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

GB 3804.1-1990

Replacing GB/T 3804-2004

**High voltage alternating current switches for rated voltage
above 3.6 kV and less than 40.5 kV**

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 3804-2004 "3.6kV ~ 40.5kV high voltage AC load switch".

The main differences between this standard and GB/T 3804-2004 are.

--- The chapter number of the full text has been rearranged, consistent with GB/T 11022-2011;

--- Scope of application, special requirements for opening and closing operations;

--- Added related content in terms and definitions. For example, neutral point effective grounding system, neutral point non-effective grounding system, according to Capacitive current breaking capacity is divided into C1 level, C2 level load switch, heavy breakdown performance, re-ignition, etc.;

--- Added the term 3.7.119 non-maintaining destructive discharge (NSDD);

--- Specifications for the type and classification of general purpose, special purpose and special purpose load switches are given in Chapter 4 Ratings;

--- Revised the contents of the nameplate in Table 2 in Chapter 5, and explained the breaking of the no-load transformer;

- Removed Chapter 6 of the 2004 version, the content of which is stated in the relevant terms;
- Chapter 6 adds the relevant requirements for the validity period of the type test, and the special type test for the special requirements of the user has been modified;
- Increased the mechanical characteristics of the load switch at the beginning of the type test;
- Clearly specified the relevant requirements of the short circuit closure test;
- Table 3, Table 4, Table 5, Table 6 in the single capacitor bank current test mode of the test current coefficient is changed to (0.1 ~ 0.4);
- The amplitude coefficient in Note 2 of Table 9 is changed to 1.8;
- In the short-circuit closing test mode, the short-circuit closing test should be performed under the active load required by the test mode TDload2 get on;
- For the test voltage of the capacitive loop, the coefficient of the opening and closing of the capacitor bank with the neutral point ungrounded at the neutral point effective grounding system is changed.

Is 1.4;

- For the three-phase test of grounding of the neutral point of the power supply, the positive sequence capacitance of the capacitive loop recreating the three-core armored cable is approximately equal to twice the zero sequence capacitance is modified to be a zero sequence capacitor that should be approximately equal to three times;
- Chapter 7 adds requirements for mechanical properties;
- Added Appendix A to determine tolerances.

This standard adopts the redrafting method to modify the use of IEC 62271-103:2011 "High-voltage switchgear and control equipment Part 103. Amount Load switch with constant voltage above 1kV and 52kV and below.

There are technical differences between this standard and IEC 62271-103:2011. The terms involved in these differences have been passed on the outer side of the page.

The vertical single line (I) of the white position is identified, and the corresponding technical differences and their causes are given in Appendix B.

This standard applies to IEC 62271-103:2011 "High-voltage switchgear and control equipment Part 103. rated voltage above 1kV, the entire chapter number of the load switch of 52kV and below has been edited. The standard and IEC 62271-103 are given in Appendix C.

2011 chapter number comparison.

This standard shall be used together with GB/T 11022-2011. Unless otherwise specified in this standard, this standard shall be implemented in GB/T 11022-2011.

Provisions. In order to simplify the repeated expression of the same requirements, the chapters and articles of this standard are the same as GB/T 11022-2011. For these chapters, Supplements to the content of the article are given under the same reference heading, and additional terms are numbered starting from 101.

1.1 Scope

This standard applies to the rated voltage of 3.6kV~40.5kV, the frequency is 50Hz, installed indoors or outdoors and has the function of closing and breaking.

Flow rating of three-pole AC load switch and isolated load switch. This standard also applies to single-pole load switches for three-phase systems.

This standard also applies to the operating mechanism of these load switches and their auxiliary equipment.

The isolation function of the isolated load switch should also meet GB/T 1985-2014.

This standard does not cover load switches that rely solely on human energy storage.

The general principles and provisions of this standard also apply to unipolar load switches in single-phase systems. Insulation test and closing and breaking test the requirements shall meet the requirements for the intended use.

This standard specifies the requirements for general purpose, special purpose and special purpose load switches used in power distribution systems.

Assume that the opening and closing operations are performed according to the manufacturer's instructions, and a closing operation can be performed immediately after the breaking operation, but the closing is performed.

The breaking operation cannot be performed immediately after the operation because the breaking current may exceed the rated breaking current of the load switch.

Note 1: In addition to requiring a special distinction, the term "load switch" represents all types of load switches and isolated load switches within the scope of this standard.

Note 2: The grounding switch is not included in the scope of this standard. The earthing switch, which is part of the load switch, is included in GB/T 1985-2014.

Note 3: This standard does not apply to switchgear with load switch as accessory for high-voltage fuse complete device or its base, nor for complete set of fuses.

Switching device for opening and closing operation of the device.

1.2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 311.1-2012 Insulation coordination Part 1. Definitions, principles and specifications (IEC 60071-1:2006, IEC 60071-1 Am1.2010, MOD) GB/T 762-2002 standard current rating (eqv IEC 60059.1999) GB/T 1984-2014 High voltage AC circuit breaker (IEC 62271-100:2008, MOD) GB/T 1985-2014 High voltage AC disconnect and earthing switch (IEC 62271-102:2001 A1.2011, MOD) GB/T 2900.20-2016 Electrotechnical terminology high voltage switchgear (IEC 60050 (441). 1984, MOD) GB/T 4208-2008 Shell protection class (IP code) (IEC 60529:2001, IDT) GB/T 4585-2004 Artificial contamination test for high voltage insulators for AC systems (IEC 60507:1991, IDT) GB/T 11022-2011 Common technical requirements for high-voltage switchgear and controlgear standards (IEC 62271-1:2007, MOD) GB/T 16926-2009 High-voltage AC load switch-fuse combination electric appliance (IEC 62271-105:2002, MOD) GB/T 29489-2013 Inductive load opening and closing of high voltage switchgear and control equipment (IEC 62271-110:2009, MOD)

2 Normal and special conditions of use

Chapter 2 of GB/T 11022-2011 is applicable.

3 Terms and definitions

The following terms and definitions as defined in GB/T 2900.20-2016 and GB/T 11022-2011 apply to this document.

Note 1: For ease of use and ease of understanding of this standard, some of the following terms and definitions have been restated and rewritten.

Note 2: The following terms and definitions are classified according to GB/T 2900.20-2016. Additional terms and definitions of classification and GB/T 2900.20-2016 the classification method used is the same.

3.1 General terms

3.1

of GB/T 11022-2011 is applicable and supplemented as follows.

3.1.101

Neutral point effective grounding system effectively earthed neutrals system the system is grounded with a sufficiently low impedance that the ratio of zero-sequence reactance to