

[INCH-POUND]
A-A-59213
May 18, 1998
SUPERSEDING
W-S-610E
July 5, 1990

COMMERCIAL ITEM DESCRIPTION

SPLICE CONNECTORS

The General Services Administration has authorized the use of this commercial item description for all Federal agencies.

1. SCOPE. This commercial item description (CID) covers splice connectors, referred to herein as connectors, for providing pressure contact between current carrying conductors of an electrical wiring system. Connectors are for use as electrical connectors in dry locations and are not for grounding purposes in wet or damp locations.

2. CLASSIFICATION. The splice connectors covered by this CID shall be of the following types, classes, kinds, and styles as specified (see 7.2):

Type I - Twist-on.
Type II - Crimp or compression.
Type III - Threaded or bearing.

Class 1 - Insulated.
Class 2 - Uninsulated.

Kind AL - Aluminum to aluminum.
Kind CU - Copper to copper.
Kind AL-CU - Aluminum to copper.

Style A - Butt connectors.
Style C - Combined "T" and straight connection.
Style D - "T" connection.
Style E - Parallel connection.
Style F - Tap connection.
Style G - Pigtail connection.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 15E2), Naval Construction Battalion Center, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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3. SALIENT CHARACTERISTICS.

3.1 Description. The connectors shall provide contact between current carrying parts of an electrical wiring system. Unless otherwise specified herein, the connectors shall conform to standard manufacturing requirements for pressure type wire connectors.

3.1.1 Types. The types of connectors shall be as follows:

3.1.1.1 Type I. Type I connectors shall be class 1, kind CU, style G twist-on type connectors in which the pressure to provide contact between the current carrying conductors is applied by twist-on spring or equivalent device. Typical conductor capacities of type I connectors are provided in table I.

TABLE I. Size of type I connectors (reference).

Typical conductor capacities - AWG #		
	Minimum	Maximum
Common sizes	2 - #18	2 - #12, 3 - #14
	2 - #14	4 - #12, 2 - #10
	2 - #12	4 - #10, 2 - #8
	2 - #10	3 - #8, 2 - #6

3.1.1.2 Type II. Type II connectors shall be crimp or compression type connectors in which the pressure to provide contact between the current carrying conductors is applied by crimp(s), or other means of deformation of the connector and conductors' junction interface and shall be class 1 or class 2. Type II, style E connectors shall be of the compression type only.

3.1.1.3 Type III. Type III connectors shall be slip-on type connectors in which the pressure to provide contact between the current carrying conductors is applied by a set screw, split bolt, or insulation piercing device and shall be class 1 or class 2.

3.1.2 Classes. The classes of connectors shall be as follows:

3.1.2.1 Class 1. Class 1 connectors shall be insulated connectors which, when applied to conductors, shall provide a fully insulated joint. An insulated connector shall be rated for either 300 volts or 600 volts (1,000 volts in signs and fixtures), as specified (see 7.2).

3.1.2.2 Class 2. Class 2 connectors shall be uninsulated connectors.

3.1.3 Kinds. Connector kinds shall be suitable for joining the conductor material combinations as follows:

3.1.3.1 Kind AL. Kind AL connectors shall be suitable for use in connecting aluminum to aluminum conductors or copper clad aluminum to copper or copper clad aluminum conductors.

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3.1.3.2 Kind CU. Kind CU connectors shall be suitable for use in connecting copper to copper conductors.

3.1.3.3 Kind AL-CU. Kind AL-CU connectors shall be suitable for use in connecting aluminum to copper or copper clad aluminum conductors or copper clad aluminum to copper or copper clad aluminum conductors for dry locations only.

3.1.3.4 Oxide inhibitor. When specified (see 7.2), an oxide inhibitor shall be provided with kind AL and kind AL-CU connectors to inhibit corrosion of aluminum conductor surfaces.

3.1.4 Styles. Styles shall be as described herein.

3.1.4.1 Style A. Style A connectors shall be suitable for use in providing a butt connection between conductors.

3.1.4.2 Style C. Style C connectors shall be suitable for use in providing a combined "T" connection and a straight (butt) connection between conductors.

3.1.4.3 Style D. Style D connectors shall be suitable for use in providing a "T" connection to a straight through conductor.

3.1.4.4 Style E. Style E connectors shall be suitable for making a connection between parallel conductors.

3.1.4.5 Style F. Style F connectors shall be suitable for use in providing a parallel or Y-type connection to a straight through conductor.

3.1.4.6 Style G. Style G connectors shall be suitable for use in providing a pigtailed type connection between ends of conductors.

3.1.5 Aluminum conductor connections. Aluminum conductor connections shall have the following conductor size and use limitations:

Style A, C, D, E, F - AWG #12 and larger aluminum.

Style G

Types II and III - AWG #12 through AWG #6.

Type I - Not applicable.

3.1.6 Copper conductor connections. Copper conductor connections shall have conductor size and use limitations in accordance with UL 486A and UL 486C unless otherwise specified herein.

3.2 Standard commercial product. The connectors shall, as a minimum, be in accordance with the requirements of this commercial item description and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this

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commercial item description but which are a part of the manufacturer's standard commercial product, shall be included in the connectors being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3 Design and construction. The design and construction of the connectors shall be such as to prevent conditions which may be hazardous to personnel or deleterious to electrical circuitry and equipment.

3.3.1 Style G twist-on design. Style G twist-on connectors shall contain a tapered coil insert secured inside a closed end insulator. The coil shall be so designed that increasing pressure is exerted upon joining conductor surfaces as the insulator cap is tightened. The coil diameter and cap shall be designed so that the coil is free to expand or contract during or after wire insertion and during operation at rated loads. The coil shall be of a hard drawn, square cross section, spring steel wire with a corrosion-resistant finish. The insulator cap shall be of a flame-retardant material with a temperature rating of not less than 221 degrees Fahrenheit (105 degrees Celsius). Type I connectors shall be restricted to use with copper (kind CU).

3.3.2 Connector size. Connector sizes shall be of adequate size and kind to accommodate the junction wire kinds and sizes specified (see 7.2 and table I). Solid wire sizes shall be limited to AWG #8 and smaller. Minimum conductor size shall be AWG #22.

4. REGULATORY REQUIREMENTS.

4.1 Materials. 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). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this commercial item description are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this commercial item description.

4.2 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest version of ASTM SI-10 (IEEE/ASTM SI-10), and all other requirements of this commercial item description including form, fit and function are met. If a product is manufactured to metric dimensions and these dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

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5. QUALITY ASSURANCE PROVISIONS.

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

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

7. NOTES.

7.1 Source of documents.

7.1.1 The Federal Acquisition Regulation (FAR) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.2 ASTM Standard is available from the Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.1.3 IEEE Standard is available from the Institute of Electrical and Electronics Engineers (IEEE), IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

7.1.4 UL standards are available from the Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062-2096.

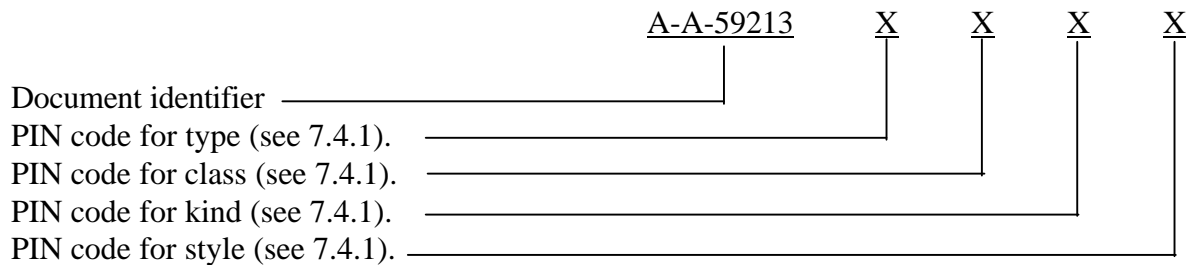
7.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this CID.
- b. Type, class, kind, and style required (see 2).
- c. Voltage rating required (see 3.1.2.1).
- d. When an oxide inhibitor is provided (see 3.1.3.4).
- e. Conductor wire kinds and sizes and combination (see 3.3.2).

7.3 Supersession data. This CID replaces Federal Specification W-S-610E dated July 5, 1990.

7.4 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PINs to be used for items acquired to this description are created as follows:

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Note: For the old part numbering system under superseded federal specification W-S-610E, part numbers are the same except for the document identifier, which was F610. Part numbers are identical except for F610 in place of AADLM610 and refer to the same part.

7.4.1 Cataloging data. For cataloging data purposes, PIN code numbers are assigned as follows:

a. PIN code for type	b. PIN code for class	c. PIN code for kind	d. PIN code for style
1 - Type I	1 - Class 1	A - Kind AL	A - Style A
2 - Type II	2 - Class 2	B - Kind CU	C - Style C
3 - Type III		C - Kind AL-CU	D - Style D
			E - Style E
			F - Style F
			G - Style G

7.5 Metric units. The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system should be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

7.6 Subject term (key word) listing.

Current
Electrical
Pressure contact
Wiring

7.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to previous issue due to the extensiveness of the changes.

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MILITARY INTERESTS:

Custodians:

Army - CR

Navy - YD1

Air Force - 85

Review Activities:

Army - HD

Navy - AS

Air Force - 03, 82, 99

DLA - GS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:

Navy - YD1

(Project 5940-1198)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
A-A-59213

2. DOCUMENT DATE (YYMMDD)
980518

3. DOCUMENT TITLE

SPLICE CONNECTORS

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

DWAYNE MILLS

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551-5681

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IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
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