

Recognized as an
American National Standard (ANSI)

IEEE C37.13-1990
(Revision of IEEE C37.13-1981)

IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures

Sponsor
**Switchgear Committee
of the
IEEE Power Engineering Society**

Secretariat

**Institute of Electrical and Electronics Engineers, Inc.
National Electrical Manufacturers Association**

Approved October 22, 1990
Reaffirmed September 21, 1995

IEEE Standards Board

Approved March 5, 1991
Reaffirmed April 8, 1996

American National Standards Institute

Abstract: This standard covers enclosed low-voltage ac power circuit breakers of the stationary or draw-out type of two- or three-pole construction, with one or more rated maximum voltages of 635 V (600 V for units incorporating fuses), 508 V, and 254 V for application on systems having nominal voltages of 600 V, 480 V, and 240 V; with unfused or fused circuit breakers; manually or power operated; and with or without electromechanical or solid-state trip devices. It deals with service conditions, ratings, functional components, temperature limitations and classifications of insulating materials, insulation (dielectric) withstand voltage requirements, test procedures, and application.

Keywords: circuit breaker, fused circuit breaker, low-voltage ac power circuit breaker, open-fuse trip device, unfused circuit breaker

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ISBN 1-55937-113-7

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Foreword

(This Foreword is not a part of IEEE C37.13-1990, IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures.)

This revision of C37.13-1981 includes a general updating of the standard in many areas and specific changes in the classification of insulating materials. The general classification of insulating materials has been deleted, but the temperature classes have been retained with reference to IEEE Std 1-1986 for technical support. In addition, locking of a circuit breaker has been added to the functional components to reflect standard practice.

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The final conditions for approval of this standard were met on October 22, 1990. This standard was conditionally approved by the IEEE Standards Board on September 28, 1990, with the following membership:

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IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures

1. Scope

The scope of this standard includes enclosed low-voltage ac power circuit breakers, as follows:

- 1) Stationary or draw-out type of two- or three-pole construction, with one or more rated maximum voltages of 635 V (600 V for units incorporating fuses), 508 V, and 254 V for application on systems having nominal voltages of 600 V, 480 V, and 240 V.
- 2) Unfused or fused type
- 3) Manually operated or power operated, with or without electromechanical or solid-state trip devices.

NOTE — In this standard the term circuit breaker shall mean enclosed low-voltage ac power circuit breaker, either fused or unfused. The term unfused circuit breaker shall mean a circuit breaker without integral fuses, and the term fused circuit breaker shall mean a circuit breaker incorporating current limiting fuses as an integral part of the unit.

2. Service Conditions

A circuit breaker conforming to this standard shall be suitable for operation up to and including all of its standard ratings, provided that

- 1) The temperature of the air surrounding the circuit breaker is not below -5°C .
NOTE — When properly applied in metal-enclosed switchgear or individual enclosures, a circuit breaker will operate within the limits of ambient temperature of the air surrounding the enclosure as specified in IEEE C37.20.1-1987 [4].¹
- 2) The altitude does not exceed 6600 ft (2000 m).
- 3) The relative humidity of the air surrounding the circuit breaker is such that there will be no condensation on the circuit-breaker parts at any time.
- 4) None of the service conditions as listed in 10.6.2 prevail.

For application of circuit breakers under service conditions other than those above, see Section 10.

¹The numbers in brackets correspond to those of the references listed in Section 3.