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FINAL VERSION

VERSION FINALE

Specification for high-voltage fuse-links for motor circuit applications

Spécification relative aux éléments de remplacement à haute tension destinés à des circuits comprenant des moteurs

IEC 60644:2009-08+AMD1:2019-09 CSV(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS

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This Consolidated version of IEC 60644 bears the edition number 2.1. It consists of the second edition (2009-08) [documents 32A/267/CDV and 32A/270/RVC] and its amendment 1 (2019-09) [documents 32A/340/CDV and 32A/343/RVC]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60644 has been prepared by subcommittee 32A: High voltage fuses, of IEC technical committee 32: Fuses

This second edition constitutes a technical revision.

The main changes with regard to the previous edition concern the following:

- update of the normative references;
- renewal of the figures.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS

1 Scope

This document applies to fuse-links complying with IEC 60282-1 that are used with motors started direct-on-line on alternating current systems of 50 Hz and 60 Hz.

Fuse-links according to this document are intended to withstand normal service conditions and motor starting pulses.

The purpose of this document is to standardize time-current characteristics and to formulate pulse withstand requirements regarding testing.

This document also applies to fuse-links used with motors that use assisted starting when appropriate care has been taken with selecting the rated current of the fuse-link (using advice from 5.2.3 of IEC TR 62655:2013 and from the fuse manufacturer).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60282-1:2009, *High-voltage fuses – Part 1: Current-limiting fuses*
IEC 60262-1:2009/AMD1:2014

IEC TR 62655:2013, *Tutorial and application guide for high-voltage fuses*

3 Fuse-link time-current characteristics

Compared to fuses typically used for distribution system protection, fuses for motor circuit protection should have:

– relatively high melting current (slow operation) in the 10 s region of the pre-arcing time-current characteristic to give maximum withstand against motor starting current;
– relatively low melting current (fast operation) in the region below 0,1 s to give maximum short-circuit protection to associated switching devices, cables and motors and their terminal boxes.

Therefore pre-arcing time-current characteristics of fuse-links for motor circuit applications shall be within the following limits:

$$I_{f_{10}} / I_{\mathrm{r}} \geq 3 \text{ for } I_{\mathrm{r}} \leq 100$$

$$I_{f_{10}} / I_{\mathrm{r}} \geq 4 \text{ for } I_{\mathrm{r}} > 100$$

$$I_{f_{0,1}} / I_{\mathrm{r}} \leq 20 \left(I_{\mathrm{r}}/100\right)^{0,25} \text{ for all current ratings}$$