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IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV

IEEE Power & Energy Society

Sponsored by the
Insulated Conductors Committee

IEEE
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Abstract: Electrical ratings and test requirements of cable joints used with extruded and laminated dielectric shielded cable rated in preferred voltage steps from 2.5 kV to 500 kV are established in this standard. In addition, test requirements for joint metallic-shield and jacketing components are defined. A variety of common joint constructions are also defined. This standard has been designed to provide uniform testing procedures that can be used by manufacturers and users to evaluate the ability of underground power cable joints, and associated metallic-shields and jacketing components, to perform reliably in service.
Keywords: basic insulation level (BIL), cable joints, dielectric integrity tests, extruded dielectric cable, IEEE 404, laminated dielectric cable, sheath/shield sectionalizers, transition joints, withstand voltage

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Introduction

This introduction is not part of IEEE Std 404-2012, IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV.

This standard provides manufacturers and users with a consistent set of qualification test requirements for all cable joints. It also provides production test requirements for many cable joints used on extruded dielectric cables. Material properties and sampling rates are included for joint designs not easily production tested in their final form.

This revision of the standard provides closer harmonization to international standards for those cable joints used on extruded dielectric cables rated 69 kV and above.

It provides more applicable testing protocols to verify appropriate joint operation in the field for extruded dielectric cable joints in a joint-series. A joint-series is a family of joints designed and manufactured to cover a wide range of cable including various conductor sizes and materials as well as various extruded insulation thicknesses and materials.

It changes the format of the design test sequence tables to provide a more clear and concise format to eliminate interpretation errors.

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IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV

1. Overview

1.1 Scope

This standard establishes electrical ratings and test requirements of cable joints used with extruded and laminated dielectric shielded cables rated in preferred voltage steps from 2.5 kV to 500 kV. In addition, it defines test requirements for joint jacket seal devices and joint metallic-shield devices.

This standard also defines a variety of common joint constructions.

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

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is