



INCH-POUND

A-A-55242A

June 10, 1996

SUPERSEDING

A-A-55242

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COMMERCIAL ITEM DESCRIPTION

WEBBING, TEXTILE; POLYESTER LOW ELONGATION

The General Services Administration has authorized the use of this commercial item description in preference to MIL-W-25361.

1. SCOPE. This commercial item description covers low elongation textile webbing composed of a continuous filament polyester warp and bulked nylon filling or a continuous filament polyester filling. This webbing is intended for use in aircraft safety belts and restraining harnesses. The type VI webbing is intended for use as slings for heavy rockets and rocket warheads.

2. CLASSIFICATION. The webbing shall be provided in the following types and classes:

Type:

- I - 3,600-pound breaking strength
- II - 6,000-pound breaking strength
- III - 7,000-pound breaking strength
- IV - 8,700-pound breaking strength
- V - 10,000-pound breaking strength
- VI - 15,000-pound breaking strength

Class:

- 1 - Untreated
- 2 - Latex treated

3. SALIENT CHARACTERISTICS. The warp yarn for all types and filling yarn for types V and VI shall be either 1000, 1100 or 2600 denier (nominal) semi-dull or bright, high tenacity polyester fiber identified as polyethylene glycol terephthalate with a minimum melting point of 472°F (see Table I). The filling yarn for types I, II, III and IV shuttle webbing shall be bright, continuous filament bulked nylon and shuttleless webbing shall be high tenacity polyester.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Defense Personnel Support Center, Clothing and Textiles Directorate, Attn: DPSC-FNS, 2800 South 20th Street, Philadelphia, PA 19145-5099.

AMSC N/A

FSC 8305

DISTRIBUTION STATEMENT A ____.

Approved for public release;
distribution is unlimited.

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3.1 Widths. The webbing shall be of the widths specified in Table I.

3.2 Weave

3.2.1 Type I. The weave shall be a two up, two down twill with one reversal at the center of the webbing.

3.2.2 Types II, III, IV and V (shuttle webbing). The weave shall be as shown in Figure 1 with one reversal at the center of the webbing. The weave shall be plain weave for the shuttleless webbing and shall have a catchcord using 500 denier polyester yarn.

3.2.3 Type VI. The webbing shall be woven in a three-ply (face, middle and back) plain weave with binders weaving three up and three down. The binders pull one face, one middle, and one back pick together. Warp ends weave two ends as one, binder and selvage ends weave single. The selvages shall have eight ends on one edge and nine ends on the other. A cross section of the weave is shown in Figure 2.

3.3 Finish

3.3.1 Class 1, untreated When class 1 is specified, the webbing shall be untreated.

3.3.2 Class 2, latex treatment When class 2 is specified, the webbing shall be impregnated with a natural rubber latex containing the necessary curatives and antioxidants. The webbing shall be saturated by total immersion in the latex bath for a period of time sufficient to allow penetration to the core of the webbing and the excess then removed to permit conformance to the finished weight requirement. The webbing shall be dried and vulcanized.

3.4 Physical requirements The finished webbing shall conform to the requirements in Table I when tested as specified under end item performance testing and Table IV.

TABLE I. Construction and physical requirements

Characteristic	I	II	III	IV	V (Shuttle loom)	V (Shuttleless loom)	VI
Filling yarn No: Denier	1800 + 10%	1800 + 10%	1800 + 10%	1800 + 10%	1000 or 1100	2600	1000 or 1100
Filling yarn shuttleless single ply denier	100 + 10%	2600 + 10%	2600 + 10%	2600 + 10%	-	2600 + 10%	
Ply: Warp (face and back)	2	2	2	2	2	1	3
Binder	-	-	-	-	-	-	2
Filling	-	-	-	-	-	1	2
Ply twist, turns per inch 1/ Warp (face and back)	1.5 - 3.5	1.5 - 3.5	1.5 - 3.5	1.5 - 3.5	2.5 - 3.0	-	2.5 - 3.0
Binder	-	-	-	-	-	-	2.5 - 3.0
Filling	-	-	-	-	2.5 - 3.0	1.5	2.5 - 3.0
Warp ends (Min.) When 1000 denier yarns are used: Face and back	168	238	282	380	398	298	494 $\frac{2}{1}$
Binder	-	-	-	-	38 (1300 denier)	-	41
When 1100 denier yarns are used: Face and Back	154	216	256	346	362	-	449 $\frac{2}{1}$
Binder	-	-	-	-	-	-	37
When 2600 denier yarns are used face and back I, II, III, IV (shuttleless) 86, 172, 200, 235.							
Picks per inch (Min.)	19	23	23	32	22	-	17
2 yarns per shed	17	16	16	18	-	16	-
Width, inches	1-23/32 ($\pm 1/16$)	1-23/32 ($\pm 1/16$)	1-23/32 ($\pm 1/16$)	3 ($\pm 1/8$)	1-3/4 ($\pm 1/16$)	1-3/4 ($\pm 1/16$)	1-3/4 ($\pm 1/16$)
Weight, (oz/sq. yd.)(Max.)	1.80	2.30	2.64	4.25	3.90	4.35	7.50
Thickness, (inches)	.040 - .065	.060 - .085	.070 - .095	.065 - .090	.110 - .135	.110 - .135 $\frac{3}{4}$	.215 - .235
Breaking strength: Initial (Lbs.)(Min.) $\frac{4}{5}$	3,600	6,000	7,000	8,700	10,000	10,000	15,000
After abrasion, (Lbs.)(Min.) $\frac{4}{5}$ / $\frac{6}{6}$	-	-	-	-	9,000	9,000	13,500
After accelerated aging, percent loss based on initial breaking strength (Lbs.) (% Max.) $\frac{6}{6}$	-	-	-	-	5.0	5.0	5.0
Elongation, (Percent) (Max.) At 2500 lb. load $\frac{6}{6}$	18.0	-	-	-	-	-	-
At 3000 lb. load $\frac{6}{6}$	-	13.0	12.0	12.0	9.0	9.0	7.5
At 90 percent of specified minimum breaking strength $\frac{7}{7}$	-	17.5	17.5	18.5	16.0	16.0	17.5

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- 1/ This requirement applies to the yarn prior to weaving.
- 2/ Face, middle, and back ends.
- 3/ For type V, class 2, dyed webbing, the thickness range shall be .080-.110 inch.
- 4/ The breaking strength of any individual specimen in any sample unit shall be no lower than the minimum specified.
- 5/ Requirements for abrasion resistance of the webbing are based on the use of hexagonal rods supplied by the Narrow Fabrics Institute, Inc. as noted in Method 5309 of FED-STD-191 - Textile Test Methods.
- 6/ Pertains only to class 2 latex treated webbings.
- 7/ Pertains to untreated and to treated webbings.

3.5 Color. The color of the types I, II, III and IV finished webbing shall be natural white or shall match the standard sample for Air Force Shade Sea Green 1001, Air Force Sage Green 1565, Camouflage Green 483, or the required color as specified by the procuring activity. Types V and VI shall be Camouflage Green 483 or as specified by the procuring activity. When dyed webbing is specified, the dyed untreated webbing shall match the shade standard and the shade imparted by the treatment shall be acceptable.

3.5.1 Colorfastness. The dyed and finished webbing shall show colorfastness to light equal to or better than the standard sample or equal to or better than a rating of "good". Colorfastness to crocking shall be equal to or better than the standard sample or shall be an AATCC chromatic transference scale rating of not lower than 3.5. Testing shall be as specified according to the following test methods: ASTM-G 23-88 - Colorfastness to Light; and AATCC 8-89 - Colorfastness to Crocking.

3.6 Put-up. The webbing shall be put up in rolls. Unless otherwise specified, each roll of webbing shall contain 90 to 110 yards. No roll shall contain more than three pieces and no piece shall be less than 10 yards in length.

3.7 Label/identification tickets. Each roll of webbing shall have an identification ticket attached to the roll.

3.8 Label/tag. Each roll shall be individually bar-coded with a paper tag. The paper tag shall be standard bleached sulfate having a basis weight of 100 pounds. The paper used for the tags shall have a smooth finish to accept thermal transfer and direct printing. The tags shall have a hole and shall be attached to each roll by a fastener, clearly legible and readable by a scanner. The bar coding element shall be a 13 digit national stock number (NSN). The bar code type shall be a medium to high code density and shall be located so that it is completely visible on the roll as specified and so that it causes no damage to the roll.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. QUALITY ASSURANCE PROVISIONS

5.1 Certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this commercial item description; conforms to the producer's, standards, and quality assurance practices. The Government reserves the right to require proof of such conformance prior to the first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

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5.2 Market acceptance criteria The item offered, must have been sold to the commercial market or to the Government for at least two years.

5.3 Warranty. The item offered shall include the standard warranty given to the commercial market beginning with the date of delivery of the individual items.

5.4 Visual examination. The lot size shall be expressed in units of yards. The sample unit is one linear yard.

5.4.1 Defects. The webbing shall be examined for the following defects:

Abrasion mark	Resulting in rupture of individual yarns or bruise distortion in the orientation of thread, dimensional distortion, areas noticeable thinner than adjoining unaffected areas, or in nap sufficient to obscure the identity of the filaments in any yarn.
Broken or missing thread	Two or more, regardless of length missing, or single, missing for more than 6 inches.
Broken or missing pick	Two or more regardless of extend.
Cut, hole or tear	Any cut, hole or tear.
Drop-ply	More than two ends within same length and extending 9 linear inches or more clearly visible at normal inspection distance (approximately 3 feet).
Edges	Cut, frayed, torn, slack, regardless of length or otherwise poorly constructed and exceeding 1/4 inch in length.
Fine or light filling bar	Any fine or light filling bar clearly visible at normal inspection distance (approximately 3 feet).
Floats	Three or more measuring 1/2 inch or more in combined warp and filling directions; or single, floating over more than one inch.
Heavy or coarse filling bar, heavy place	Noticeably stiffer or thicker than adjoining unaffected webbing.
Kinks	More than three in any 9 linear inches on surface of webbing clearly visible at normal inspection distance (approximately 3 feet).
Knots	More than one knot in any 9 linear inches.
Mispick, skips	Resulting in widthwise repeated floats more (harness) than 1/4 inch long.
Slack end	Two or more in same length, jerked-in between picks, or loops on surface of webbing clearly visible at normal inspection distance (approximately 3 feet).

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Smash	Any smash.
Tight pick or scalloped	Resulting in rolling of webbing; (any filling, edge noticeable indentation of edge).
Weak or tender	Any weak or tender spot clearly visible at spot normal inspection distance (approximately 3 feet).
Wrong draw	Extending 9 linear inches or more.
Width	Less than minus tolerances, more than plus tolerance.
Label	Label missing, incorrect, or illegible; measurement of item not as specified; bar-code omitted or not readable by scanner, Human-Readable Interpretation (HRI) omitted or illegible; bar-coded type not as specified code density not as specified.

5.5 Overall examination Each defect listed shall be counted not more than once in each roll examined. Each roll in the sample shall be examined over its entire length. If a lot contains fewer than 3 rolls, each roll in the lot shall be examined.

5.5.1 Defects. The webbing shall be examined for the following defects:

Objectionable odor.
Uncleanness throughout.
Off shade, (not within established tolerance).
Poor color penetration, cloudy, mottled or streaky throughout.
Poorly constructed, not firmly and tightly woven.
Class 2 - Latex treatment not fully cured, tacky, uneven.

5.6 Length examination During the overall examination, each roll in the sample shall be examined for the defects listed below. In addition, the lot shall be rejected if the total of the actual gross lengths of the rolls in the sample is less than the total of the gross lengths marked on the roll tickets.

5.6.1 Defects. The webbing shall be examined for the following defects:

Gross length of roll is more than 2 yards less than the gross length marked on the ticket.
Length of roll not as specified in put-up paragraph.
Length of individual piece is less than 10 yards.
More than three pieces on a roll.

5.7 End item performance testing The webbing shall be tested for the characteristics listed in table IV below. The lot size shall be expressed in units of 1 linear yard. The sample unit shall be as follows:

9 yards finished webbing (class 1)
25 yards finished webbing (class 2)
1 yard dyed, untreated webbing

The lot shall be unacceptable is one or more sample units fail to meet any requirement specified. For breaking strength (initial and after abrasion) the lot shall be unacceptable if any

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test specimen fails to meet the minimum requirement specified. For breaking strength after accelerated aging, the lot shall be unacceptable if the lot percent average loss in strength exceeds the maximum requirement. The sample size shall be as follows:

<u>Lot size (yards)</u>	<u>Sample size (sample units)</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

TABLE IV. End item tests.

Characteristic	Reference	Test method	No. of determinations per sample unit	Results reported as
Weave	Table I	Visual	1	Pass or fail
Ends total	Table I	Visual	-	-
Picks per inch	Table I	Visual	-	-
Weight	Table I	ASTM-D-3776 <u>1/</u>	1	Nearest 0.01 ounces
Thickness	Table I	ASTM-D-1777	1	-
Break strength: Initial	Table I	ASTM-D-5035	5	Individually and average of 5 deter. to nearest 1.0 lb.
After abrasion (class 2)	Table I	ASTM-D-5309 <u>2/</u> & ASTM-D-5035	5	Individually and average of 5 deter.to nearest 1.0 lb.
After accel-erated aging (class 2)	Table I	ASTM-D-5820 <u>2/</u> <u>3/</u> & ASTM-D-5035	-	Aver. of 5 deter. to nearest 1.0 lb. Then nearest 1.0 % loss from untreated, not aged results.
Elongation: At 2500 lb load: type I	Table I	ASTM-D-5035	5	Aver. of 5 deter to nearest 1.0 %
At 3000 lb load: types II, III, IV, V, VI	Table I	ASTM-D-5035	5	Aver. of 5 deter. to nearest 0.1 %
At 90 percent of specified minimum breaking strength: types II, III, IV, V, VI	Table I	ASTM-D-5035	5	Aver. of 5 deter. to nearest 0.1%

1/ Except that one specimen 1 linear yard in length shall be weighed.

2/ Test methods shall be as specified in FTMS 191 - Textile Test Methods.

3/ Except that the webbing shall be oven aged for 7 days at $150 \pm 2^{\circ}\text{F}$.

5.8 Acceptance criteria Acceptance criteria shall be as specified in the contract or purchase order.

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6. PACKAGING

6.1 Preservation, packing, and marking The preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES

7.1 Source of Government documents Copies of military and Federal documents are available from:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

7.2 Sources of Non-government documents

ASTM Test Methods - Applications for copies should be addressed to:

American Society For Testing and Materials
100 Barr Harbor Drive
West Conshohocken, PA 19428

AATCC Test Methods - Applications for copies should be addressed to:

American Association of Textile Chemists and
Colorists (AATCC)
P. O. 12215
Triangle Park, NC 22709-2215

MILITARY INTERESTS:

Custodians

Army - GL
Air Force - 99

Review Activities

Air Force - 11, 82, 45

CIVIL AGENCY COORDINATING
ACTIVITY:
GSA - FSS

PREPARING ACTIVITY:
DLA - CT

Project Number 8305-0570

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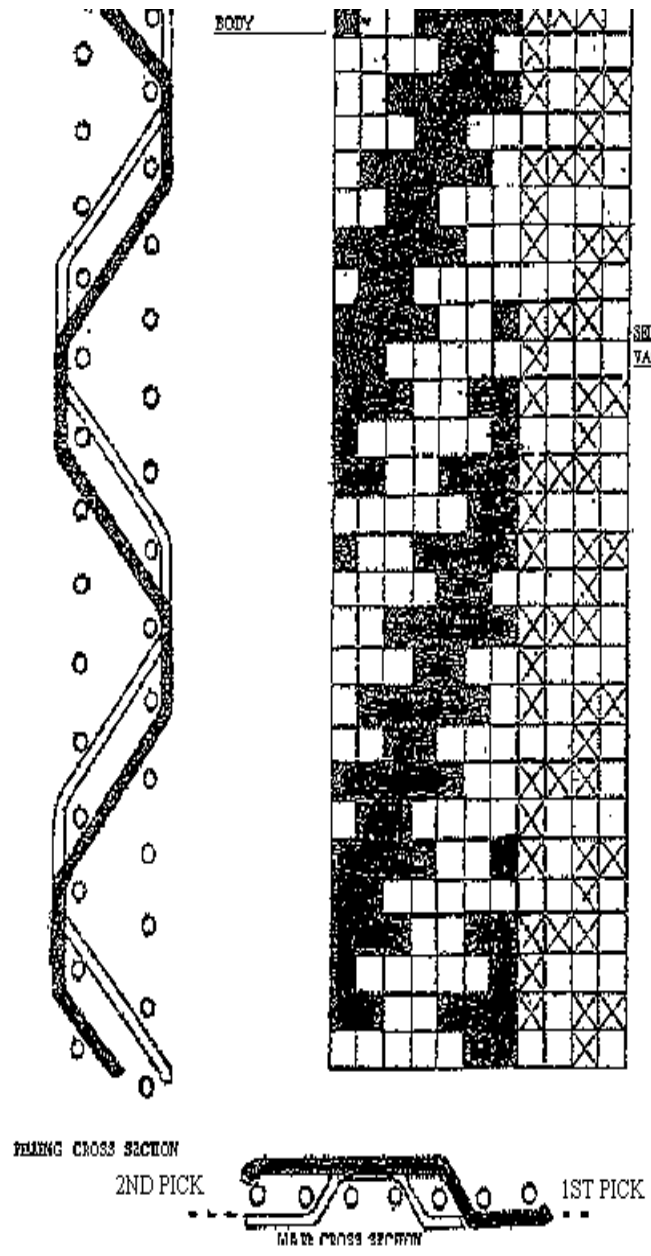


FIGURE 1.
WEAVE DIAGRAM TYPE II, III, IV AND V

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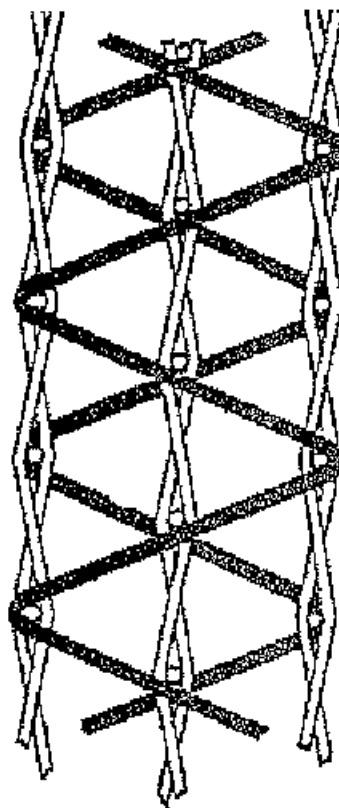


FIGURE 2
CROSS SECTION FILLING TYPE VI.
BINDER YARNS WEAVING ONE END AS ONE
WARP YARNS WEAVING TWO ENDS AS ONE