



**ANSI C119.5-2018**

*American National Standard  
for Electric Connectors—  
Insulation Piercing Connector Systems,  
Rated 600 Volts or Less (Low-Voltage Aerial Bundled  
Cables and Insulated and Non-Insulated Line Wires)*

Secretariat:

**National Electrical Manufacturers Association**

Approved August 21, 2018

**American National Standards Institute, Inc.**

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**Foreword** (This foreword is not part of American National Standard C119.5.)

This Standard describes current cycle, mechanical, and environmental tests used to establish performance characteristics of insulation piercing connectors used to join insulated and non-insulated overhead conductors.

The qualification tests may be made before supplying, on a commercial basis, connectors covered by this Standard, in order to demonstrate satisfactory performance characteristics to meet the intended application. Qualification tests, once successfully completed, need not be repeated, unless changes are made in the materials, design, or manufacturing process that might change the connector's performance characteristics.

The Subcommittee on Insulation Piercing Connectors of the Accredited Standards Committee on Connectors for Electric Utility applications, C119, in its constant review of the publication, continues to seek out the views of responsible users that will contribute to the development of better Standards.

Suggestions for improvement of this Standard will be welcome. They should be sent to the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1752, Rosslyn, Virginia 22209.

This Standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Connectors for Electrical Utility Applications, C119. Committee approval of this Standard does not necessarily imply that all committee members voted for its approval. At the time it approved this Standard, the ANSI ASC C119 Committee had the following members:

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## 1 Scope and Purpose

### 1.1 Scope

This Standard covers insulation piercing connectors used for making electrical connections between insulated, insulated-to-bare, and bare-to-bare conductors rated 600 V or less and 90°C (low-voltage aerial bundled cables and bare and insulated line wires) on overhead distribution lines for electric utilities. Underground insulation piercing connector systems rated at 600 V are covered by ANSI C119.1.

Since cable and insulation types exist in very different types and configurations, insulation piercing connectors cannot be designed for the full range of cable and insulation possibilities (cable cross-section and material, insulation material and thickness). The manufacturer is to indicate the cable and insulation types the connector is designed for, and conformity to this Standard shall be established by testing with these cable and insulation types.

This Standard establishes the electrical, mechanical, and environmental test requirements for electrical insulation piercing connectors. This Standard is not intended to recommend operating conditions or temperatures.

### 1.2 Purpose

The purpose of this Standard is to give reasonable assurance to the user that connectors meeting the requirements of this Standard will perform in a satisfactory manner, provided they have been properly selected for the intended application and are installed in accordance with the manufacturer's recommendations. The service operating conditions and the selection of the connector class is the responsibility of the user.

## 2 Referenced Standards

This Standard is intended to be used in conjunction with the following Standards. When the referenced Standard is superseded by a new revision, the latest referenced revision shall apply. Standards that are referenced by inference are shown in Annex A.

*ASTM E4 Practices for Force Verification of Testing Machines*

*IEEE 837-2002 Standard for Qualifying Permanent Connections Used in Substation Grounding*

*ANSI C119.0-2015 Testing Methods and Equipment Common to the ANSI C119 Family of Standards*

## 3 Definitions

**bolted connector:** A tap connector that makes an electrical connection utilizing bolting (or a bolt and nut combination) to apply contact pressure to the conductor.

**Class W:** A connector designated "Class W" has met the requirements of the Dielectric Withstand/Leakage Current and Water Penetration Tests.

**connector:** A device joining two or more conductors to provide a continuous electrical path.

**control cable:** A conductor of the same type and size as the conductor in the current cycle loop that serves as a reference for setting test current and monitoring temperature.

**equalizer:** A device installed in the test loop to ensure a point of equipotential in a stranded conductor.

**input conductor:** Conductor on the supply side of the connector.