C37.42™

IEEE Standard Specifications for High-Voltage (> 1000 V) Expulsion-Type Distribution-Class Fuses, Fuse and Disconnecting Cutouts, Fuse Disconnecting Switches, and Fuse Links, and Accessories Used with These Devices

IEEE Power & Energy Society

Sponsored by the
Switchgear Committee

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3 Park Avenue
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IEEE Std C37.42™-2009
(Revision of
IEEE Std C37.42-1996)

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Approved 9 December 2009

IEEE-SA Standards Board

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Abstract: Specifications for high-voltage (above 1000 V) expulsion-type distribution-class fuses, fuse cutouts, fuse disconnecting switches, their associated fuse links, disconnecting cutouts, and accessories for these devices are covered. All of these devices are intended for use on alternating current distribution systems. These include open and enclosed types of fuses and fuse cutouts and fuse disconnecting switches, as well as the fuse links of the type used exclusively with these devices; also open-link types of fuses, cutouts and their associated fuse links, open and enclosed types of disconnecting cutouts, fuse supports, fuse mountings and fuse hooks of the type used exclusively with distribution-class fuses, fuse cutouts, fuse disconnecting switches and disconnecting cutouts, fuseholders and removable switch blades of the type used exclusively with distribution-class fuse supports and mounting brackets used for distribution-class equipment and other accessories.
Keywords: distribution-class fuses, distribution fuse cutouts, expulsion fuses, fuse, fuse applications, fuse disconnecting switches, fuse links, high-voltage fuses

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Introduction

This introduction is not part of IEEE Std C37.42-2009, IEEE Standard Specifications for High-Voltage (> 1000 V) Expulsion-Type Distribution-Class Fuses, Fuse and Disconnecting Cutouts, Fuse Disconnecting Switches, and Fuse Links, and Accessories Used with These Devices.

This standard is a revision of ANSI C37.42-1996, to bring it up to date and in line with present day requirements for high-voltage fuses, fuse links and fuse disconnecting switches. This standard was previously developed by the NEMA High Voltage Fuse Technical Committee. As of 2003 the responsibility for this standard has been transferred to the IEEE High-Voltage Fuse Subcommittee. Liaison was maintained with the International Electrotechnical Commission (IEC) during the development of the revisions in order to incorporate the latest thinking up to the time of publication.

The Switchgear Committee of the IEEE Power & Energy Society has recently sponsored the published standard IEEE Std C37.100.1™-2007 [B6][1]. Although IEEE Std C37.100.1 is not specifically referenced in this document, any information that may apply to fuse devices has been incorporated.

This standard is one of a series of complementary standards covering various types of high-voltage fuses and switches, arranged so that certain standards apply to all devices while other standards provide additional specifications for a particular device. For any device, IEEE Std C37.40™, IEEE Std C37.41™, plus an additional specification standard covering that device, constitute a complete set of standards for the device. In addition, IEEE Std C37.48™ is an application, operation, and maintenance guide for all the devices and IEEE Std C37.48.1™ provides additional guidelines for current-limiting fuses.

The following standards make up this series:

ANSI C37.46, American National Standard for High Voltage Expulsion and Current-Limiting Type Power Class Fuses and Fuse Disconnecting Switches.

ANSI C37.47, American National Standard for High Voltage Current-Limiting Type Distribution Class Fuses and Fuse Disconnecting Switches.

IEEE Std C37.40™, IEEE Standard Service Conditions and Definitions for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.

IEEE Std C37.41™, IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses, Fuse and Disconnecting Cutouts, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Fuse Links and Accessories Used with These Devices.

IEEE Std C37.42™, IEEE Standard Specifications for High-Voltage (> 1000 V) Expulsion-Type Distribution-Class Fuses, Fuse and Disconnecting Cutouts, Fuse Disconnecting Switches, and Fuse Links and Accessories Used with These Devices.

IEEE Std C37.43™, IEEE Standard Specifications for High-Voltage Expulsion, Current-Limiting, and Combination-Type Distribution and Power Class External Fuses, with Rated Voltages from 1 kV through 38 kV, Used for the Protection of Shunt Capacitors.

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

[1] The numbers in brackets correspond to those of the bibliography in Annex A.

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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 Operation, Classification, Application and Coordination of Current-Limiting Fuses with Rated Voltages from 1–38 kV.

NOTE—Fuse standards listed as "ANSI C37.xx," were formerly developed by NEMA. The responsibility for maintaining them has passed to the IEEE and will, at their next revision, carry the designation "IEEE Std C37.xx."

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1. Overview

1.1 Scope

This standard establishes specifications for high-voltage (above 1000 V) expulsion-type distribution-class fuses, fuse cutouts, fuse disconnecting switches, their associated fuse links and disconnecting cutouts, and accessories for these devices. All of these devices are intended for use on alternating current distribution systems. These specifications apply to the following specific types of equipment:

a) Open and enclosed types of fuses and fuse cutouts

b) Open and enclosed fuse disconnecting switches

c) Fuse links of the type used exclusively with distribution-class fuses, fuse cutouts, and fuse disconnecting switches

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d) Open-link types of fuses, cutouts, and their associated fuse links

e) Open and enclosed types of disconnecting cutouts

f) Fuse supports, fuse mountings and fuse hooks of the type used exclusively with distribution-class fuses, fuse cutouts, fuse disconnecting switches, and disconnecting cutouts

g) Fuseholders and removable switch blades of the type used exclusively with distribution-class fuse supports

h) Mounting brackets used for distribution-class equipment and other accessories

1.2 Purpose

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

1.3 Background

The fuses and fuse cutouts listed in 1.1 are the same as those covered in IEC 60282-2[1]. The open and enclosed types of "distribution" class fuses and fuse cutouts are the same as the class "A" fuses and fuse cutouts covered in that document. However, several minor differences exist in the testing requirements of IEC and IEEE/ANSI. IEEE fuse standards reflect, primarily, applications common in North America and in countries that use electrical systems designed using principles similar to those used in North America. IEC standards tend to rely heavily on practices common in Europe. The differences in test requirements may result in devices tested to IEC that do not meet the requirements of the IEEE/ANSI standards, or vice versa.

In the headings and the text of this document there will be some areas where information is included in brackets [ ]. The information in the brackets is a term used in IEC standards that may be similar to the term we are using, a term that is common in some parts of the world, or is a term that has been used previously in ANSI and IEEE standards. Caution is again advised when making comparisons.

1.4 Other devices covered by this standard

This standard may also be used for distribution-class devices, which are not of expulsion type or current-limiting type, wherein the circuit current stops flowing at the circuits' natural current zero, and the environment within the device prevents the restart of current after the current zero. The manufacturer and the user should agree on any specifications or tests performed for these devices.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

ANSI/ASME B1.1, Unified Inch Screw Threads (UN and UNR Thread Form).[2]

[1] Information on references can be found in Clause 2.
[2] ANSI publications are available from the Sales Department, American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, USA (http://www.ansi.org/).

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