



Standard Guide for Cable Splicing Installations¹

This standard is issued under the fixed designation F 1835; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

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:

B 8 Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft²

D 2671 Test Methods for Heat-Shrinkable Tubing for Electrical Use³

2.2 IEEE Standards:

IEEE 45 Recommended Practice for Electrical Installations on Shipboard⁴

2.3 UL Standards:⁵

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 Cables⁶

2.5 Federal Regulations:

Title 46 Code of Federal Regulations (CFR), Shipping⁷

2.6 Military Specifications:⁷

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, but do not overlap and with their axes in line.

3.1.4 *butt splice, n*—device for joining conductors by butting them end to end.

3.1.5 *circumferential crimp, n*—final configuration of a barrel made when crimping dies completely surround the barrel and form symmetrical indentations.

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.

Current edition approved Nov. 10, 1997. Published October 1998.

² *Annual Book of ASTM Standards*, Vol 02.03.

³ *Annual Book of ASTM Standards*, Vol 10.02.

⁴ Available from the Institute of Electrical and Electronic Engineers, IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08554-1331.

⁵ Available from Underwriters Laboratories, Inc., 333 Pfingsten Rd., Northbrook, IL 60062.

⁶ Available from the International Electrotechnical Commission, 3 rue de Varembe, Case Postale 131, CH-1211, Geneva 20, Switzerland.

⁷ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, Attn: NPODS.