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AC High-Voltage Circuit Breakers

National Electrical Manufacturers Association



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Alternating Current High-Voltage Circuit Breakers

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Foreword

This is one of a series of NEMA standards publications covering the range of low- to high-voltage switchgear products. Such products are generally applied to utility and industrial uses with a portion going to commercial applications. User and general interest input played a significant part in the development of the product requirements carried by this publication. It, as well as other NEMA standards publications, is not intended to stand alone. Without exception:

- a. It adopts by reference the appropriate IEEE and American National Standards as the main body of this NEMA publication.
- b. It offers a vehicle for getting into print the proposed NEMA revisions of the pertinent C37 standards, until such time as those revisions can be evaluated, approved, and published as a revision of the particular American National Standard.
- c. It covers additional information about a product of specific interest to the manufacturing community, which the American National Standards Committee does not include in its scope.

Within this NEMA publication, therefore, the main focus is on American National Standards and the consensus method of standards approval used by ANSI.

This standard is a revision of NEMA SG 4-2000 and contains both substantive and editorial changes.

Approximate metric conversion of U.S. dimensions has been included for reference.

Sections 1 through 5 contain only minor changes from the 2000 edition of this standard. The information in these sections has been offered to IEEE for revisions of ANSI/IEEE C37.04 and ANSI/IEEE C37.09. When these documents are suitably revised, this material will be deleted from SG 4. Until this information is reflected in the IEEE standards, it continues to be included in SG 4.

Section 6 has essentially been eliminated. The material formerly in this section has been revised and incorporated in a separate guide, NEMA SG 11-2008 *Guide for Handling and Maintenance of Alternating Current Outdoor High Voltage Circuit Breakers*.

These standards are periodically reviewed by the High-Voltage Power Circuit Breaker Voting Classification of the Switchgear Section of NEMA for any revisions necessary to keep them up-to-date with advancing technology. Proposed or recommended revisions shall be submitted to:

Vice President, Technical Services
National Electrical Manufacturers Association
1300 North 17th Street, Suite 1752
Rosslyn, VA 22209

This standards publication was developed by the High-Voltage Power Circuit Breaker Voting Classification of the Switchgear Section of NEMA. Section approval of the standard does not necessarily imply that all members voted for its approval or participated in its development. At the time it was approved, the voting classification was composed of the following members:

T. Olsen, Siemens Power Transmission & Distribution, Inc.—Chair

J. Baskin, Federal Pacific
R. Beard, Hubbell Power Systems
A. Bonner, Cooper Power Systems
E. Byron, Schneider Electric/Square D Company
C. Kennedy, Schneider Electric/Square D Company
R. W. Long, Eaton Electrical, Inc.
J. Pauley, Schneider Electric/Square D Company
C. Schneider, Schneider Electric/Square D Company
D. Sigmon, ABB Inc. Low Voltage Products & Systems
D. Stone, Cooper Power Systems
T. Tobin, S&C Electric Company
P. Walsh, Ferraz Shawmut
H. Wilson, Mitsubishi Electric Power Products Inc.
J. Wiseman, Schneider Electric/Square D Company
R. Yanniello, Eaton Electrical, Inc.
R. York, ABB Inc.

Section 1 GENERAL

1.1 SCOPE

This standards publication encompasses:

- a. All ratings for outdoor circuit breakers above 1000 volts for alternating-current service. Circuit breakers for service in metal-enclosed or metal-clad enclosures and automatic circuit reclosers are excluded.
- b. Attachments for these circuit breakers, such as bushing current transformers, bushing potential devices, interlocks, undervoltage trip devices, shunt trips, overcurrent trips, and auxiliaries sold with the circuit breakers such as closing relays and structural steel supports.
- c. Renewal, modernizing, and spare parts for these circuit breakers and attachments.
- d. Recommended installation, operation, and maintenance procedures.

1.2 REFERENCES

The following publications are adopted in whole and in part as indicated herein as referenced in this standards publication:

American National Standards Institute (ANSI)

11 West 42nd Street
New York, NY 10036

4-1995	<i>Techniques for High-Voltage Testing</i>
4a-2001	<i>Amendment to IEEE Standard Techniques for High-Voltage Testing</i>
C2-2007	<i>National Electrical Safety Code</i>
C37.04-1999	<i>Rating Structure for AC High-Voltage Circuit Breakers</i>
C37.06-2000	<i>Preferred Ratings and Related Required Capabilities for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis</i>
C37.06.1-2000	<i>High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Designated "Definite Purpose for Fast Transient Recovery Voltage Rise Times"</i>
C37.082-1982 (R 1988)	<i>Methods for the Measurement of Sound Pressure Levels of AC Power Circuit Breakers</i>
C37.09-1999	<i>Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis</i>