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400 Commonwealth Dr., Warrendale, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 3815C

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Superseding AMS 3815B

BRAID, FLAT, NYLON, ELECTRICAL TYING
Synthetic Rubber Coated

1. SCOPE:

1.1 Form: This specification covers synthetic-rubber-coated nylon in the form of flat braid.

1.2 Application: Primarily for tying and lacing electrical wire harness assemblies, especially for miniature devices or where maximum fungus resistance is required.

1.3 Classification: This specification covers four classes, by size, as follows:

Size 15 - 15 lb (66.5 N) minimum breaking strength

Size 25 - 25 lb (110 N) minimum breaking strength

Size 50 - 50 lb (220 N) minimum breaking strength

Size 80 - 80 lb (355 N) minimum breaking strength

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

REAFFIRMED

10/91

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D259 - Woven Tapes

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

2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing Of

3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication:

3.1.1 Yarn: Braid shall be made from high-tenacity, bright, continuous-filament nylon yarn, free from weighting materials, twisted 3/4 to 1 turn per in. (0.03 to 0.04 turns/mm).

3.1.2 Impregnation: Finished braid shall contain 15 - 25% by weight of a non-flaking, fungus-resistant, synthetic dispersion. No fungicide containing mercury or copper shall be used.

3.1.3 Construction: Shall be as specified in Table I, determined in accordance with ASTM D259.

TABLE I

	Size Designation			
	15	25	50	80
Nominal Width, in.	0.050	0.060	0.080	0.120
Nominal Thickness, in.	0.007	0.007	0.011	0.011
Yards per lb, min	2800	2000	900	600
Total Ends, min	17	17	17	25
Picks per in., min	22	22	20	20

TABLE I (SI)

	Size Designation			
	15	25	50	80
Nominal Width, mm	1.25	1.50	2.00	3.00
Nominal Thickness, mm	0.18	0.18	0.28	0.28
Metres per kg, min	5645	4030	1815	1210
Total Ends, min	17	17	17	25
Picks per mm, min	0.87	0.87	0.70	0.70

3.1.4 Color: Shall be natural.

3.2 Properties: Braid shall conform to the following requirements:

3.2.1 Mechanical Properties: Shall be as specified in Table II, determined in accordance with ASTM D259.

TABLE II

	Size Designation			
	15	25	50	80
Breaking Strength, min	15 lb	25 lb	50 lb	80 lb
Elongation, max	25%	25%	40%	40%

TABLE II (SI)

	Size Designation			
	15	25	50	80
Breaking Strength, min	66.5 N	110 N	220 N	355 N
Elongation, max	25%	25%	40%	40%

3.2.2 Slip Resistance: Breaking strength test applied to a square knot made in the braid shall result in no slippage of the knot at loads up to 2/3 the specified breaking strength of the braid.

3.2.3 Fray Resistance: A freshly cut end of the braid shall not fray open when held approximately 1/4 in. (6 mm) from the end and firmly tamped several times on a hard surface.

3.3 Quality: Braid, as received by purchaser, shall be uniform in quality and Ø condition, clean, smooth and free from foreign materials and from imperfections detrimental to usage of the braid.

3.4 Standard Sizes and Tolerances: Standard sizes shall be 15, 25, 50, and 80. Width tolerance shall be ±15% and thickness tolerance shall be ±0.003 in. (0.08 mm) of specified values.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of braid shall supply all Ø 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 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the braid conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to requirements for Ø nominal width and thickness (Table I) and breaking strength (Table II) are classified as acceptance tests and shall be performed on each lot.

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 braid 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 test material 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 in accordance with ASTM D259.

4.4 Approval:

4.4.1 Sample braid shall be approved by purchaser before braid for production use is supplied, unless such approval be waived by purchaser. Results of tests on production braid shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use materials, manufacturing procedures, processes, and methods of inspection on production braid which are essentially the same as those used on the approved sample braid. If necessary to make any change in materials, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested, sample braid. Production braid made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of braid shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the braid conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 3815C, vendor's material designation, size, and quantity.

4.5.2 When parts made of this braid or assemblies requiring use of this braid are supplied, the part or assembly manufacturer shall inspect each lot of braid to determine conformance to the technical requirements of this specification and shall furnish with each shipment a report stating that the braid conforms. This report shall include the purchase order number, AMS 3815C, part or assembly number, and quantity.

4.6 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the braid may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the braid represented and no additional testing shall be permitted. Results of all tests shall be reported.