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IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories

IEEE Power and Energy Society

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IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std C37.42™-2016

IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories

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Switchgear Committee
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IEEE Power and Energy Society

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Abstract: Specifications for high voltage (above 1000 V) Class A and Class B expulsion and current-limiting fuses are detailed in this standard. They include: expulsion type Class A [distribution class] fuses, fuse cutouts, fuse disconnecting switches, their associated fuse links or refill units, disconnecting cutouts, and accessories for these devices with rated voltages from 1 kV through 38 kV; expulsion type Class B [power class] fuses, fuse disconnecting switches, their associated fuse links or refill units, disconnecting cutouts, and accessories for these devices with rated voltages from 1 kV through 170 kV; class A and class B current-limiting fuses and accessories for these devices with rated voltages 1 through 38 kV; distribution and power class expulsion, current-limiting, and combination-type external capacitor fuses and accessories, with rated voltages from 1 kV through 38 kV, for protecting shunt capacitors complying with IEEE Std 18 and NEMA CP 1; any of the above devices used in fuse enclosure packages; all of these devices are intended for use on alternating current distribution systems.

Keywords: Class A fuses, Class B fuses, current-limiting fuses, distribution and power class current-limiting fuses, distribution class fuses, distribution fuse cutouts, expulsion fuses, fuse, fuse applications, fuse disconnecting switches, fuse enclosure packages, fuses for the protection of shunt capacitors, fuse hooks, fuse links, high-voltage fuses, IEEE C37.42™, power class fuses, supports and mountings, tongs

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

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Sterlin Cochran
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Bradley B. Lewis
James R. Marek
Sean W. Moody
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Timothy E. Royster
Jon Spencer
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William Walter
James Wenzel
Charles Worthington

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Chris Ambrose
Paul Barnhart
Craig Befus
Robert Behl
Jean-Marc Biasse
Glenn R. Borchardt
Christopher Borck
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Introduction

This introduction is not part of IEEE Std C37.42–2016, IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories.

IEEE Std C37.42™-2016 is a new IEEE standard covering specifications for expulsion and current-limiting type fuses. This standard is a consolidation of all previously published IEEE standards covering these devices. These standards include IEEE Std C37.42, IEEE Std C37.43™, IEEE Std C37.46™, and IEEE Std C37.47™. The consolidation was prepared by a working group of the IEEE Subcommittee on High-Voltage Fuses to improve the alignment with the associated testing document, IEEE Std C37.41™, to eliminate redundancy, and to bring the standard more in line with the related International Electrotechnical Commission (IEC) standards IEC-60282-1 and IEC-60282-2. Previous standards had ratings listed for historical purposes to attempt to account for the ratings of all devices manufactured either to prior standards or before standards existed. With this standard, these are eliminated as preferred values, and are included only for historical reference in an informative annex. In addition, previous standards included devices that have restricted application in terms of performance requirements or geographic applicability. With this standard, those devices have been separated from those that have essentially universal applicability, and are included in a normative annex. This is to preserve inclusion in the standard, but clearly indicate that they do not have a relation to IEC standard devices. Liaison was maintained with the IEC during the development of the revisions in order to incorporate the latest thinking up to the time of publication.

This standard is one of a series of complementary standards covering the various types of high-voltage fuses and switches, and contains the specifications, while IEEE Std C37.41 covers testing requirements. IEEE Std C37.45™ contains all of the specifications and testing requirements for high-voltage distribution class enclosed single-pole air switches. IEEE Std C37.41 and IEEE Std C37.42 together, and IEEE Std C37.45, provide all of the testing requirements for a device. In addition, IEEE Std C37.48™ provides application, operation, and maintenance guidance for all the devices, and is supplemented by and IEEE Std C37.48.1™ [B8] which is an application, operation, and coordination guide for current-limiting fuses.

At the time this standard was approved, this series was comprised of the following standards:

IEEE Std C37.41, IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses and Accessories.

IEEE Std C37.42, IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories.

IEEE Std C37.45, IEEE Standard Design Tests and Specifications for High-Voltage Distribution Class Enclosed Single-Pole Air Switches with Rated Voltages from 1 kV through 8.3 kV.

IEEE Std C37.48, IEEE Guide for Application, Operation, and Maintenance of High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.

IEEE Std C37.48.1, IEEE Guide for the Application, Operation, and Coordination of High-Voltage (>1000 V) Current-Limiting Fuses.

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1. Overview

1.1 Scope

This standard establishes specifications for high-voltage (above 1000 V) fuses and accessories for use on ac electrical distribution systems. Devices with rated maximum voltages to 170 kV are covered. The devices to which this standard applies are as follows:

a) Expulsion fuses (including fuse cutouts)

b) Current-limiting fuses

c) Items a) and b) used in fuse enclosure packages

d) Fuse supports of the type intended for use with fuses and fuse disconnecting switches

e) Disconnecting devices (fuse disconnecting switches, disconnecting switches, and disconnecting cut-outs) created by the use of a removable fuse unit or switch blade in a fuse support

f) Expulsion, current-limiting, and combination types of external capacitor fuses used with a capacitor unit, a group of units, or capacitor banks

g) Backup current-limiting fuses (“motor-starter fuses”) used in conjunction with high-voltage motor starters

h) Fuse links when used exclusively with expulsion fuses and fuse disconnecting switches

i) Items a) through f) having integral load-break means

j) Accessories including mounting brackets and switch sticks (switch hooks)

This standard may also be used for other devices that are similar to the devices listed in the scope.

1.2 Purpose

Standard specifications for the devices covered by this document are necessary to assure consistent development and application of these devices by manufacturers and users of these devices.