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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 19517-2023

Replacing GB 19517-2009

National technical specification for the safety of electric equipments

国家电气设备安全技术规范

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Foreword

The purpose of this document is to achieve the optimum balance among the safety levels of human beings, the environment and products, so that the electric equipment can minimize the risks of damage to life, health and property during product design, manufacture, sales and usage, and achieve an acceptable level. This document provides information on the basic safety requirements for various types of electric equipment products. National Technical Specification for the Safety of Electric Equipment

1 Scope

GB 19517-2023 is the Chinese national standard on national technical specification for the safety of electric equipments, in the field of electrical engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 29.020, CCS K09. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the basic safety requirements for various types of hand-held, movable and fixed electric equipment for indoor and outdoor application with a rated AC voltage below 1,000 V (1,140 V) and a rated DC voltage below 1,500 V (hereinafter referred

to as "the products"). This document is applicable to products or components within the application range of electric energy converted from chemical energy, light energy and wind energy, etc. Products with internally generated inaccessible AC voltages higher than 1,000 V and DC voltages higher than 1,500 V also fall within the scope of application of this document. This document does not apply to.

---Materials and auxiliary materials, other than those for the products specified in this document;

---Semi-finished products or primary products that cannot be independently used;

---Electric equipment for medical purposes;

---Electric fence actuators;

---Special products, such as. ships, aircrafts and railways, etc.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 3805 Extra-low Voltage (ELV) - Limit Values

GB/T 4208 Degrees of Protection Provided by Enclosure (IP code)

GB/T 4776 Electrical Safety Terminology GB/T 13306 Plates

GB/T 14048.1 Low-voltage Switchgear and Controlgear - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 4776 are applicable to this document.

4 General Rules

4.1 Safety Level The products that comply with the stipulations of this document can be considered to have reached the basic safety level.

4.2 Relations between Chapter 5 and Chapter

6 The relations between Chapter 5 and Chapter 6 are as follows:

5 Requirements for Electrical Safety Hazard Protection

5.1 General Requirements The general requirements include.

5.2 Protection against Electric Shock Hazards The requirements for the protection against electric shock hazards include the following aspects.

5.4 Protection against Electrical Connection and Mechanical Connection Hazards The requirements for the protection against electrical connection and mechanical connection hazards include the following aspects.

5.5 Protection Against Operating Hazards The requirements for the protection against operating hazards include.

5.7 Protection against Other Hazards

5.7.1 Human-machine-related factors The human-machine-related factors include, but are not limited to.

5.7.2 Electrical safety information-related factors The electrical safety information-related factors include, but are not limited to.

6 Requirements for Safety Items

6.1 Environmental Adaptability The requirements for environmental adaptability include, but are not limited to the following aspects.

6.2 Surfaces The surfaces of the products in all directions (including the enclosure and the parts that are accessible during normal use) shall be smooth, without sharp edges, burrs, scratches, overflows, etc., and without obvious cracks.

6.3 Safety Extra-low Voltage The power supply voltage of the products shall comply with the stipulations of GB/T 3805.

6.4 Enclosure and Protection Degrees The requirements for the enclosure and protection degrees include the following aspects.

6.5 Protective Grounding The requirements for the protective grounding include the following aspects.

6.6 Additional Fault Protection The requirements for additional fault protection include the following aspects.

6.7 Functional Grounding The functional grounding of the products shall be clearly and durably marked with the functional grounding symbol, and the functional grounding symbol cannot be mixed with the protective grounding symbol; the functional grounding device cannot be directly connected to the protective grounding device

6.8 Noise The noise limit value (or the noise limit value after adopting noise reduction measures) shall comply with the relevant national regulations.

6.9 Limits of Manufacturing Materials The varieties and content limits of manufacturing materials restricted for use shall comply with the relevant national regulations.

6.10 Safe Handling The requirements for safe handling include.

6.14 Leakage Current The leakage current shall generally not be greater than

6.15 Distance through Insulation

6.15.1 If both supplementary insulation and reinforced insulation are present in the products,

6.15 is applicable.

6.17 Resistance to Impulse Voltage Test For air insulation and solid insulation, they shall comply with the stipulations of

6.1 in GB/T 16935.1-2008.

6.18 Resistance to AC Power Frequency Voltage Test For solid insulation, it shall comply with the stipulations of

6.1 in GB/T 16935.1-2008.

6.19 Internal Temperature Rise The allowable temperature rise of internal heating components shall be specified by the manufacturer, or in accordance with the requirements of GB/T 14048.1.

6.20 Basic Insulation Protection The requirements for the basic insulation protection include, but are not limited to.

7 Inspection and Testing Methods and Qualification Determination

7.1 General Rules This document allows two or more inspection and testing methods for one inspection item, but the inspection and testing methods specified in this document are the arbitration methods. If the test sequence and ambient temperature of the inspection items will affect the test results, the inspection and testing institution shall formulate test rules in accordance with the specific conditions of the products.