

**AEROSPACE
MATERIAL
SPECIFICATION**

Submitted for recognition as an American National Standard

SAE AMS 3784

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TAPE, NYLON, LOOP

1. SCOPE:

1.1 Form: This specification covers one type of nylon loop tape.

1.2 Application: Primarily for use as lacing tape in flight clothing.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

2.2 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.2.1 Federal Standards:

FED-STD-191 - Textile Test Methods

2.2.2 Military Specifications:

MIL-W-43334 - Webbing and Tape, Textile, Packaging and Packing of

2.2.3 Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage

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3. TECHNICAL REQUIREMENTS:

3.1 Material:

3.1.1 Yarn: Nylon yarn used in this tape shall be made from 210 denier, bright, 34 filament, high tenacity, polyamide prepared from hexamethylene diamine and adipic acid or its derivatives. It shall have a melting point of $250^{\circ}\text{C} + 6$ ($482^{\circ}\text{F} + 10$), determined in accordance with FED-STD-191, Method 1534.

3.1.2 Loop Cord: Shall be constructed in such a manner and with such yarn tension that the core yarns are held firmly in place to prevent puckering of the core yarns when released from stress. This cord shall conform to the requirements of the core or coreless construction of Table I, when tested as specified in 4.5.

TABLE I

CORE REQUIREMENTS

Property	Core Construction			Coreless Construction
	Sleeve	Core	Cord	
Yarn size, denier	210	210		210
Yarn Ply, min	3	2 or 3		6
Yarn Twist, turns per in. (25.4 mm)	8S 6Z	8S 6Z		2.5S 2.5Z
Number of Carriers	20			16
Ends per Carrier	1			1
Number of Ends	20	6 or 9		16
Picks per in. (25.4 mm)	26 - 28			15
Weave	Plain, (1 up 1 down)			Basket
Thickness of Cord		0.065 - 0.085 in. (1.65 - 2.15 mm)		
Breaking Strength, lb (N), min			150 (665)	150 (665)
Yd per lb (m/kg), min			180 (360)	180 (360)

3.2 Properties: Tape shall conform to Table II and the following, determined in accordance with 4.5.

3.2.1 Weave: Shall be in accordance with the weave diagram, Fig. 1.

3.2.2 Length: Shall contain not less than 41 in. (1025 mm) of cord for each yard (metre) of tape in order to produce the desired loop opening.

3.2.3 Color: Shall match Air Force Sage Green Shade No. 520.

- 3.2.3.1 Colorfastness: Tape shall have a colorfastness rating of "good" after exposure to Tight, laundering, crocking, and perspiration, determined in accordance with FED-STD-191, Methods 5660 (exposure time 20 hr), 5614, 5650, and 5682, respectively.

TABLE II

PROPERTIES AND REQUIREMENTS

Property	Requirement
Yarn Ply	
Warp	Singles
Filling	3
Thread Count, min	
Face Warp, full width	38
Back Warp, full width	37
Cord Warp, full width	1
Total Warp, full width	76
Filling	60 picks per in. (25.4 mm)
Thickness (exclusive of cord)	0.030 to 0.040 in. (0.75 to 1.00 mm)
Weight, max	67 yd per lb (135 m/kg)
Width	
Tape and Cord Woven Together	5/16 in. $\pm$ 1/32 (7.94 mm $\pm$ 0.80)
Tape and Cord Loop	7/16 in. $\pm$ 1/32 (11.11 mm $\pm$ 0.80)
Breaking Strength, min	175 lb (780 N)

- 3.2.3.2 Color Matching: Tape shall match the approved standard shade under natural (north sky) daylight, or artificial daylight having a color temperature of 7500° K and shall be a close approximation of the standard shade under incandescent lamp light at 2800° K.

3.3 Finish:

- 3.3.1 Nonfibrous Material: Tape shall have not more than 4.25% nonfibrous material, determined in accordance with FED-STD-191, Method 2611, omitting determination of water-soluble material, weight of desized specimens, residue ash, and total inorganic material.
- 3.3.2 Acidity: Tape shall have a pH of 5.0 to 9.0, determined in accordance with FED-STD-191, Method 2811.
- 3.4 Quality: Tape, as received by purchaser, shall be clean, evenly woven, and free from foreign materials and from imperfections detrimental to usage of the tape.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of tape shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the tape conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot:

Requirement	Paragraph
Weight	Table II
Breaking Strength	Table II
Quality	3.4

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of tape to a purchaser, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data, and, when requested, preproduction tape shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient tape shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all tape of the same size produced in a single production run under the same fixed conditions and presented for vendor's inspection at one time. An inspection lot shall not exceed 1,000 lb (450 kg). A lot may be packaged and delivered in smaller quantities under the basic lot approval provided lot identification is maintained.

4.3.1.2 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.6.1 shall state that such plan was used.