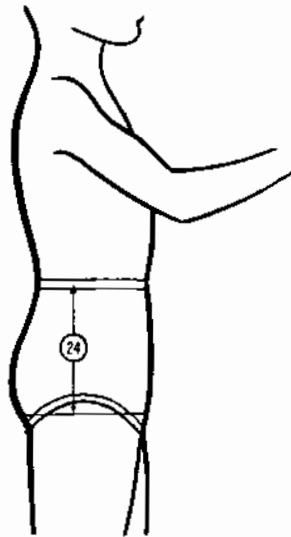


FIGURE 7. Waist to hips.

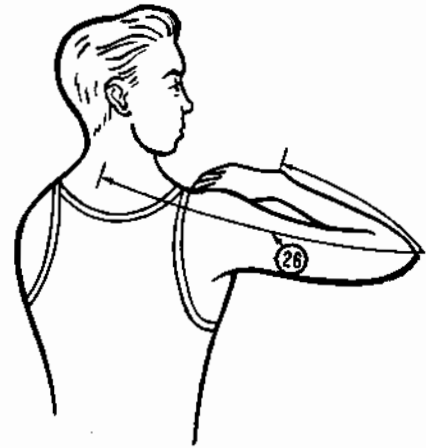


FIGURE 8. Cervicale to wrist length.

upper edge of collar bone to waist (23, figure 5).

6.4.7. **Waist to hips**—Measure along the contour of the body from the waist level to the hip level directly below (24, figure 7).

6.4.8. **Shoulder slope (degrees)**—Measure slope of the shoulder in degrees with respect to the horizontal (25, figure 6).

6.4.9. **Cervicale to wrist length**—Measure from the cervicale to the wristbone at the back of the hand (26, figure 8). The arm should be bent at the elbow and raised so that the measurement can be taken as straight as possible from cervicale to elbow.

7. IDENTIFICATION

In order that purchasers may identify products conforming to all requirements of this Voluntary Product Standard, producers and distributors may include a statement of compliance in

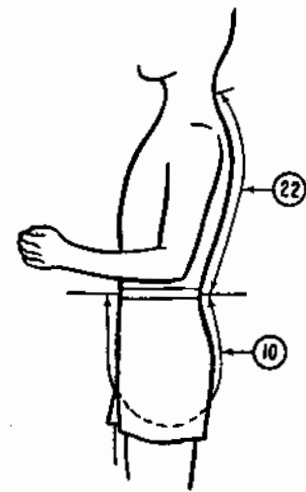


FIGURE 9. Cervicale to waist and total crotch length.

conjunction with their name and address on product labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available:

This apparel is sized in accordance with Voluntary Product Standard PS 45-71, developed cooperatively with the industry and published by the National Bureau of Standards under the *Procedures for the Development of Voluntary Product Standards* of the U.S. Department of Commerce. Full responsibility for the conformance of this product to the standard is assumed by (name and address of producer or distributor).

The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

Sized in accordance with Voluntary Product Standard PS 45-71, (name and address of producer or distributor).

8. EFFECTIVE DATE

The effective date of this Voluntary Product Standard is the date upon which reference to the Standard may be made by producers, distributors, users and consumers, and other interested parties. Compliance by producers with all of the requirements of this Voluntary Product Standard may not actually occur until some time after its effective date. Products shall not be represented as conforming to this Voluntary Product Standard until such time as all requirements established in the Standard are met. The effective date of this Standard is May 10, 1971.

9. HISTORY OF PROJECT

The initial proposed draft of this Standard was developed by a committee representative of seven garment industry associations in cooperation with the U.S. Department of Commerce and the U.S. Department of Agriculture. In 1968, the proposed standard was submitted by the Mail Order Association of America, to the National Bureau of Standards for processing under the *Procedures for the Development of Voluntary Product Standards*.

The proposed Standard was mailed to the Standard Review Committee in June 1968 and was revised in light of comments received from the committee. When the proposal was resubmitted to the committee, they recommended that it be circulated throughout the industry to determine its acceptability. In January 1971, the recommended Standard was mailed to producers, distributors, consumers or users, and to others with a general interest in related matters. An analysis of the responses indicated a consensus as defined in the published procedures.

Accordingly, the Standard, designated PS 45-71, *Body Measurements for the Sizing of Apparel for Young Men (Students)*, was approved for publication by the National Bureau of Standards and became effective on May 10, 1971.

10. STANDING COMMITTEE

The individuals whose names are listed below constitute the membership of the Standing Committee for this Standard. The function of the committee is to review all proposed revisions and amendments in order to keep this Standard up to date. Comments concerning this Standard and suggestions for its revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234, which acts as secretary for the committee.

Representing Producers

Floyd Baslow, (Chairman), Donmoor, Inc., 34 West 33d Street, New York, New York 10001
William Aldrich, Warnaco, Inc., P.O. Box 212, Ashaway, Rhode Island 02804
Robert Gur-Arie, Boys' and Young Men's Apparel Manufacturers Association, Inc., 10 West 33d Street, New York, New York 10001
Robert Kaplan, Clothing Manufacturers Association of the United States of America, 135 West 50th Street, New York, New York 10020
Nicholas Furno, Eagle Clothes, 225 Sixth Street, Brooklyn, New York 11215

Representing Distributors

Shirley Trosk, The Boys' and Young Men's Apparel Buyers Association, 350 Fifth Avenue, New York, New York 10001
Warren A. Clohisy, Mail Order Association of America, 612 North Michigan Avenue, Chicago, Illinois 60611
Aubrey Jay, J. C. Penny Company, 1301 Avenue of the Americas, New York, New York 10019
Philip Rogers, G. C. Murphy Company, 531 Fifth Avenue, McKeesport, Pennsylvania 15132
Don DeBolt, Menswear Retailers of America, 390 National Press Building, Washington, D.C. 20004

Representing Consumers

June Wilbur, College of Home Economics, Department of Textiles and Consumer Economics, University of Maryland, College Park, Maryland 20742
Jules Labarthe, Carnegie Mellon University, Schenley Park, Pittsburgh, Pennsylvania 15213

Richard S. Bell, Eaten Point, Gloucester, Massachusetts 01930
 Edmund Churchill, Antioch College, Yellow Springs, Ohio 45387
 Sarah Newman, National Consumers League, 1029 Vermont Avenue, N.W., Washington, D.C. 20036

Representing General Interest

Rowena Dowlen, U.S. Department of Agriculture, 2005 Lake Avenue, S.W., Knoxville, Tennessee 37916

11. ACCEPTORS

The producers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Voluntary Product Standard prior to its publication. The acceptors have indicated their intention to use this Standard as far as practicable but reserve the right to depart from it when necessary. The list is published to show the extent of recorded public support for this Standard.

ASSOCIATIONS

Boys' and Young Men's Apparel Manufacturers Association, New York, New York
 Consumer Conference of Cincinnati, Cincinnati, Ohio
 Designers and Patternmakers Guild of Philadelphia, Melrose Park, Pennsylvania
 Educational Foundation for the Fashion Industries, New York, New York
 Mail Order Association of America, Chicago, Illinois
 Maryland Consumers Association, Inc., Annapolis, Maryland
 National Retail Merchants Association, New York, New York

PRODUCERS

Aalpha Die Cutting and Manufacturing Corporation, Los Angeles, California
 ABC School Uniforms, Inc., Miami, Florida
 Aberdeen Sportswear, Inc., New York, New York
 Achilles KCI Corporation, New York, New York
 Adler Pants Company, New York, New York
 American Argo Corporation, Schuylkill Haven, Pennsylvania
 Anderson Brothers, Inc., Danville, Virginia
 Anvil Brand, Inc., High Point, North Carolina
 Ark Manufacturing Company, Inc., Los Angeles, California
 Arkay Pants Company, Fall River, Massachusetts
 Arrow Company, The, Troy, New York
 Barouch Brothers, Inc., New York, New York
 Barrow Manufacturing Company, Winder, Georgia
 Baw Manufacturing Company, Los Angeles, California
 Bayly Manufacturing Company, Denver, Colorado
 Bell Garment Company, Inc., Fall River, Massachusetts
 Bernstein & Son, New York, New York
 Blauer Manufacturing Company, Inc., Boston, Massachusetts
 Block Industries, Inc., Wilmington, North Carolina
 Blue Bell, Inc., Greensboro, North Carolina
 Blue Jeans, Jonbil Corporation, New York, New York
 Blue Star Knitting, Inc., Milwaukee, Wisconsin
 Brunswick Corporation, Tulsa, Oklahoma
 Burlington Sock, Asheboro, North Carolina
 Butwin Sportswear, St. Paul, Minnesota
 Calvin Clothing Corporation, New Bedford, Massachusetts
 Carolina Underwear Company, Inc., Thomasville, North Carolina
 Carter, William, Company, The, Needham Heights, Massachusetts
 Catalina, Los Angeles, California
 Chips 'n Twigs, Philadelphia, Pennsylvania
 Cinderella Knitting Mills, New York, New York
 Dickson/Jenkins Manufacturing Company, Fort Worth, Texas
 Elder Manufacturing Company, St. Louis, Missouri
 Fluesilver Manufacturing Company, San Antonio, Texas
 Fordham-Bardell Shirt Corporation, New York, New York
 Fox Knapp Manufacturing Company, New York, New York
 Hicks-Ponder Company, El Paso, Texas
 Jay Garment Company, The, Portland, Indiana

Jem Manufacturing Company, Rockville Centre, Long Island, New York
 Kaminsky, H. R., & Sons, Fitzgerald, Georgia
 Kanter & Alpert, Inc., Chicago, Illinois
 Kayser Roth Corporation, Woodbury, Tennessee
 Kazoo, Inc., Kalamazoo, Michigan
 Keisman Manufacturing Company, Marseilles, Illinois
 Kellwood Company, Maryland Heights, Missouri
 Koury Company, Inc., Sanford, North Carolina
 Kurtz, David, Company, Inc., New York, New York
 Lacy Manufacturing Company, Inc., Martinsville, Virginia
 Lee, H. D., Company, Inc., Shawnee Mission, Kansas
 Lynott, Dick, Inc., Duluth, Georgia
 Mann Manufacturing Company, Inc., El Paso, Texas
 Marks, Irving, Nite-Wear Corporation, New York, New York
 Maxon Shirt Company, Greenville, South Carolina
 Mighty-Mac, Inc., Gloucester, Massachusetts
 Morell Industries, New York, New York
 Munsingwear, Inc., Minneapolis, Minnesota
 Nuthans, B., and Company, Philadelphia, Pennsylvania
 Osborn Apparel Manufacturing Company, Salt Lake City, Utah
 Profile Sports Corporation, West Lebanon, New Hampshire
 Publix Shirt Corporation, New York, New York
 Puritan Company, Inc., Lansdale, Pennsylvania
 Rice Mills, Inc., Belton, South Carolina
 Rob Roy Shirt Company, Cambridge, Maryland
 Royal Manufacturing Company, Inc., New York, New York
 Rutter, J. H.-Rex Manufacturing Company, Inc., New Orleans, Louisiana
 Sale Knitting Company, Inc., Martinsville, Virginia
 Shepard Clothing Company, New Bedford, Massachusetts
 Simon & Mogilner, Birmingham, Alabama
 Sportguide Manufacturing Company, Inc., Worcester, Massachusetts
 Sturdi-Wear Clothes, Inc., Scranton, Pennsylvania
 Sullcraft Manufacturing Company, Inc., Dushore, Pennsylvania
 Sunset Sportswear, San Francisco, California
 Supreme Belt Company, Inc., New York, New York
 Sutton Shirt Corporation, Byrdstown, Tennessee
 Sweet-Orr & Company, Inc., New York, New York
 Thomson Company, Thomson, Georgia
 Trio Pants Company, New York, New York
 Troutman Industries, Inc., Troutman, North Carolina
 Tuf Nut Company, Inc., Little Rock, Arkansas
 Valentine, C. C., and Company, Inc., New York, New York
 Wahlercraft Manufacturing Corporation, New York, New York
 Woolrich Woolen Mills, Woolrich, Pennsylvania

DISTRIBUTORS

Aldens, Inc., Chicago, Illinois
 Anderson, S. W., Company, Inc., Owensboro, Kentucky
 Anderson-Newcomb Company, Huntington, West Virginia
 Ann & Hope, Cumberland, Rhode Island
 Benoit, A. H., and Company, Portland, Maine
 Berkowitz, M., Company, Inc., New York, New York
 Deans, E. S., and Company, Inc., New York, New York
 Donaldson's, Minneapolis, Minnesota
 Dorfman-Pacific Company, Inc., Oakland, California
 Eckles Department Store Company, Inc., Dodge City, Kansas
 Famous-Barr Company, St. Louis, Missouri
 Fautle's, Inc., Sioux Falls, South Dakota
 Fowler's Apparel Center, Cheyenne, Wyoming
 Fox Associates, Inc., New York, New York
 Griggs Department Store, Pasco, Washington
 Herpolsheimer Company, Grand Rapids, Michigan
 Herpst, Inc., Fargo, North Dakota
 Higginbotham-Bailey Company, Dallas, Texas
 Hinkel's Inc., Wichita, Kansas
 Hunter Sportswear Company, Fitchburg, Massachusetts
 Hutton, A. P., Company, Kellogg, Idaho
 Intercontinental Men's Apparel Corporation, New York, New York
 Johnson Stores Company, Inc., Larimore, North Dakota
 Killian Company, The, Cedar Rapids, Iowa
 Leggett Department Store, Lynchburg, Virginia
 Lynch Corporation, The, Manchester, New Hampshire
 Macy, R. H., Company, Inc., New York, New York
 Magee's, Inc., Lincoln, Nebraska
 Mens Fashion Guild, New York, New York
 Meyer, Fred, Inc., Portland, Oregon
 Myerson Stores, Inc., Tucson, Arizona
 Navy Resale System Office, Brooklyn, New York
 Nelman Marcus, Dallas, Texas
 Paul's Store, Inc., Hurley, Wisconsin
 Penney, J. C., Company, Inc., New York, New York
 Phillips Boyswear, Los Angeles, California
 Scarbroughs, Austin, Texas
 Sears, Roebuck and Company, Chicago, Illinois
 Siovin Company, Inc., The, Worcester, Massachusetts
 Taylor's, Inc., Beaver Falls, Pennsylvania
 Thomas, Field and Company, Charleston, West Virginia
 Tri-State Distributors, Inc., Moscow, Idaho
 United Knitwear, Cincinnati, Ohio
 Vornado, Inc., Hanover, New Jersey

Wolens, K., Inc., Consciana, Texas
Woodward & Lothrop, Washington, D.C.

USERS

Armstrong, Mary, Union, New Jersey
Birchard, Helen, Saratoga Springs, New York
Burton, John, Willamantic, Connecticut
Butterfield, Norma, Bloomfield Hills, Michigan
California Fashion Institute, Los Angeles, California
Chandler, Edward, Mrs., Martinsville, New Jersey
Consumer Testing Labs, Inc., Boston, Massachusetts
Dean, Mary Margaret, Silver Spring, Maryland
Hoffman, Adeline, Iowa City, Iowa
Hovermale, Ruth, Rock Hill, South Carolina
Johnson, Robert, Lafayette, Indiana
Krofta, Janet, Orono, Maine
LaBelle, Oliver, Waterbury, Connecticut
Pfaffin, Nancy, Coram, New York
Price, Ray, Minneapolis, Minnesota
Trieshmann, Helmuth, Hyde Plainfield, New Jersey

GENERAL INTEREST

Arizona, University of, School of Home Economics, Tucson, Arizona
Barry College, Miami Shores, Florida
Bowling Green State University, Bowling Green, Ohio
Connecticut, University of, Storrs, Connecticut
Fashion Institute of Technology, New York, New York
Good Housekeeping Institute, New York, New York
Goshen College, Goshen, Indiana
Hamilton Central School, Hamilton, New York
Hawaii, University of, Honolulu, Hawaii
Iowa, University of, Department of Home Economics, Iowa City, Iowa
Italian Trade Commission, Philadelphia, Pennsylvania
Kent State University, Kent, Ohio
Lapidese, Martin, New Hyde Park, New York
Macomb Credit Adjustors, Mt. Clemens, Michigan
Madison High School, Madison, Ohio
Michigan State University, East Lansing, Michigan
Murray State University, Murray, Kentucky
Newark Senior High, Newark, Ohio
New Jersey Home Economics Association, Flemington, New Jersey
Northeastern University, Lexington, Massachusetts
Ohio University, Athens, Ohio
Purdue University, Lafayette, Indiana
State University College, Oneonta, New York
Texas Christian University, Fort Worth, Texas
Wyoming, University of, Laramie, Wyoming

FEDERAL GOVERNMENT

Agriculture, U.S. Department of, Knoxville, Tennessee
Army Natick Laboratory, U.S., Natick, Massachusetts
Health, Education, and Welfare, U.S. Department of, Washington, D.C.

STATE AND LOCAL GOVERNMENTS

Cooperative Extension Service, Pell City, Alabama
Cooperative Extension Service, Gaithersburg, Maryland
Cooperative Extension Service, Las Vegas, Nevada
Cooperative Extension Service, Concord, New Hampshire
Cooperative Extension Service, Rochester, New Hampshire
Cooperative Extension Service, Wauseon, Ohio
Cornell University, Ithaca, New York
Department of Property and Supplies, Harrisburg, Pennsylvania
District of Columbia Government, Bureau of Procurement, Washington, D.C.
Idaho, University of, Boise, Idaho
Iowa State University Extension Service, Newton, Iowa
Kansas State University, Manhattan, Kansas
Oklahoma State University, Stillwater, Oklahoma

APPENDIX A. DEVELOPMENT OF THE STANDARD

The following paragraphs describe how the values presented in tables 1, 2, and 3 of this Standard were determined.

The basic measurement data for this Standard were those gathered by the U.S. Department of Agriculture during the late 1930's.¹ These same data provided the basis for Commercial Standard CS 155-50, *Body Measurements for the Sizing of Boys' Apparel*, and for the recent revision of that standard.

The data used to compile this Standard were critically evaluated because the measurements were taken 30 years ago. The evidence available from recent anthropometric (body size) studies strongly suggests that these data are valid and adequate for sizing purposes. It is probable that the percentages of boys of various sizes in the present population differ from those in the measured sample, and that boys reach the larger sizes today at earlier ages than their fathers did. Nevertheless, it is reasonable to assume that a present day boy and one from the survey sample (who is of the same height and chest girth) are also quite similar in those other respects which are important for the sizing of their clothing. After preliminary analyses of the data were carried out, an industry committee on sizing of young men's (students') clothing decided that the basic data would be those from the previously mentioned survey for boys 16 and 17 years of age; and that stature, chest girth, and waist girth were to be the basic control measurements.

Measurements were taken and recorded in centimeters and translated into inches in the final step. Table A1 shows young men's (students') measurements sorted into four principal groups, marked sizes 34, 36, 38, and 40. The groups were selected from the frequencies of occurrence of various combinations in the sample data and are based on industry desires and practices. The key chest and waist girth measurements are marked with crosses.

The data cards referenced above were then sorted into groups with chest girths in the centimeter ranges of 81 to 86, 87 to 92, 93 to 98, and 99 to 104. The 81 to 86 centimeter group was further subdivided into three groups on the basis of stature values of 160 to 168, 169 to 177, and 178 to 186. The next chest girth group, 87 to 92 centimeters, was subdivided on the basis of stature values in all cases 2 centimeters larger than the first set of stature groupings (viz, 162 to 170, 171 to 179, 180 to 188, etc.). Within each of these stature-chest girth groupings, a final selection was made of boys with waist girth values no more than 1 centimeter ($\frac{3}{8}$ in.) larger and no more than 3 centimeters ($1\frac{1}{8}$ in.) smaller than the agreed upon waist girth (i.e., the values excluding the proper clothing allowance given for waist girth in tables 1, 2, and 3).

The 12 resulting groups of cards were run through computer equipment and the average values were obtained for each of the 28 measurements listed in the tables. Minor adjustments were made to these average values to provide an even trend from size to size. These values with

¹O'Brien, Ruth; Girschick, M.A.; and Hunt, E.P.; *Body Measurements of American Boys and Girls for Garment and Pattern Construction*, U.S. Department of Agriculture, Miscellaneous Publication No. 366, 1941.

their clothing allowances became the values presented in the tables for the even sizes from 34 to 40. The boys whose body proportions lie within the sizing rectangles are expected to be fitted. The balance of the boys have body measurements that may require special consideration.

Values for the odd sizes, 35 to 39, were obtained by interpolating between the adjacent even sizes. Values for sizes 32 and 33 at the low end and sizes 41 and 42 at the high end were obtained as follows:

- (a) Stature values for sizes 32 and 33 were the same as those for size 34, those for 41 and 42 were the same as those for size 40. These statures were established by the industry committee.

- (b) Vertical measurements, which vary primarily with stature, were assumed to be the same as those for size 34 or 40, as was relevant.

- (c) Those girth measurements which were primarily related to chest girth rather than to stature were extrapolated down from size 34 or up from size 40; the grades being the same as that between sizes 34 to 35 and that between sizes 39 and 40.

- (d) For a few measurements, such as vertical trunk girth which varied with both stature and chest girth, equations were developed. These equations estimated the amount of change which was associated separately with changes in stature and with changes in chest girth.

Table A1. Young Men's (Students') Data -- Regulars in Height

| WAIST - centimeters | STATURE GROUPING 169-177 cm Size 34 | | | | | | STATURE GROUPING 171-179 cm Size 36 | | | | | | STATURE GROUPING 173-181 cm Size 38 | | | | | | STATURE GROUPING 175-183 cm Size 40 | | | | | |
|---------------------|---|----|----|-----|-----|-----|---|-----|-----|-----|-----|------|---|-----|-----|-----|-----|-----|---|-----|-----|-----|------|-----|
| | CHEST (cm) | | | | | | CHEST (cm) | | | | | | CHEST (cm) | | | | | | CHEST (cm) | | | | | |
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 |
| 98 | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | |
| 96 | | | | | | | | | | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| 92 | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | |
| 88 | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 86 | | | | | | | | | | | | | | | 1 | | | | 1 | | | | 2 | |
| 84 | | | | | | | | | | | | | | 1 | 1 | | | | 1 | | | | 3 | |
| 82 | | | | | | | | | | 2 | 1 | | | 1 | 2 | | | | 2 | | | | | |
| 80 | | | | | | | | | | | | | 1 | 1 | 3 | 1 | 7 | 5 | 7 | 1 | | | 2 | |
| 78 | | | | | 1 | | 1 | 2 | | 2 | 3 | 3 | 10 | 9 | 6 | 2 | 7 | 3 | 8 | 2 | +4 | 1 | 3 | |
| 76 | | | | | | | | 1 | 1 | 5 | 5 | 8 | 4 | 12 | 8 | 11 | 16 | 15 | 8 | 6 | 1 | 2 | 1 | |
| 74 | | | | | | | | 4 | 4 | 8 | 8 | 6 | 11 | 17 | 15 | 7 | 12 | 12 | 6 | 9 | | 3 | 3 | |
| 72 | | | | | | | 1 | 1 | 7 | 6 | 14 | 17 | 22 | 25 | 22 | 19 | 11 | 9 | 21 | 8 | 1 | 3 | 2 | |
| 70 | 1 | | | | | | 6 | 7 | 7 | 18 | 24 | 20 | 37 | 26 | 16 | 15 | 14 | 2 | 7 | 2 | 2 | 2 | 2 | |
| 68 | 7 | 6 | 10 | 19 | 26 | 28 | 7 | 19 | 25 | 28 | 33 | 22 | 32 | 21 | 17 | 13 | 10 | 7 | 4 | 2 | | | | |
| 66 | 1 | 11 | 13 | 22 | 39 | 35 | 17 | 26 | 30 | 29 | 32 | 37 | 23 | 25 | 14 | 16 | 9 | 3 | 4 | 1 | 1 | | | |
| 64 | 6 | 9 | 13 | 26 | 36 | 25 | 19 | 21 | 32 | 33 | 26 | 38 | 23 | 18 | 15 | 6 | 7 | 3 | 2 | 1 | 1 | | | |
| 62 | 11 | 11 | 17 | 16 | 20 | 17 | 12 | 17 | 7 | 6 | 10 | 3 | 2 | 2 | 1 | 2 | | | 1 | | | | | |
| 60 | 6 | 15 | 8 | 13 | 10 | 11 | 7 | 6 | 7 | 4 | 1 | | 3 | 2 | | | | | | | | | | |
| | 5 | 12 | 7 | 4 | 8 | 13 | 5 | 6 | 2 | 3 | 1 | | | | | | | | | | | | | |
| | 5 | 4 | 3 | 5 | 5 | 2 | 1 | 1 | 1 | | | | | | | | | | | | | | | |
| | 3 | 2 | 2 | 2 | 1 | 4 | 1 | 2 | | | | | | | | | | | | | | | | |
| | 1 | 4 | 3 | | 2 | 1 | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | |
| Total | 50 | 82 | 97 | 133 | 199 | 205 | 193 | 265 | 239 | 259 | 242 | 236 | 224 | 194 | 151 | 121 | 114 | 98 | 76 | 46 | 31 | 20 | 18 | |
| | | | | | | 766 | | | | | | 1434 | | | | | | 902 | | | | | 12 | |
| | | | | | | | | | | | | | | | | | | | | | | | 203 | |
| | | | | | | | | | | | | | | | | | | | | | | | 902 | |
| | | | | | | | | | | | | | | | | | | | | | | | 1434 | |
| | | | | | | | | | | | | | | | | | | | | | | | 766 | |
| | | | | | | | | | | | | | | | | | | | | | | | 3305 | |

APPENDIX B. SIZING GRADES

Young Men (Students) Shorts

| | Grade between 32S-33S | Grade between 33S-34S | Grade between 34S-35S | Grade between 35S-36S | Grade between 36S-37S | Grade between 37S-38S | Grade between 38S-39S | Grade between 39S-40S | Grade between 40S-41S | Grade between 41S-42S |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| GIRTH MEASUREMENTS (inches) | | | | | | | | | | |
| Chest ----- | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Waist ----- | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | 1 | 1 | 1 | 1 | 1 |
| Hip ----- | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | 1 | 1 | 1 | 1 | 1 |
| Vertical trunk ----- | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{7}{8}$ | $\frac{3}{8}$ |
| Neckbase ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| Armseye ----- | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ |
| Upper arm ----- | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ |
| Elbow ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| Thigh ----- | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ |
| Calf, maximum ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ |
| Knee, tibiale ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | |
| Shoulder length ----- | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ | 0 |
| Shoulder slope ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cross-back width ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| Cross-chest width ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| Crotch length ----- | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
| Cervicale to wrist ----- | $\frac{1}{4}$ | $\frac{1}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | $\frac{1}{8}$ | $\frac{1}{4}$ |
| VERTICAL MEASUREMENTS (inches) | | | | | | | | | | |
| Head and neck length -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cervicale height ----- | 0 | 0 | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | $\frac{1}{2}$ | 0 | 0 |
| Sceye depth, along spine | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | 0 | $\frac{1}{8}$ |
| Waist length, posterior | 0 | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | 0 | 0 |
| Waist length, anterior | 0 | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | 0 | 0 |
| Waist height ----- | 0 | 0 | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{3}{8}$ | 0 | 0 |
| Waist to hips, along side of body ----- | 0 | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | 0 | 0 |
| Crotch height ----- | 0 | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | 0 | 0 |
| Knee height ----- | 0 | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | 0 | 0 |

APPENDIX B. SIZING GRADES (Continued)

Young Men (Students) Regulars

| | Grade between 32R-33R | Grade between 33R-34R | Grade between 34R-35R | Grade between 35R-36R | Grade between 36R-37R | Grade between 37R-38R | Grade between 38R-39R | Grade between 39R-40R | Grade between 40R-41R | Grade between 41R-42R |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| GIRTH MEASUREMENTS (inches) | | | | | | | | | | |
| Chest ----- | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Waist ----- | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1 | 1 | 1 | 1 | 1 |
| Hip ----- | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1 | 1 | 1 | 1 | 1 |
| Vertical trunk ----- | 1/2 | 1/2 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 5/8 |
| Neckbase ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Armscye ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Upper arm ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Elbow ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Thigh ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Calf, maximum ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Knee, tibiale ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | |
| Shoulder length ----- | 1/8 | 0 | 1/8 | 0 | 1/8 | 0 | 1/8 | 0 | 1/8 | 0 |
| Shoulder slope ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cross-back width ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Cross-chest width ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Crotch length ----- | 1/4 | 1/4 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 1/4 |
| Cervicale to wrist ----- | 1/4 | 1/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 1/8 | 1/4 |
| VERTICAL MEASUREMENTS (inches) | | | | | | | | | | |
| Head and neck length -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cervicale height ----- | 0 | 0 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 0 | 0 |
| Seye depth, along spine -- | 1/8 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 1/8 |
| Waist length, posterior -- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Waist length, anterior -- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Waist height ----- | 0 | 0 | 1/4 | 1/4 | 1/4 | 1/4 | 3/8 | 3/8 | 0 | 0 |
| Waist to hips, along side of body ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Crotch height ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/4 | 1/4 | 0 | 0 |
| Knee height ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/4 | 1/4 | 0 | 0 |

APPENDIX B. SIZING GRADES (Continued)

Young Men (Students) Longs

| | Grade between 32L-33L | Grade between 33L-34L | Grade between 34L-35L | Grade between 35L-36L | Grade between 36L-37L | Grade between 37L-38L | Grade between 38L-39L | Grade between 39L-40L | Grade between 40L-41L | Grade between 41L-42L |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| GIRTH MEASUREMENTS (inches) | | | | | | | | | | |
| Chest ----- | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Waist ----- | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1 | 1 | 1 | 1 | 1 |
| Hip ----- | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1 | 1 | 1 | 1 | 1 |
| Vertical trunk ----- | 1/2 | 1/2 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 5/8 | 5/8 |
| Neckbase ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Armscye ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Upper arm ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Elbow ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Thigh ----- | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 5/8 | 5/8 | 5/8 | 5/8 | 5/8 |
| Calf, maximum ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Knee, tibiale ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| WIDTH and LENGTH (inches) and SLOPE (degrees) MEASUREMENTS | | | | | | | | | | |
| Shoulder length ----- | 1/8 | 0 | 3/8 | 0 | 1/8 | 0 | 1/8 | 0 | 1/8 | 0 |
| Shoulder slope ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cross-back width ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Cross-chest width ----- | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 |
| Crotch length ----- | 1/4 | 1/4 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Cervicale to wrist ----- | 1/4 | 1/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 1/8 | 1/4 |
| VERTICAL MEASUREMENTS (inches) | | | | | | | | | | |
| Head and neck length -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cervicale height ----- | 0 | 0 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 0 | 0 |
| Sceye depth, along spine | 1/8 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 1/8 |
| Waist length, posterior | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Waist length, anterior | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Waist height ----- | 0 | 0 | 1/4 | 1/4 | 1/4 | 1/4 | 3/8 | 3/8 | 0 | 0 |
| Waist to hips, along side of body ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 |
| Crotch height ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/4 | 1/4 | 0 | 0 |
| Knee height ----- | 0 | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 1/4 | 1/4 | 0 | 0 |

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance of a Voluntary Product Standard and its significance:

1. *Enforcement*—Voluntary Product Standards contain requirements which are established by mutual consent of those concerned in accordance with the *Procedures for the Development of Voluntary Product Standards* published by the Department of Commerce (15 CFR Part 10, as amended, May 28, 1970). The standards provide a common basis of understanding among producers, distributors, and users or consumers. The National Bureau of Standards has no regulatory power in the enforcement of the provisions of voluntary standards, but since these standards represent the will of the interested groups as a whole, their provisions soon become established as trade customs and become effective when the standards are referenced in sales contracts, procurement specifications, government regulations, and the like.

2. *The Responsibility of the Acceptor*—The purpose of Voluntary Product Standards is to establish, for specific items, nationally recognized sizes, grades, material requirements, or performance criteria. The benefits that result from these standards will be in direct proportion to general recognition and actual use of the standards. Instances will occur when it may be necessary to deviate from a standard. The signing of an acceptance does not preclude such departures. The acceptor's signature, however, indicates an intention to follow the standard, where practicable, in the production, distribution, or use and consumption of the product in question.

WITHDRAWN

ACCEPTANCE OF VOLUNTARY PRODUCT STANDARD

PS 45-71, BODY MEASUREMENTS FOR THE SIZING OF APPAREL FOR YOUNG MEN (STUDENTS)

This form properly completed, signed, and returned will show your acceptance of this *Voluntary Product Standard*.

Date _____

Office of Engineering Standards Services
National Bureau of Standards
U.S. Department of Commerce
Washington, D.C. 20234

Gentlemen:

We are primarily engaged in the following segment of the industry:

(Please check only one.)

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> Production | <input type="checkbox"/> Use/consumption |
| <input type="checkbox"/> Distribution | <input type="checkbox"/> General Interest |

We believe that this *Voluntary Product Standard* constitutes a useful standard of practice, and we plan to use it as far as practicable. *However*, we reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those products which actually conform to the standard in all respects may be represented as conforming thereto.

Signature of authorized officer _____

(Please type or print the following)

Name and title of above officer _____

Organization _____

(Fill in exactly as it should be listed.)

Street Address _____

City, State, and ZIP Code _____

(Note: Separate acceptances should be filed for each subsidiary company and affiliate which is to be listed as an acceptor.)

(Out on this line)