

IEEE Standard for Cable Joints for Use With Extruded Dielectric Cable Rated 5000–138 000 V and Cable Joints for Use With Laminated Dielectric Cable Rated 2500–500 000 V

Sponsor

**Insulated Conductors Committee
of the
IEEE Power Engineering Society**

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IEEE Standards Board

Abstract: This standard establishes electrical ratings and test requirements for cable joints for use with extruded dielectric shielded cable rated in preferred voltage steps from 5000–138 000 V and cable joints for use with laminated dielectric cable rated in preferred voltage steps from 2500–500 000 V. It also defines a variety of common joint constructions. This standard is designed to provide uniform testing procedures that can be used by manufacturers and users to evaluate the ability of underground power cable joints to perform reliably in service.

Keywords: cable joints, dielectric integrity tests, extruded dielectric cable, impulse withstand voltage (BIL), laminated dielectric cable, sheath/shield sectionalizers, transition joints, withstand voltage

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Introduction

(This introduction is not a part of IEEE Std 404-1993, IEEE Standard for Cable Joints for Use With Extruded Dielectric Cable Rated 5000–138 000 V and Cable Joints for Use With Laminated Dielectric Cable Rated 2500–500 000 V.)

This revision of IEEE Std 404-1986 now includes a test protocol for joints used on extruded dielectric cable rated 5000–138 000 V. It also includes a test protocol for joints connecting extruded and laminated cables (transition joints) and a protocol for testing shield/sheath sectionalizers. Test voltages for joints on laminated cable were also updated to correspond with test voltages in laminated cable standards.

Future revisions of this standard will address the increasing interest in extruded dielectric cable systems rated above 138 000 V. Until then, to evaluate joints used on these systems, manufacturers and users are encouraged to follow the protocol discussed herein for joints used on extruded dielectric cable rated 5000–138 000 V with appropriate changes in test voltage levels.

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1. Scope

This standard establishes electrical ratings and test requirements for cable joints for use with extruded dielectric shielded cable rated in preferred voltage steps from 5000–138 000 V and cable joints for use with laminated dielectric cable rated in preferred voltage steps from 2500–500 000 V. It also defines a variety of common joint constructions.

Joints that connect more than two cables or connect cables with two different conductor sizes (other than transition joints) are not covered by this standard. However, manufacturers and users are encouraged to use appropriate parts of this standard to evaluate these joints.

2. References

This standard shall be used in conjunction with the following references.

AEIC CS1-90, Specifications for Impregnated Paper-Insulated Metallic Sheathed Cable, Solid Type (11th ed.), Oct. 1990.¹

AEIC CS2-90, Specifications for Impregnated Paper and Laminated Paper Polypropylene Insulated High Pressure Pipe Type (5th ed.), May 1990.

AEIC CS3-90, Specifications for Impregnated-Paper-Insulated Metallic Sheathed Cable, Low Pressure Gas-Filled Type (3d ed.), Oct. 1990.

AEIC CS4-93, Specifications for Impregnated-Paper-Insulated Low and Medium Pressure Self Contained Liquid Filled Cable (8th ed.), Jan. 1993.

AEIC CS5-94, Specifications for Crosslinked Polyethylene Insulated Shielded Power Cables Rated 5 Through 46 kV (10th ed.), Mar. 1994.

AEIC CS6-87, Specifications for Ethylene Propylene Rubber Insulated Shielded Power Cables Rated 5 Through 69 kV (5th ed.), Oct. 1987 (Rev. Mar. 1989).

¹AEIC publications are available from the Association of Edison Illuminating Companies, 600 N. 18th Street, P. O. Box 2641, Birmingham, AL 35291-0992, USA.