

American National Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis— Specifications Guide

Secretariat

**Institute of Electrical and Electronics Engineers
National Electrical Manufacturers Association**

Approved May 22, 1991

American National Standards Institute, Inc.

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Published by
American National Standards Institute
11 West 42nd Street, New York, New York 10036

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Printed in the United States of America

Foreword

(This foreword is not part of American National Standard C37.12-1991.)

This publication represents standard practices in the United States relating to ac high-voltage circuit breakers and is one of a series of American National Standards on this subject. It was first published as an American National Standard in 1952.

The Committee on Electric Power Apparatus of the Association of Edison Illuminating Companies (AEIC), which originated these specifications prior to their adoption in 1952, initiated a review in 1983 for the purpose of establishing a suitable and up-to-date guide for construction and performance of alternating-current power circuit breakers. This work, which was carried out by a Subject Committee on Specifications, included such general requirements as are ordinarily fixed in uniform, supplementing rating standards, and contained applicable specific requirements of the purchasers. ANSI C37.12 is issued as a guide and as such is advisory in nature. This edition includes revisions and additions to the previous edition in the following areas:

- performance;
- insulation structure;
- operating mechanism;
- structural features;
- incorporated secondary and control devices;
- purchaser's detailed requirements;
- information to be furnished by manufacturer or vendor with bid.

This standard applies to circuit breakers covered by the symmetrical current basis or rating. Related standards include the following:

Symmetrical current basis of rating

ANSI C37.06-1987, *Switchgear - AC high-voltage circuit breakers - rated on a symmetrical current basis - Preferred ratings and related required capabilities*

ANSI/IEEE C37.04-1979 (R1989), *Rating structure for AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.09-1979 (R1989), *Test procedure for high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.010-1979 (R1989), *Application guide for AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.011-1979 (R1989), *Application guide for transient recovery voltage for AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.012-1979 (R1989), *Application guide for capacitance current switching of AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.11-1979, *Requirements for electrical control for AC high-voltage circuit breakers rated on a symmetrical current basis and total current basis*¹

There is one annex in this standard. Annex A is informative and is not considered part of this standard.

¹This standard has been withdrawn and is listed for historical purposes only. It is currently under revision. Contact the secretariat for more information.

Suggestions for improvement of this standard will be welcome. They should be sent to the National Electrical Manufacturers Association, 2101 L Street NW, Suite 300, Washington, DC 20037.

This standard was processed and approved for submittal to ANSI by American National Standards Committee on Power Switchgear, C37. Committee approval of the standard does not necessarily imply that all committee members voted for its approval.

At the time it approved this standard, the C37 Committee had the following members:

T. C. Burnett (*Chairman*)
A. K. McCabe (*Executive Vice-Chairman, HV Standards*)
S. H. Telander (*Executive Vice-Chairman, LV Standards*)
D. L. Swindler (*Executive Vice-Chairman, IEC Activities*)
C. H. White, *Secretary*
M. B. Williams (*Program Administrator*)

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Electric Light and Power Group	R. L. Capra K. D. Hendrix D.T. Weston J. H. Provanzana M. C. Mingoia G. R. Brandenberger (Alt.) T. E. Bruck (Alt.)
Institute of Electrical and Electronics Engineers.....	W. F. Hoenigmann D. M. Larson W. E. Laubach E. W. Schmunk C. A. Schwable S. C. Atkinson (Alt.) D. G. Kumbera (Alt.)
National Electrical Manufacturers Association.....	T.C. Burnett R.A. McMaster R. H. Miller R. O. D. Whitt H. L. Miller (Alt.)
Tennessee Valley Authority	R. B. Rotton
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U. S. Department of the Interior, Bureau of Reclamation.....	J. W. Reif
U. S. Department of the Navy, Naval Construction Battalion Center	R. L. Clark
U.S. Department of Agriculture - REA	H. L. Bowles
Western Area Power Administration.....	G. D. Birney

A subcommittee of the AEIC Committee on Electric Power Apparatus worked on this revision to coordinate with the applicable standards on high-voltage circuit breakers rated on both the symmetrical current basis and the total current basis. During the tenure of the subcommittee many members and operating companies contributed to the task of revising this standard. Representatives of several switchgear manufacturers served as advisers. This subcommittee had the following members:

D. O. Craghead

J. H. Provanzana
L. S. Heins

L. J. Savio

The Subcommittee on High-Voltage Circuit Breakers of the ANSI C37 Committee, which developed this standard, had the following members:

G. N. Lester, Chairman
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C. J. Dvorak
R. D. Garzon

G. Hanks
R. L. Mattingly (Alt.)
R. H. Miller

H. M. Smith
D. L. Swindler
L. H. Schmidt (Alt.)
G. A. Wilson

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1. Scope

These specifications apply to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 volts.

This document is issued only as a guide for use in compiling specifications for ac high-voltage circuit breakers. The imperative mode of the language is illustrative of that used in specifications. It does not imply that this document is anything other than advisory in its scope.

2. Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI C37.06-1987, *Switchgear - AC high-voltage circuit breakers rated on a symmetrical current-basis - Preferred ratings and related required capabilities*

ANSI/IEEE 24-1984, *Performance characteristics and dimensions for outdoor apparatus bushings*

ANSI/IEEE C37.04-1979 (R1989), *Rating structure for AC high voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.09-1979 (R1989), *Test procedure for AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C37.010-1979 (R1989), *Application guide for AC high-voltage circuit breakers rated on a symmetrical current basis*

ANSI/IEEE C57.13-1978 (R1987), *Requirements for instrument transformers*

3. General requirements

All ac high-voltage circuit breakers to be supplied shall conform to

- the general requirements specified in clause 3 through 9;
- the applicable detailed requirements of the purchaser in clause 10.

The manufacturer or vendor shall furnish with his bid the applicable information covered in clause 11. The successful bidder shall furnish the applicable information covered in clause 12 prior to or at the time of delivery.

4. Application of other standards

Unless otherwise specified, all equipment covered by these specifications shall conform to the latest applicable approved American National Standards.

NOTE — These standards are subject to periodic review. Users are cautioned to secure the latest applicable edition.

5. Tests

5.1 Design tests

Tests shall be conducted on each design of circuit breaker and on each significant design change in accordance with ANSI/IEEE C37.09.

5.2 Production tests

All applicable production tests included in ANSI/IEEE C37.09 shall be made on each circuit breaker.

6. Performance

The circuit breaker shall meet all its ratings as defined in ANIS/EEE C37.04, and as listed in ANSI C37.06.