



The following commercial specification is adopted from the military document. Revision A includes all known accepted revisions, amendments, notices, and Department of Defense (DoD) engineering changes previously developed for this item. Revisions B and forward include changes adopted to reflect technology and design evolution.

TAPE, TEXTILE, NYLON, PARACHUTE CONSTRUCTION

The Parachute Industry Association makes this document available for use by Industry and Government organizations that wish to apply this specification to their products.

1. SCOPE

1.1 Scope. This specification covers three types of nylon tape.

1.2 Classification. The tapes shall be of the types indicated in TABLE I as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in Sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in Sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government publications.

2.2.1 Government publications. The following Government publication forms a part of this document.

FEDERAL TRADE COMMISSION (FTC)

16 CFR 303

- Rules and Regulations Under the Textile Fiber Products Identification Act

(Copies are available online at www.ftc.gov or from the Federal Trade Commission, 600 Pennsylvania Avenue, N.W. Washington, DC 20580-0001. Electronic copies may also be obtained from <http://www.access.gpo.gov/>.)

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Documents

Document Sharing Hub

2.3 Non-government publications. The following documents form a part of this document.

AMERICAN SOCIETY FOR QUALITY (ASQ)

- ANSI/ASQ Z1.4 - Sampling Procedures and Tables for Inspection by Attributes

(Copies are available online at: www.asq.org or American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203.)

ASTM INTERNATIONAL (ASTM)

- ASTM D 1423 - Standard Test Method for Twist in Yarns by Direct-Counting
- ASTM D 1776 - Standard Practice for Conditioning and Testing Textiles
- ASTM D 1777 - Standard Test Method for Thickness of Textile Materials
- ASTM D 1907 - Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
- ASTM D 2256 - Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method
- ASTM D 3774 - Standard Test Method for Width of Textile Fabric
- ASTM D 3775 - Standard Test Method for Warp (End) and Filling (Pick) Count of Woven Fabrics
- ASTM D 3776 - Standard Test Methods for Mass per Unit Area (Weight) of Fabric
- ASTM D 6775 - Standard Test Method for Breaking Strength and Elongation of Textile Webbing, Tape and Braided Materials

(Application for copies should be addressed to ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Electronic copies may be obtained from www.astm.org.)

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

- AATCC 8 - Colorfastness to Crocking: AATCC Crockmeter Method
- AATCC 20 - Fiber Analysis: Qualitative
- AATCC 81 - pH of Water-Extract from Wet Processed Textiles
- AATCC Evaluation Procedures:

- 8 AATCC 9-Step Chromatic Transference Scale.

(Applications for copies should be addressed to the AATCC National Headquarters, P.O. Box 12215, Research Triangle Park, NC 27709-2215. Electronic copies may be obtained from www.aatcc.org.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Standard. Where applicable, the dyed tape shall match the standard for shade and appearance and shall, unless otherwise indicated, be equal to or better than the standard with respect to all characteristics for which the standard is referenced (see 6.1).

3.2 First article. When specified in the contract, or purchase order, a sample shall be subjected to first article inspection (see 4.2).

3.3 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Materials.

3.4.1 Yarns. The nylon yarn used in the manufacture of the tape shall be a polyamide prepared from hexamethylene diamine and adipic acid or its derivatives. It shall have a minimum melt point of 244°C (471°F).

3.4.2 Warp yarn. The warp yarn used for all types shall be 210-denier, high tenacity, bright filament nylon prior to dyeing.

3.4.3 Filling yarn.

3.4.3.1 Type I - Shuttle loom construction. The yarn shall be spun nylon of 20/4 or 10/2 yarn number ± 5 percent (cotton system), spun polyester of 12/2 yarn number ± 5 percent (cotton system), or 1000 denier bulked nylon. The filling yarn breaking strength shall be a minimum of 4.75 pounds when tested as specified in 4.3.1.1.

3.4.3.2 Type I - Shuttleless loom construction. The yarn shall be spun nylon of 20/2 or 10/1 yarn number ± 5 percent (cotton system), spun polyester of 12/1 yarn number ± 5 percent (cotton system), or 500 denier bulked nylon. The filling yarn breaking strength shall be a minimum of 2.5 pounds when tested as specified in 4.3.1.1.

3.4.3.3 Type II. The yarn shall be spun nylon or polyester of 60/2 or 30/1 yarn number ± 5 percent (cotton system). The filling yarn breaking strength shall be a minimum of 0.90 pounds when tested as specified in 4.3.1.1.

3.4.3.4 Type III. The yarn shall be nylon filament 840/140 denier. The filling yarn breaking strength shall be a minimum of 4.75 pounds when tested as specified in 4.3.1.1.

3.4.4 Type I - Shuttleless loom construction. The catch-cord shall be 2 ply 70 denier or 150 denier spun dyed or color sealed black polyester yarn. The color and colorfastness of the catch-cord shall be as specified in 3.7.1.1. The filling yarn of the shuttleless woven tapes traverse the full width of the tape and shall be held at the edge by the catch-cord end interlaced with the filling yarn in accordance with the method shown in FIGURE 1.

3.4.5 Ply twist. The warp and final ply of the filling yarn for Type I tape shall have a minimum twist of 2-1/2 turns per inch, and the filling yarn for Type II tape shall have a minimum twist of 15 turns per inch in the 60/1 single yarn.

3.5 Weave.

3.5.1 Types I and III. Types I and III are woven in a tubular construction using a plain weave. The warp ends may weave 2 ends as 1, or 1 end as 1.

3.5.2 Type II. Type II is woven two-up, two-down herringbone twill, with one reversal of the weave in the middle of the tape. The tape shall have a woven selvage.

3.6 Construction and physical properties. The tape shall conform to the construction and physical properties of TABLE I when tested as specified in 4.4.4.

3.7 Color. Unless otherwise specified by the processing activity, the color of the tapes shall be natural except for the identification yarn for Type I. If color is specified, specific colorfastness and appropriate test methods shall be specified by the procuring activity (see 6.2).

3.7.1 Identification yarn for Type I. One black identification yarn shall be interwoven down the center of one side of the tape. A black yarn shall be used as the catch-cord for the Type I shuttleless construction as specified in 3.4.4.

3.7.1.1 Colorfastness of identification and catch-cord yarn for Type I. The identification yarn shall have colorfastness to crocking as follows:

Characteristic	Rating (minimum)
Crocking ^{1/} :	
Dry	3.0
Wet	3.0
Testing shall be specified in TABLE II	

Note:

^{1/} Rated using the AATCC Evaluation Procedure 8, AATCC9-Step Chromatic Transference Scale.

3.8 Physical Requirements. The tape shall conform to the physical requirements specified in TABLE I when tested as specified in 4.4.4

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