Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3815B
Superseding AMS 3815A

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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 (66.7 N) minimum breaking strength

Size 25 - 25 lb (111 N) minimum breaking strength

Size 50 - 50 lb (222 N) minimum breaking strength

Size 80 - 80 lb (356 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 (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

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

ASTM D259 - Testing and Tolerances for Woven Tapes

2.3 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, nylon continuous-filament yarn, free from weighting materials, twisted 3/4 to 1 turn per inch (1.85 to 2.47 rads per 25 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	1.27	1.52	2.03	3.05
Nominal Thickness, mm	0.18	0.18	0.28	0.28
Metres per kg, min	5645	4032	1814	1210
Total Ends, min	17	17	17	25
Picks per mm, min	0.87	0.87	0.79	0.79

3.1.4 Color: Shall be natural, unless otherwise specified.

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	66.7 N	111 N	222 N	356 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. (6.4 mm) from the end and firmly tamped several times on a hard surface.

3.3 Quality: Braid shall be uniform in quality and condition, clean, smooth and free from foreign materials and from imperfections detrimental to fabrication or to performance of parts.

3.4 Standard Sizes and Tolerances: Standard sizes shall be 15, 25, 50, and 80. Unless otherwise specified, Ø 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 samples and shall be responsible for Ø performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to perform such confirmatory testing as he deems 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 nominal width and thickness (Table I) and Ø breaking strength (Table II) are classified as acceptance tests.

4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specifica- Ø tion are classified as qualification tests.

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

Ø 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 Ø approval be waived. 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 Ø production braid which are essentially the same as those used on the approved sample braid. If any change is necessary 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 and processing 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 three copies of a report showing the results of Ø 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, material specification number and its revision letter, vendor's material designation, size, and quantity.

4.5.2 Ø The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number and its revision letter, contractor or other direct supplier of braid, supplier's material designation, part number, and quantity. When braid for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of braid to determine conformance to the requirements of this specification, and shall include in the report a statement that the braid conforms, or shall include copies of laboratory reports showing the results of test to determine conformance.

4.6 Ø 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.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Ø Braid shall be furnished on parallel-wind spools or universal-wind tubes. Sizes 15, 25, and 50 braid shall be supplied in 500 yd (457 m) lengths and size 80 shall be supplied in 250 yd (229 m) lengths. A tolerance of +10% and -3% in length will be allowed. There shall be no more than four pieces per reel or tube and no piece shall be less than 50 yd (46 m) in length. The braid shall be free from twists, lumps, and projecting ends and shall be evenly wound so that each turn and layer is free from entanglement and twisting.

5.1.2 Ø Each roll shall be identified by a label, attached in such a manner as to remain in place and be clearly legible until all braid has been removed, using characters of such size as to be clearly legible and which will not be obliterated by normal handling. Each label shall show the following information:

NYLON FLAT BRAID, ELECTRICAL TYING, SYNTHETIC RUBBER COATED
AMS 3815B
SIZE DESIGNATION _____
QUANTITY _____
PURCHASE ORDER NUMBER _____
MANUFACTURER'S IDENTIFICATION _____
LOT NUMBER _____

5.1.3 Ø Packaging shall be accomplished in such a manner as to ensure that the braid, during shipment and storage, will be protected against damage from exposure to moisture, weather, or any normal hazard.

5.1.4 Ø Each package shall be permanently and legibly marked to show the following information:

NYLON FLAT BRAID, ELECTRICAL TYING, SYNTHETIC RUBBER COATED
AMS 3815B
SIZE DESIGNATION _____
QUANTITY _____
PURCHASE ORDER NUMBER _____
MANUFACTURER'S IDENTIFICATION _____
LOT NUMBER _____
WEIGHT OF PACKAGE _____