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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 15166.4-2021

High-voltage alternating-current fuses - Part 4: Fuse for exteanal protection of shunt capacitors

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 4 of GB/T 15166 "High Voltage AC Fuse": GB/T 15166 has released the following parts:

--- Part 1: Terminology;

--- Part 2: Current limiting fuses;

--- Part 3: Jet fuses;

--- Part 4: Fuse for external protection of parallel capacitors;

--- Part 5: Guidelines for the selection of fuses for high-voltage fuses in motor circuits;

--- Part 6: Guidelines for the selection of fuses for high-voltage fuses in transformer circuits:

This document replaces GB/T 15166:4-2008 "High Voltage AC Fuses Part 4: Fuse for External Protection of Parallel Capacitors", and

Compared with GB/T 15166:4-2008, in addition to structural adjustment and editorial changes, the main technical changes are as follows:

---Added fuses for external protection of capacitors that meet the provisions of this document and GB/T 15166:2 or GB/T 15166:3

description (see Chapter 1);

--- Delete the description of fuse classification (see 3:2 of the:2008 edition);

--- Deleted "rated value" (see Chapter 4 of the:2008 edition);

--- Deleted the two chapters of "Design, Structure and Performance" (see Chapter 5 of

the:2008 edition);

---Added "performance requirements", only for "rated maximum capacitive breaking current" and "rated discharge energy of capacitors withstanding fuse":

out requirements (see Chapter 5);

--- Deleted the insulation test (see 6:4 of the:2008 edition);

--- Delete the temperature rise test (see 6:5 of the:2008 edition);

--- Delete the time-current characteristic test (see 6:7 of the:2008 edition);

--- Delete the withstand discharge test (see 6:8 of the:2008 edition);

--- Changed the breaking times of small capacitive current from 3 times to 2 times (see 6:4:5, 6:6:2:2 of the:2008 edition);

--- Deleted "factory test" (see Chapter 7 of the:2008 edition);

--- Deleted "Acceptance Test" (see Chapter 8 of the:2008 edition);

--- Deleted "transportation and storage" (see Chapter 10 of the:2008 edition);

--- Deleted "Security" (see Chapter 11 of the:2008 edition):

This document is revised and adopted IEC 60549:2013 "High-voltage fuses for external protection of parallel capacitors":

The structure of this document has changed from IEC 60549:2013: Due to the addition of Chapter 4, the numbering of subsequent chapters has been postponed:

The technical differences between this document and IEC 60549:2013 and their reasons are as follows:

--- Regarding normative reference documents, this document has made adjustments with technical differences to adapt to the technical conditions of our country and the circumstances of the adjustment:

The situation is reflected in Chapter 2 "Normative References", and the specific adjustments are as follows:

* Replacing IEC 60871-1 with GB/T 11024-2019, which has been modified to adopt international standards;

* Replacing IEC 60282-1:2009 with GB/T 15166:2-2008, which adopts the international standard;

* Replacing IEC 60282-2 with GB/T 15166:3 which adopts the international standard;

* Added reference to GB/T 15166:1-2019:

--- Adjust the applicable capacitors from the text to Note, and make the fuses in 4:1 of IEC

60549:2013 meet the requirements

On the basis of GB/T 15133:2 or GB/T 15166:3, the descriptions that meet the requirements of this document are put into the scope (see Chapter 1,

Chapter 1 of IEC 60549:2013);

--- Terms and definitions The introduction has added reference standards (see Chapter 3);

--- Change the term "capacitor rated discharge energy" to "capacitor rated discharge energy withstand by fuse" (see 3:10, IEC 60549:

3:10 of:2013);

--- Added normal and special conditions of use (see Chapter 4);

--- Added Figure 3 capacitor discharge breaking test wiring diagram (see 6:5:2):

The following editorial changes have been made to this document:

--- In order to be consistent with my country's technical standard system, the standard name is changed to "High Voltage AC Fuses Part 4: External Protection of Parallel Capacitors"

Protective fuse";

--- Adjusted references:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

High-voltage AC fuse products are widely used in power transmission and distribution systems with a nominal voltage of 3kV and above in my country, as well as in factories, mines, and small residents:

In the area, it is used as a protection device for lines and equipment such as motors, transformers, and fuses: In this regard, my country has established a support

GB/T 15166 series national standard system for current fuse products: GB/T 15166 aims to establish suitable for high-voltage AC fuse design,

Ratings, tests and selection criteria for special applications are to be composed of 7 parts:

--- Part 1: Terminology: The purpose is to provide common terminology for standards within the system:

--- Part 2: Current limiting fuses: The purpose is to put forward specification requirements for high-voltage AC current-limiting fuses:

--- Part 3: Jet fuses: The purpose is to put forward specification requirements for high-voltage AC jet fuses:

--- Part 4: Fuse for external protection of parallel capacitors: The purpose is to provide the special work of fuses for external protection of parallel capacitors:

specific additional requirements:

--- Part 5: Guidelines for the selection of high-voltage fuses for motor circuits: The purpose is to protect the motor circuit

The special case of fuses puts forward special additional requirements:

--- Part 6: Guidelines for the selection of fuses for high-voltage fuses in transformer circuits: The purpose is to protect the transformer circuit with

The special case of fuses puts forward special additional requirements:

--- Part 7: Guidelines and application guidelines for high-voltage fuses: The purpose is to provide guidance for the selection of fuses under different operating conditions:

High Voltage AC Fuses Part 4:

Shunt capacitor external protection fuse

1 Scope

This document specifies the terms and definitions, normal and special use conditions, performance requirements, type tests of fuses for external protection of shunt capacitors

inspection requirements:

This document applies to external fuses used in high-voltage capacitors complying with GB/T 11024:1-2019:

Note: GB/T 11024:1-2019 is applicable to both the capacitor unit used and the capacitor bank used, especially in the AC power system

For power factor compensation, it is also suitable for capacitors in power filter circuits:

This document covers the internal faults used to eliminate a single capacitor unit to allow the rest of the capacitor bank to be connected to this unit

fuses that continue to operate (unit fuses); and fuses that eliminate the failure of the entire capacitor bank and isolate it from the system (line blown

device): These fuses meet the requirements of this document on the basis of GB/T 15166:2-2008 or GB/T 15166:3:

This document does not cover devices that do not need to interrupt capacitive currents [such as no capacitive currents will flow, or as other devices (to interrupt capacitive