



ANSI/NEMA C119.6-2018

American National
Standard
for Electric Connectors

Non-Sealed, Multiport
Connector Systems
Rated 600 Volts or Less
for
Aluminum and Copper
Conductors



National Electrical Manufacturers Association
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for Electric Connectors—
Non-Sealed, Multiport Connector Systems
Rated 600 Volts or Less for
Aluminum and Copper Conductors*

Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute, Inc.

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Foreword (This foreword is not part of American National Standard C119.6-2018.)

This standard describes the current cycle and mechanical tests used to establish performance characteristics of non-sealed, multiport distribution connectors used to join aluminum-to-aluminum, aluminum-to-copper, or copper-to-copper conductors.

This revision has been reorganized to follow international formatting and improve the organization of information throughout the document when compared to the previous version.

Substantive changes to the standard have been made in the C119.6-2018 version of the standard. A substantive change is one that directly and materially affects the performance of a product and which requires testing or retesting to meet the current edition of a standard. The substantive changes to the standard are:

This version of the standard requires retesting the performance of a product if there have been substantive changes made to the product.

This revision includes the addition of spreadsheet files in Annex D which can be used to collect current cycle test data, calculate connector stability, generate graphs of the data and print the data to provide test results as part of the test report. The spreadsheets are provided to give test laboratories a standardized method to collect, calculate and report test data and prepare test reports. These spreadsheets were not part of earlier editions.

This standard incorporates an alternate, accelerated current cycle test method, henceforth referred to as the current cycle submersion test (CCST). The CCST method differs from the traditional current cycle test in that test conductors are rapidly cooled by immersion in chilled water at the beginning of the current-OFF cycle and requires fewer total current-ON and current-OFF cycles. The CCST method differs from the traditional current cycle test (CCT) in that test connectors are rapidly cooled by immersion in chilled water at the beginning of the current-OFF cycle. Comparative testing has demonstrated that the CCST method will provide essentially the same performance test results as the traditional current cycle test (CCT) in fewer test cycles. The current cycle test remains the preferred test method recommended for qualification of a connector.

The Subcommittee on Multiport 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 900, 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:

Michael Zaffina, Chairman
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1 Scope and Purpose

1.1 Scope

This standard covers non-sealed, multiport distribution connectors rated 600 volts or less used for making electrical connections between aluminum-to-aluminum, aluminum-to-copper, or copper-to-copper conductors for above grade, electric utility applications.

This standard establishes the electrical and mechanical test requirements for connectors used at normal operating temperatures not to exceed 90°C (194°F) and is not intended to recommend any other operating conditions.

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 is the responsibility of the user.

2 Referenced Standards

This standard is intended to be used in conjunction with the following standards. When a referenced standard is superseded by a revision approved by the American National Standards Institute, Inc., the referenced revision shall apply.

ANSI C119.0 American National Standard for Electrical Connectors—Testing Methods and Equipment Common to the ANSI C119 Family of Standards

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

3 Definitions

bolted-type connector: A connector in which the contact between the conductor and the connector is made by pressure exerted by one or more clamping bolts.

CCT: Current Cycle Test where current cycle heating and cooling are done in air.

CCST: Current Cycle Submersion Test where current cycle heating is done in air and cooling is done using water submersion.

conductor: Conducting material used as a carrier of electric current.

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

connector assembly: The connector installed on the conductor(s).

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

multiport connector: A connector that joins two or more conductors with a third or plurality of connector points.