

IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV

IEEE Power and Energy Society

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(Revision of IEEE Std 386-2006)

IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV

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**Insulated Conductors Committee
of the
IEEE Power and Energy Society**

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Abstract: Definitions, service conditions, ratings, interchangeable construction features, and tests are established for loadbreak and deadbreak separable insulated connector systems for use on power distribution systems rated 2.5 kV through 35 kV and 900 A or less.

Keywords: deadbreak connector, elbow connector, IEEE 386™, loadbreak connector, power distribution systems, separable conductor, separable insulated connector systems

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Introduction

This introduction is not part of IEEE Std 386-2016, IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV.

This standard was developed in response to a need created by the rapid expansion of underground distribution systems. A key element that allowed this expansion to become a reality is the separable insulated connector. This device provides for simple and inexpensive connection and switching to transformers and other equipment used in underground distribution.

When separable insulated connectors became available, IEEE and the National Electrical Manufacturers Association (NEMA) worked cooperatively to develop a document that defined the interfaces, ratings, and test conditions for the device. The success of that cooperative effort is apparent from both the vast number of these devices now in interchangeable use in the field and their enviable safety record.

This cooperative effort continues due to the ongoing upgrading and changing nature of these underground systems and products. The recent cooperative effort has been provided by the ANSI C119.2 Subcommittee and the IEEE Working Group on Separable Connectors under the auspices of the Insulated Conductors Committee of the IEEE Power Engineering Society.

This revision reflects the following major additions:

- changed the document title to state specific system voltages covered
- defined connector components
- added color coding for 600-A loadbreak connectors
- added 900-A deadbreak connectors
- added 600-A loadbreak connectors
- added 15-, 25-, 28- and 35-kV voltage class designations
- added straight and multi-point (“L,” “T,” and “Y”) connectors
- addressed handling of no-test samples during switching and fault-close testing
- expanded operating interface and withstand test and made it normative
- added tee connector/coupler adaptor interchangeability test
- redrew all figures
- deleted switching test circuit (b), formerly in Figure 19 of IEEE 386-2006, now [Figure 28](#) in this revision of the standard
- removed the requirement for the 15-min dc withstand test (now informative in [Annex C](#))
- removed the requirement for limited interchangeability that was formerly 6.4.2 in IEEE 386-2006
- changed the partial discharge sensitivity from 3 pC to 5 pC
- added that mechanical actuators shall not be used for fault close testing

For information on the application of separable connectors, refer to IEEE Std 1215TM-2013¹

¹For information on references, see [Clause 2](#).

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IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV

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1. Scope

This standard establishes definitions, service conditions, ratings, interchangeable construction features, and tests for loadbreak and deadbreak separable insulated connector systems rated 900 A or less for use on shielded power distribution systems rated 2.5 kV through 35 kV.

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 explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

ANSI C119.4, Electric Connectors—Connectors for Use between Aluminum-to-Aluminum or Aluminum-to-Copper Conductors Designed for Normal Operation at or Below 93 °C and Copper-to-Copper Conductors Designed for Normal Operation at or Below 100 °C.²

ANSI/ASQ Z1.4–2003 (R2013), Sampling Procedures and Tables for Inspection by Attributes.

ASTM F467, Standard Specification for Nonferrous Nuts for General Use.³

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