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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 42321-2023

Additional requirements for internal arc classified pole-mounted metal-enclosed switchgear for rated voltages above 3.6 kV and up to and including 40.5 kV

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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 for Standardization Documents"

drafting:

This document is modified to adopt IEC 62271-214:2019 "High Voltage Switchgear and Controlgear Part 214: 1kV~52kV Column

Internal arc ratings for the installation of metal-enclosed switchgear and controlgear:

The technical differences between this document and IEC 62271-214:2019 and the reasons are as follows:

a) Modify the voltage range from 1kV~52kV to 3:6kV~40:5kV, and modify 60Hz and below to 50Hz and above

(see Chapter 1) to adapt to the actual situation in our country;

b) The reference to GB/T 3906-2020 (see Chapter 3) is added to meet the actual requirements of our country;

c) The term "switchgear" (see 3:1) has been added for a better understanding of this document;

d) The term "functional unit" (see 3:1:3 of IEC 62271-214:2019) was deleted to avoid confusion with the term "functional unit" used in other standards

unit" definition;

e) In the conditions of use, change "covered by relevant IEC standards" to "covered by GB/T 11022-2020" (see Chapter 4), with a higher

Regulate the scope of application of the products regulated by the standard to avoid ambiguity caused by wrong references;

f) Deleted rated voltage (see 5:1 and 5:2 of IEC 62271-214:2019), rated frequency (see 5:1 and 5:2 of IEC 62271-214:2019

5:1 and 5:4) and other two ratings that are not closely related to the internal arc category of pole-mounted metal-enclosed switchgear should be avoided:

Conflict and duplication of product standards;

g) Delete the rated insulation level (see 5:3 of IEC 62271-214:2019), this rating does not apply to this document and does not need to be attached

add requirements for inclusion;

h) The duration of the single-phase-to-earth arc fault is added to the requirements specified by the manufacturer (see 5:2:4), in order to maintain consistency with other product standards

consistent;

i) The marking requirements for the rated approach distance are added, and the single-phase and three-phase fault current rating marking requirements (see 6:2) are combined to

Alignment with other product standards;

j) The requirement that the layout distance should be included in the test layout diagram (see 7:1:3) is added to standardize the actual operation of the laboratory;

k) The geometric center of the test object is added as the layout center of the indicator, and the convenient test height is recommended to be 0:5m~2m (see

7:2:3), to guide the laboratory to carry out the type test;

l) Change the peak current should not be lower than 90% of the peak value of the rated short-circuit current to not be lower than the peak value of the rated short-circuit current (see

7:2:6:3:2), to be consistent with GB/T 3906;

m) "Factory test" (see Chapter 8 of IEC 62271-214:2019) is deleted, and the contents of this chapter are not applicable to metal enclosures installed on columns

switchgear internal arc category;

n) The relevant requirements in the selection guidelines need to consider the description of laws and user safety manuals (see 8:1);

o) The specified minimum installation height is the rated proximity distance declared by the manufacturer plus 2m (see 8:2:4) to regulate the installation of equipment, increasing

safety;

p) Adjust Note 2 in Table 4 to the text content (see 8:2:6);

q) Delete "Transportation, storage, installation, operation and maintenance rules" (see Chapter 11 of IEC 62271-214:2019), "Safety" (see

Chapter 12 of IEC 62271-214:2019), "The impact of products on the environment" (see Chapter 13 of IEC 62271-214:2019), etc:

Install the metal-enclosed switchgear on the column with the chapters that are not closely related to the internal arc category, so as to avoid conflicts and repetitions with related product standards:

The following editorial changes have been made to this document:

---In order to be consistent with my country's technical standard system, the name of the standard was changed to "3:6kV~40:5kV pole-mounted safety with internal arc category

Additional requirements for installation of metal-enclosed switchgear";

--- Deleted the note describing common names such as "high voltage" and "medium voltage" (see Chapter 1 of IEC 62271-214:2019);

--- Deleted the description of the term database address (see Chapter 3 of IEC 62271-214:2019);

--- Delete the reference in Table 2 (see 5:101:2 of IEC 62271-214:2019);

--- Split the original Figure 1 (see 6:102 of IEC 62271-214:2019) into Figure 1 and Figure 2 (see 7:3) according to the number of phases to comply with GB/T 1:1

Requirements; Change the components in Figure 1d) to components whose main circuits are covered with solid insulation to meet the actual product conditions in our country;

--- Redraw the test layout of the switchgear on the pole according to the principle of engineering drawing (see 7:2:3);

---Add Appendix A (informative) to the structural changes of this document compared with IEC 62271-212:2016:

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

According to the requirements of the high-voltage switchgear standard system, the product standard will only consider the equipment with closed terminals, and will

Part of the IAC category of enclosed switchgear is separated, so this document is formulated: This document is consistent with the standard system of high voltage switchgear

related to other product standards:

3:6kV~40:5kV with internal arc category

Additional requirements for pole-mounted metal-enclosed switchgear

1 Scope

This document specifies the terms and definitions, ratings, design and construction of pole-mounted metal-enclosed switchgear with an internal arc category:

Additional requirements such as structure, type test and selection guidelines:

This document applies to the installation of metal-enclosed switchgear on columns with a rated voltage of 3:6kV~40:5kV and a frequency of 50Hz or less:

This document applies to three-phase, two-phase and single-phase equipment with open terminals: Its housing may contain fixed and movable parts and may be filled with

Fluid (liquid or gas) for insulation:

The metal-enclosed switchgear installed on the pole, on the basis of conforming to the respective product standards, the relevant provisions of its internal arc category meet the requirements of this

Documentation required:

This document does not exclude other equipment that may be contained within the same enclosure: In this case, it is necessary to consider the effect of the device on any switchgear

any possible impact:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document:

GB/T 2900:20-2016 Electrotechnical Terminology High Voltage Switchgear and Controlgear (IEC 60050-441:1984, MOD)

Note: There is no technical difference between the referenced content of GB/T 2900:20-2016 and the referenced content of IEC 60050-441:1984: