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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 15166.2-2023

Replacing GB/T 15166.2-2008

**High-voltage alternating-current fuses - Part 2: Current-limiting
fuses**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 2 of GB/T 15166 "High Voltage AC Fuses". GB/T 15166 has released the following parts.

---Part 1. Terminology;

---Part 2. Current-limiting fuses;

---Part 3. Injection fuse;

---Part 4. Fuses for external protection of parallel capacitors;

---Part 5. Guidelines for selecting fuses for high-voltage fuses used in motor circuits;

---Part 6. Guidelines for selecting fuses for high-voltage fuses used in transformer circuits.

This document replaces GB/T 15166.2-2008 "High Voltage AC Fuses Part 2. Current-Limiting Fuses" and is the same as GB/T 15166.2-

Compared with.2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Relevant regulations on normal use conditions have been changed (see Chapter 4, Chapter 2 of the.2008 edition);
- b) The rated insulation level of the base has been changed (see 5.3, 4.3 of the.2008 edition);
- c) Temperature and temperature limits have been changed (see 5.7, 4.7 of the.2008

edition);

d) Added the maximum allowable operating voltage specification for 40.5kV fuses (see 5.9);

e) The standard value of TRV has been changed (see 5.10, 4.10 of the.2008 version);

f) Added relevant requirements for thermally operated impactors (see 5.14);

g) Added verification test items that need to be conducted every 8 years (see 7.2);

h) Added the selection points for pre-arc time-current test (see 7.7);

i) Added relevant test requirements for thermally operated impactors (see 7.8);

j) Change the oil seal test to the insulating fluid-sealing test, and propose separate tests for fuses for protective switches and protective transformers.

Requirements (see 8.7, 7.7 of the.2008 version);

k) The relevant provisions on factory testing have been deleted and replaced by consultation between the manufacturer and the user (see Chapter 9, Chapter 8 of the.2008 edition).

This document is modified to adopt IEC 60282-1.2020 "High-voltage fuses Part 1.Current-limiting fuses".

Compared with IEC 60282-1.2020, this document has many structural adjustments.

Comparison list of structure number changes between two files

See Appendix A for the table.

The technical differences between this document and IEC 60282-1.2020 and their reasons are as follows.

a) Replaced IEC 62271-105 with normative reference GB/T 16926 (see Chapter 1, 5.16.2, 10.2, 10.3.3.2,

F.1.3), to adapt to the actual requirements of our country;

b) Delete the five terms "lightning impulse", "rated lightning impulse withstand voltage", "category", "fuse housing packaging" and "barrel" (see

3.1.23, 3.1.24, 3.3.2, 3.3.12, 3.3.13) of IEC 60282-1.2020 to adapt to the actual requirements of our country;

c) The correction factor for the temperature rise limit (see 4.1) is added to Table 2 to standardize product type testing;

d) Added other usage conditions (see 4.2) to standardize fuses used for ambient temperatures higher than 40°C;

e) The normative reference of IEC 60644 (see 5.1, 5.3.2, 8.2 of IEC 60282-1.2020) has

been deleted to adapt to my country's actual situation.

international requirements;

f) The rated voltage has been changed and voltage values irrelevant to our country have been deleted (see 5.2) to adapt to the actual requirements of our country;

g) Deleted the application of all fuses (see 5.2 of IEC 60282-1.2020) and the application of special fuses (see IEC 60282-1.

The division method of 5.3) of 2020 is in line with the usage habits of my country's fuse industry;

h) The rated insulation level of the base has been changed (see 5.3) to maintain the consistency of the insulation coordination system;

i) Delete the permissions of fuses for transformer protection, fuses for motor circuit protection, fuses for capacitor protection, and fuses.

Ratings and characteristics of continuous current and maximum case current (see 5.3 of IEC 60282-1.2020), these contents are in

There are specifications in other parts of GB/T 15166;

j) The normative reference to IEC 60549 (see 5.3.3 and 8.2 of IEC 60282-1.2020) has been deleted to adapt to my country's actual requirements;

k) The 60Hz rated frequency value (see 5.4 of IEC 60282-1.2020) has been deleted to adapt to my country's actual requirements;

l) Temperature and temperature limits (see 5.7) were changed to maintain consistency with high-voltage switchgear regarding temperature and temperature rise;

m) Added the maximum allowable operating voltage specification for 40.5kV fuses (see 5.9) to better standardize product production;

n) The standard value of TRV has been changed (see 5.10) to maintain parameter consistency with the matching high-voltage switchgear;

o) Added verification test items that need to be conducted every 8 years (see 7.2) to better control product production quality;

p) Replaced IEC 60060-1.2010 (see 7.4.3~7.4.6) with normatively cited GB/T 16927.1-2011 to suit our needs

actual country requirements;

q) Replaced IEC 60071-1 (see 7.4.4) with the normatively quoted GB/T 311.1 to adapt to the actual requirements of our country;

r) The number of tests for test method 3 has been changed from 2 to 3 (see 7.6.1.1) to

adapt to the actual requirements of our country;

s) The point selection value and number of tests for the pre-arc time-current test are added (see 7.7) to standardize product type testing;

t) The electromagnetic compatibility test (see 7.8 of IEC 60282-1.2020) has been deleted. This test is meaningless for the product;

u) Delete the division method that certain types of fuses are applicable and tested only when required by the user (see 8.2), in order to comply with my country's fuse

Usage habits of the equipment industry;

v) The indicator test is deleted (see 8.3.1 of IEC 60282-1.2020), which is meaningless for the product;

w) Added selection guidelines (see Chapter 10) to facilitate product selection;

x) Added normative reference to GB/T 3804 (see 10.3.4) to adapt to the actual requirements of our country.

The following editorial changes have been made to this document.

---In order to coordinate with the existing standards, the name of the standard is changed to "High Voltage AC Fuses Part 2.Current-Limiting Fuses";

---Move the term "maximum operating temperature" (see E.3 in IEC 60282-1.2020) to Chapter 3 (see 3.3.11) to comply with

GB/T 1.1 requirements;

---Added Appendix A (informative) "Structural changes in this document compared with IEC 60282-1.2020";

---Added Appendix G (informative) "Practical Guide to Reducing Thermal Ratings of Current-Limiting Fuses".

Introduction

High-voltage AC fuse products are widely used in my country's power transmission and distribution systems with nominal voltages of 3kV and above, as well as factories, mines, enterprises, and residents.

In residential areas, it also serves as a protection device for lines and equipment such as motors, transformers, fuses, etc. In this regard, our country has established a system to support high-pressure

GB/T 15166 "High Voltage AC Fuse" series of national standard systems for AC fuse products. GB/T 15166 aims to establish the applicable