



Standard Guide for Cable Splicing Installations¹

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^{ε1} NOTE—Reapproved with editorial changes throughout the guide in October 2012.

1. Scope

1.1 This guide provides direction and recommends cable splicing materials and methods that would satisfy the requirements of extensive cable splicing in modular ship construction and offers sufficient information and data to assist the shipbuilder in evaluating this option of cable splicing for future ship construction.

1.2 This guide deals with cable splicing at a generic level and details a method that will satisfy the vast majority of cable splicing applications.

1.3 This guide covers acceptable methods of cable splicing used in shipboard cable systems and provides information on current applicable technologies and additional information that the shipbuilder may use in decision making for the cost effectiveness of splicing in electrical cable installations.

1.4 This guide is limited to applications of 2000 V or less, but most of the materials and methods discussed are adaptable to higher voltages, such as 5-kV systems. The cables of this guide relate to all marine cables, domestic and foreign, commercial or U.S. Navy.

1.5 The values stated in SI units shall be regarded as standard. The values given in parentheses are inch-pound units and are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the application of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This guide is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.10 on Electrical.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

B8 Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
D2671 Test Methods for Heat-Shrinkable Tubing for Electrical Use

2.2 IEEE Standards:

IEEE 45 Recommended Practice for Electrical Installations on Shipboard³

2.3 UL Standards:⁴

UL STD 224 Extruded Insulating Tubing

UL STD 486A Wire Connectors and Soldering Lugs for Use with Copper Conductors

2.4 IEC Standards:

IEC 228 Conductors of Insulated Cables⁵

2.5 Federal Regulations:

Title 46 Code of Federal Regulations (CFR), Shipping⁶

2.6 Military Specifications:

MIL-T-16366 Terminals, Electric Lug and Conductor Splices, Crimp-Style

MIL-T-7928 Terminals, Lug, Splices, Conductors, Crimp-Style, Copper

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *adhesive, n*—a wide range of materials used extensively for bonding and sealing; coating added to the inner wall of heat-shrinkable tubing to seal the enclosed area against moisture. Adhesive is for pressure retention and load-bearing applications (see also *sealant*).

3.1.2 *barrel, n*—the portion of a terminal that is crimped; designed to receive the conductor, it is called the wire barrel.

3.1.3 *butt connector, n*—a connector in which two conductors come together end to end with their axes in line, but do not overlap.

³ Available from Institute of Electrical and Electronics Engineers, Inc. (IEEE), 445 Hoes Ln., P.O. Box 1331, Piscataway, NJ 08854-1331, <http://www.ieee.org>.

⁴ Available from Underwriters Laboratories (UL), 333 Pfingsten Rd., Northbrook, IL 60062-2096, <http://www.ul.com>.

⁵ Available from International Electrotechnical Commission (IEC), 3, rue de Varembe, P.O. Box 131, CH-1211 Geneva 20, Switzerland, <http://www.iec.ch>.

⁶ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.