

American National Standard

separable insulated connector
systems for power distribution systems
above 600V



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An American National Standard

**IEEE Standard for
Separable Insulated Connector Systems for
Power Distribution Systems Above 600 V**

Sponsor

**Transmission and Distribution Committee of the
IEEE Power Engineering Society**

Secretariat

National Electrical Manufacturers Association

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Foreword

(This Foreword is not a part of ANSI/IEEE Std 386-1985, IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600 V.)

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 become available, the Institute of Electrical and Electronics Engineers and the National Electrical Manufacturers Association work cooperatively to develop a document that will define 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.

Because the technology within the field of underground distribution is under constant development, with accompanying new products and distribution schemes, it is necessary to provide for constant review of these connector requirements and to make participation in this ongoing activity available to all concerned organizations. To accomplish this purpose and provide a mechanism for development of additional related standards, American National Standards Committee C119 (now Accredited Standards Committee C119) was organized with a balanced representation of users, manufacturers, and general interest expertise. It is the hope and the expectation of C119 that those who have comments and additions may assist in the revision activity by forwarding their comments to C119, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This revision was developed by ANSI Subcommittee C119.2 under auspices of the Distribution Subcommittee of the Transmission and Distribution Committee of the IEEE Power Engineering Society. To the extent available, data used in it were gathered from pertinent existing industry standards for power cable, distribution transformers, and other electrical apparatus.

One of the primary objectives of this standard is to provide a basis for electrical interchangeability of corresponding 8.3 and 14.4 kV interfaces and mechanical interchangeability of operating interfaces between connector elements supplied by different manufacturers. However, to avoid exclusion of any connector design, a multiplicity of interfaces which are not interchangeable with each other is included. Hence, a purchaser must select a design for his particular need. Users and manufacturers are encouraged to use the designs illustrated.

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An American National Standard

IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600 V

1. Scope

This standard establishes definitions, service conditions, ratings, interchangeable construction features and tests for load-break and dead-break separable insulated connector systems rated 601 V and above, 600 A or less, for use on power distribution systems.

2. References

When the following standards are superseded by an approved revision, the latest revision shall apply.

- [1] ANSI/IEEE Std 4-1978, IEEE Standard Techniques for High-Voltage Testing.
- [2] ANSI/IEEE C37.09-1979, IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
- [3] ANSI/IEEE C62.1-1984, IEEE Standard for Surge Arresters for AC Power Circuits.
- [4] ANSI/NEMA CC3-1973, Connectors for Use Between Aluminum or Aluminum-Copper Overhead Connectors.¹
- [5] IEEE Std 592-1977, IEEE Standard for Exposed Semiconducting Shields on Premolded High-Voltage Cable Joints and Separable Insulated Connectors.
- [6] MIL-STD 105D-1963, Sampling Procedures and Tables for inspection by Attributes.²

¹This publication is available from the National Electrical Manufacturers Association (NEMA), 2101 L. Street, N.W., Washington, DC 20037. It is also available from the Sales Department of American National Standards Institute, 1430 Broadway, New York, NY 10018.

²MIL publications are available from the Navy Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

3. Definitions

The following definitions are the intended meanings of terms used in this standard or associated with separable insulated connectors systems. Figures 1 and 2 show typical components of separable insulated connectors. The term *connector* as used in this standard means separable insulated connector.

bushing insert. A connector component intended for insertion into a bushing well (see Fig 1).

bushing well. An apparatus bushing having a cavity for insertion of a connector component, such as a bushing insert (see Fig 1).

continuous current rating. The designated rms alternating or direct current which the connector can carry continuously under specified conditions.

dead-break connector. A connector designed to be separated and engaged on de-energized circuits only.

elbow. A connector component for connecting a power cable to a bushing, so designed that when assembled with the bushing, the axes of the cable and bushing are perpendicular (see Fig 1).

environmental temperature. The temperature of the surrounding medium, such as air, water, and earth, into which the heat of the connector is dissipated directly, including the effect of heat dissipation from associated cables and apparatus.

fault-closure current rating. The designated rms fault current which a load-break connector can close under specified conditions.