

INCH-POUND

A-A-59569A
October 31, 2002
SUPERSEDING
A-A-59569
November 20, 2000

COMMERCIAL ITEM DESCRIPTION

BRAID, WIRE (COPPER, TIN-COATED, SILVER-COATED,
OR NICKEL COATED, TUBULAR OR FLAT)

The General Services Administration has authorized the use of this
Commercial Item Description (CID) for all federal agencies.

1. **SCOPE.** This CID covers tin, silver, or nickel-coated copper wires braided in tubular or flat form intended for use as shielding over electrical conductors or connections to motor brushes, controller contacts, and grounding bonds.

2. SALIENT CHARACTERISTICS.

2.1 Materials. The wire used in the construction of braids shall conform to ASTM B33 for tinned copper, ASTM B298 for silver-coated copper, except that the silver coating shall be a minimum of 40 micro-inches thick, and ASTM B355 for nickel-coated copper, except the nickel coating shall be a minimum of 50 micro-inches thick.

2.2 Design and construction. The wire braid shall have the numbers of carriers and ends shown in table I.

2.2.1 Wire lengths. Individual wires shall be to sizes shown in table I and shall be uniform in cross-section. Each wire shall be one continuous length, free from splices except as specified herein.

2.2.2 Splices.

2.2.2.1 Carrier splices. There shall be no more than one splice or break in any carrier in each 25-foot length of the braid.

2.2.2.2 Wire splices. Excluding the carrier splice, there shall be no more than one broken or spliced end of wire in each 25-foot length of the braid.

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any other data that may improve this document should be sent to: Defense Logistics Agency, Defense Supply Center, Columbus (DSCC-VAI), P.O. Box 3990, Columbus, OH 43216-5000.

AMSC N/A

FSC 6145

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

A-A-59569A

TABLE I. Braid dimensions and data.

PIN ^{1/}	Strand wire size (AWG)	Tubular inside diameter (inches) ^{2/}	Number of carriers	Number of ends	Current rating (amps) ^{3/}	Approx. AWG equiv. ^{4/}	Flat form width x thickness (inches) ^{5/}
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*36*0031	36	.031	24	24	7.0	22	.046 x .020
*36*0062	36	.062	24	48	11.0	19	.093 x .031
*34*0062	34	.062	16	32	11.0	19	-
* 32*0062 ^{7/}	32	.062	16	16	9.0	20	-
*36*0078	36	.078	24	72	16.0	18	.125 x .020
*36*0109	36	.109	24	96	19.0	16	.156 x .031
* 34*0109 ^{7/}	34	.109	16	64	19.0	16	-
* 32*0109 ^{7/}	32	.109	16	32	18.0	17	-
*36*0125	36	.125	24	120	25.0	15	.187 x .020
*34*0125	34	.125	24	72	19.0	16	-
* 32*0125 ^{7/}	32	.125	24	48	25.0	15	-
*36*0156	36	.156	24	240	40.0	12	.250 x .046
*36*0171	36	.171	24	168	32.0	14	.250 x .030
*34*0171	34	.171	24	120	36.0	13	-
* 32*0171 ^{7/}	32	.171	24	72	32.0	14	-
*36*0203	36	.203	24	312	46.0	11	.281 x .046
*34*0203	34	.203	24	192	46.0	11	-
* 32*0203 ^{7/}	32	.203	24	120	46.0	11	-
*36*0250	36	.250	24	384	53.0	10	-
*30*0281	30	.281	24	120	60.0	9	-
*36*0375	36	.375	48	384	53.0	10	.625 x .030
*34*0375	34	.375	48	240	53.0	10	-
* 32*0375 ^{7/}	32	.375	48	144	46.0	11	-
*30*0375	30	.375	24	168 ^{6/}	75.0	8	-
*30*0437	30	.437	24	240	90.0	6	.500 x .093
*36*0500	36	.500	48	528	62.0	9	.625 x .046
*34*0500	34	.500	48	336	62.0	9	-
* 32*0500 ^{7/}	32	.500	48	192	62.0	9	-
*30*0500	30	.500	24	360	120.0	6	.625 x .093
*30*0562	30	.562	48	480	145.0	3	-
*30*0656	30	.656	48	768	190.0	1	-
*36*0781	36	.781	48	864	88.0	7	.750 x .040
*34*0781	34	.781	48	528	88.0	7	-
*32*0781	32	.781	48	336	88.0	7	-
*30*0875	30	.875	48	336	100.0	5	1.375 x .050
*30*1000	30	1.000	48	384	120.0	4	-
*30*1125	30	1.125	48	432	130.0	4	-
*30*1375	30	1.375	48	528	150.0	3	1.500 x .060
*30*1500	30	1.500	48	576	165.0	2	-
*30*2000	30	2.000	48	672	180.0	2	-

NOTES:

1/ The complete part or identifying number (PIN) shall include additional information to indicate the form (first asterisk) and strand coating (second asterisk) (see 6.1).

2/ Dimensional tolerances shall be as shown in table II.

3/ Direct current ratings are given for information only and are not requirements. Values shown are for uninsulated braid in free air at 30 °C. Values should be derated if the braid is insulated or in close contact with other components.

4/ Approximate AWG equivalents are given for information only and are not requirements.

5/ Flat form width and thickness are given for information only and are not requirements. Tolerances shall be as shown in table II.

6/ This PIN supersedes the similar construction using 96 ends.

7/ It may not be possible to produce 90% coverage on these constructions.

A-A-59569A

TABLE II. Dimensional tolerances (inches).

Dimensions	Tolerance
.000 - .099	.010
.100 - .249	.016
.250 - .499	.031
.500 - .999	.063
Over .999	.094

2.2.3 Coverage (tubular braid only). Tubular braids shall have a braid angle or number of picks per inch that produces a minimum of 90 percent coverage, except for .078-inch and smaller diameter braids, which shall produce a minimum of 70 percent coverage. The percent of coverage shall be determined by using the following formula.

$$K = 100 \left(2F - F^2 \right)$$

$$F = \frac{NPW}{C \sin A}$$

$$\tan A = \frac{2\pi(D + 2W)P}{C}$$

Where:

K = percent coverage of braided shield

A = braid angle

C = number of carriers (table I)

D = inside diameter in inches (table I)

N = total number of ends (table I)

P = picks per inch (the number of times the carriers in a braid cross over each other in the same direction along the longitudinal axis for each inch of length)

W = diameter of individual braid wire in inches

2.3 Flattening of tubular braid. Unless otherwise specified in the contract or order (see 6.2), tubular shielding braid shall not be flattened beyond the point that would occur by its own weight only, when wound on spools for shipping.

2.4 Solderability. Tin-coated and silver-coated braids shall possess good electrical and mechanical solder joints when tested in accordance with MIL-STD-202, method 208.

2.5 Workmanship. Braids shall be free from lumps, kinks, splits, abrasions, scraped or corroded surfaces, and skin impurities.

3. **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).

A-A-59569A

4. PRODUCT CONFORMANCE PROVISIONS.

4.1 Product conformance. The products provided shall meet the salient characteristics of this CID; conform to the producer's own drawings, specifications, standards, and quality assurance practices; and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

4.2 Market acceptability. The item offered must have been sold to the Government or commercial market.

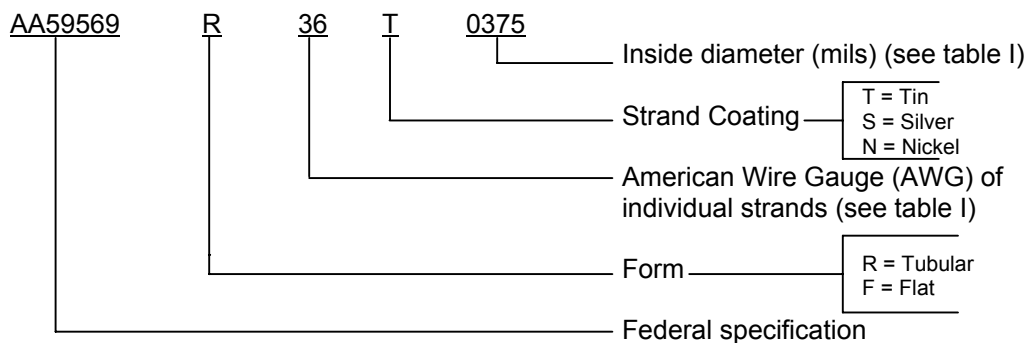
5. PACKAGING. Packing, packaging, and marking shall be as specified in the contract or order (see 6.2 and 6.4).

6. NOTES.

6.1 Part or Identification Number (PIN). The following part or identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.

The PIN is made up of the basic CID number and a four-element alphanumeric number (see table I):

Example of PIN: AA59569R36T0375



6.2 Ordering data. The contract or order should specify the following:

- Number, title, and date of this CID
- PIN (see table I and 6.1)
- Resistance to flattening, if other than specified (see 2.3)
- Packaging requirements (see 5 and 6.4)
- Unspliced braid length requirements and proportions (see 6.3)

6.3 Nickel Coating. The use of nickel-coated copper braids shall be used only when tin-coated or silver-coated braids cannot meet the intended performance requirements.

6.4 Braid Lengths. Unless otherwise specified in the contract or order (see 6.2), 90 percent of the total order for braid shall be supplied in continuous, unspliced lengths as shown in table III. The remaining 10 percent of the total order for braid shall be acceptable in random unspliced lengths as shown in table III.

A-A-59569A

TABLE III. Unspliced braid length.

Braid Diameter (inches)	Unspliced lengths	
	90% (nominal lengths)	10% (minimum lengths)
$\leq .171$	250 feet	50 feet
$\geq .203$	100 feet	25 feet

6.5 Packaging requirements. The packaging and marking requirements for wire braid should be in accordance with MIL-C-12000, except for the marking of shipments to civil agencies and the additional marking of spools and reels, both listed below.

6.5.1 Marking for civil agency procurement. The container marking of shipments to civil agencies should be in accordance with FED-STD-123.

6.5.2 Marking of spools and reels. In addition to the marking requirements of MIL-C-12000, each spool and reel should be marked with the following information:

- a. PIN
- b. Net weight (in pounds)
- c. Date (month, day, and year) of manufacture
- d. Manufacturer's CAGE Code or trademark

6.6 Source of documents.

6.6.1 ASTM standards are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

- ASTM B33 - Tinned Soft or Annealed Copper Wire for Electrical Purposes (DoD adopted)
- ASTM B298 - Silver-Coated Soft or Annealed Copper Wire (DoD adopted)
- ASTM B355 - Nickel-Coated Soft or Annealed Copper Wire (DoD adopted)

6.6.2 Copies of federal and military specifications and standards required by contractors in connection with specific procurement functions are obtained from the Document Automation and Production Service, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

- FED-STD-123 - Marking for Shipment (Civil Agencies)
- MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts
- MIL-C-12000 - Cable, Cord, and Wire, Electric, Packaging of

6.6.3 The Federal Acquisition Regulation (FAR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

6.7 Key words.

Wire braid
Shield, braid

A-A-59569A

MILITARY INTERESTS:

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Review Activities:

Army - AR, AT, AV, MI
Navy - MC, OS, SH
DTRA - DS
NSA - NS

CIVIL AGENCY
COORDINATING ACTIVITIES:

GSA - FSS

Preparing Activity:
DLA - CC

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