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SUPERSEDED

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nema

Low-Voltage Power Circuit Breakers

NEMA

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION ■ 2101 L STREET, N.W., WASHINGTON, D.C. 20037

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Foreword

This is one of six NEMA Standards Publications covering the range of low- to high-voltage switchgear products. Such products are generally applied to utility and industrial use 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 these other five NEMA Standards Publications, is not intended to stand alone because without exception:

1. It adopts by reference the appropriate American National Standards (approved by American National Standards Committee C37) as the main body of this NEMA publication.
2. 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.
3. 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.

Switchgear standards are, for the most part, developed through the combined and separate efforts of the Institute of Electrical and Electronics Engineers, the Association of Edison Illuminating Companies, and NEMA. American National Standards Committee C37 serves as the administrator through which are channeled all switchgear proposals intended for eventual publication as American National Standards. It is within these organizations that the principal manufacturer-user exchange is accomplished. This exposes product requirements to those people having the direct responsibility for the use, design, application, maintenance, and acceptance of the products and thus assures a most objective and critical review within the voluntary standards program. The NEMA standards publications in this series include:

SG 2-1981	High-Voltage Fuses
SG 3-1981	Low-Voltage Power Circuit Breakers
SG 4-1975 (R 1980)	High-Voltage Power Circuit Breakers
SG 5-1981	Power Switchgear Assemblies
SG 6-1974 (R 1978)	Power Switching Equipment
SG 13-1977	Automatic Circuit Reclosers, Automatic Line Sectionalizers and Oil-Filled Capacitor Switches for Alternating-Current Systems

The standards in this publication are periodically reviewed by the Low-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 should be submitted to:

Manager, Engineering Department
National Electrical Manufacturers Association
2101 L Street, N.W.
Washington, DC 20037

Molded case circuit breakers and switch and service equipment are covered by other standards and in some instances may be able to meet the requirements of this standard.

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Scope

1. 1000 volts ac and below:

- Low-voltage ac power circuit breakers (see Section 1).
- Low-voltage ac integrally fused power circuit breakers (see Section 1).
- Low-voltage ac power circuit protectors (see Section 1).

2. 3000 volts dc and below:

- General-purpose low-voltage dc power circuit breakers (see Section 14).
- Semi-high-speed, low-voltage dc power circuit breakers (see Section 14).
- High-speed low-voltage dc power circuit breakers (see Section 14).
- Field discharge low-voltage circuit breakers (see Section 18).

3. Functional components for circuit breakers listed in 1 and 2 above for remote closing, remote opening, automatic opening, auxiliary contacts, attachments, and so forth.

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Section 1
APPLICABLE AMERICAN NATIONAL STANDARDS

1.1 GENERAL

The following American National Standards have been approved by NEMA and constitute the NEMA Standards Publication for Low-Voltage Power Circuit Breakers, SG 3-1981.

C37.13-1980 Low-Voltage AC Power Circuit Breakers Used in Enclosures

C37.14-1979 Low-Voltage DC Power Circuit Breakers Used in Enclosures

C37.16-1980 Preferred Ratings, Related Requirements and Application Recommendations for Low-Voltage Power Circuit Breakers and AC Power Circuit Protectors

C37.17-1979 Trip Devices for AC and General Purpose DC Low-Voltage Power Circuit Breakers

C37.18-1979 Requirements for Field Discharge Circuit Breakers for Rotating Electric Machinery

C37.27-1972 Application Guide for Low-Voltage AC Non-Integrally Fused Power Circuit Breakers

C37.29-1974 Low-Voltage AC Power Circuit Protectors Used in Enclosures

C37.50-1981 Test Procedures for Low-Voltage AC Power Circuit Breakers Used in Enclosures

C37.52-1974 (R 1980) Test Procedures for Low-Voltage AC Power Circuit Protectors

C37.100-1980 Definitions for Power Switchgear

Copies are available from the American National Standards Institute, 1430 Broadway, New York, New York, 10018.

NEMA Standard 11-12-1981.

Section 13
LOW-VOLTAGE AC POWER CIRCUIT BREAKERS USED IN ENCLOSURES

13.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.13-1980

The following American National Standards has been approved as NEMA Standard and should be inserted in this section: C37.13-1980.

NEMA Standard 11-12-1981.

Section 14
LOW-VOLTAGE DIRECT-CURRENT POWER CIRCUIT BREAKERS (GENERAL PURPOSE, SEMI-HIGH-SPEED, AND HIGH-SPEED)

14.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.14-1979

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.14-1979.

NEMA Standard 11-12-1981.

Section 16
PREFERRED RATINGS, RELATED REQUIREMENTS AND APPLICATION RECOMMENDATIONS FOR LVPCB AND AC POWER CIRCUIT PROTECTORS

16.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.16-1980

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.16-1980.

NEMA Standard 11-12-1979.

Section 17
TRIP DEVICES FOR AC AND GENERAL PURPOSE DC LVPCB'S

17.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.17-1979

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NEMA Standard 11-12-1979.

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Section 18
FIELD DISCHARGE CIRCUIT BREAKERS FOR ROTATING ELECTRIC MACHINERY

18.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.18-1979

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.18-1979.

NEMA Standard 11-12-1979.

Section 27
APPLICATION GUIDE FOR LV AC NON-INTEGRALLY FUSED PCB'S

27.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.27-1972 (IEEE 331-1972)

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.27-1972.

NEMA Standard 11-12-1981.

Section 29
LOW-VOLTAGE POWER CIRCUIT PROTECTORS USED IN ENCLOSURES

29.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.29-1981 (IEEE 508)

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.29-1981.

NEMA Standard 11-12-1981.

Section 50
TEST PROCEDURES FOR LOW-VOLTAGE AC POWER CIRCUIT BREAKERS USED IN ENCLOSURES

50.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.50-1981

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.50-1981.

NEMA Standard 11-12-1981.

Section 52
TEST PROCEDURES FOR AC POWER CIRCUIT PROTECTORS

52.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.52-1974 (R 1981)

The following American National Standard has been approved as NEMA Standard and should be inserted in this section: C37.52-1974 (R 1981).

NEMA Standard 11-12-1981.

Section 100
DEFINITIONS FOR POWER SWITCHGEAR

100.1 EXCEPTIONS TO AMERICAN NATIONAL STANDARD C37.100-1980

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NEMA Standard 11-12-1981.

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NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status are set forth in certain clauses of the NEMA Bylaws, which are quoted below:

Purpose of Standards

National Electrical Manufacturers Association Standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for its particular need. Existence of a National Electrical Manufacturers Association Standard does not in any respect preclude any member or nonmember from manufacturing or selling products not conforming to the standard.

(Bylaw—Art. V, Sec. 1)

Definition of a Standard

A standard of the National Electrical Manufacturers Association defines a product, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, quality, rating, testing and the service for which designed.

(Bylaw—Art. V, Sec. 2, Subsection A)

Classes of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product commercially standardized and subject to repetitive manufacture, which standard has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon;
2. Suggested Standard for Future Design, which may not have been regularly applied to a commercial product, but which suggests a sound engineering approach to future development, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote thereon.

(Bylaw—Art. V, Sec. 2, Subsection B)

Authorized Engineering Information

Authorized Engineering Information consists of explanatory data and other engineering information of an informative character not falling within the classification of NEMA Standard or Suggested Standard for Future Design.

(Bylaw—Art. V, Sec. 6, 1st Sentence)

Official Standards Proposal

An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment and/or approval.

(Bylaw—Art. V, Sec. 4, Subsection A)

Identification of Status

Standards in NEMA Standards Publications are identified in the foreword or following each standard as "NEMA Standard" or "Suggested Standard for Future Design." These indicate the status of the standard. These words are followed by a date which indicates when the standard was adopted in its present form by the Association.

The material identified as "Authorized Engineering Information" and "Official Standards Proposal" is designated similarly.

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LOW-VOLTAGE POWER CIRCUIT BREAKER GROUP

OF THE

SWITCHGEAR SECTION

OF THE

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

MEMBER COMPANIES

Brown-Boveri Electric, Inc.
Spring House, PA 19477

Federal Pacific Electric Company
Power Equipment Systems Division
Newark, NJ 07101

General Electric Company
Plainville, CT 06062

Siemens-Allis, Inc.
Raleigh, NC 27626

Square D Company
Milwaukee, WI 53201

Westinghouse Electric Corporation
East Pittsburgh, PA 15112

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