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

GB/T 30843.1-2024

**Variable-frequency drive above 1 kV and not exceeding 35 kV -
Part 1: Technical conditions**

1 kV以上不超过35 kV的通用变频调速设备 第1部分：技术条件

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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 Part 1 of GB/T 30843 "General-purpose variable frequency speed regulating equipment above 1 kV and not exceeding 35 kV". GB/T 30843 The following parts have been published.

1. Technical requirements;

3. Safety regulations. This document replaces GB/T 30843.1-2014 "General frequency conversion speed regulation equipment above 1kV and not exceeding 35kV Part

1. Technical Compared with GB/T 30843.1-2014, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) Deleted "Classification of speed regulating equipment" (see Chapter 4 of the.2014 edition);

b) The provisions related to "input rated value" have been changed (see 4.1, 5.1 of the.2014 edition);

c) The provisions related to "output rated value" have been changed (see 4.2, 5.2 of the.2014 edition);

d) Deleted the provisions related to "work system level" (see 5.3 of the.2014 edition);

e) Changed the provisions related to "normal environmental use conditions" (see 5.1.1, 6.1.1 of the.2014 edition);

1 Scope

China's national technical requirements for general purpose medium voltage variable frequency drives, and the current edition of GB/T 30843.1, replacing the 2014 edition. It is Part 1 of GB/T 30843 and specifies the ratings, the service conditions and the technical requirements for variable frequency speed regulating equipment operating above 1 kV and up to and including 35 kV. The technical requirements cover appearance and structure, safety, functions, performance, protective functions, environmental adaptability, degree of protection, electromagnetic compatibility and high and low voltage ride-through capability, followed by the test regime and the marking, packaging, transport and storage. A medium voltage drive is a different machine from the low voltage one most engineers picture. It is a

room-sized cabinet line-up feeding a motor of hundreds or thousands of kilowatts - a boiler feed pump, an induced draught fan, a mine hoist, a compressor - and at these voltages the semiconductors available cannot block the full bus voltage individually, so the converter is built from series-connected cells or multi-level topologies with their own input transformer. That construction is why insulation coordination, clearance and creepage, earthing continuity and cooling occupy so much of the requirements, and why the standard corrects clearances for altitude. The 2024 revision removes the classification of drive equipment and the duty class provisions, rewrites the input and output ratings, revises the normal and abnormal environmental and electrical service conditions, and revises insulation resistance, the minimum clearance and creepage distances, earthing protection continuity and noise. The addition that matters most operationally is high and low voltage ride-through, which requires the drive to stay connected and controlled through a network disturbance instead of tripping. Issued on 31 December 2024 and in force since 1 July 2025.

This document specifies the rated values, use voltages and voltages of general variable frequency speed regulating equipment (hereinafter referred to as "speed regulating equipment") above 1kV and not exceeding 35kV. Use conditions, technical requirements, test item requirements and marking, packaging, transportation and storage. This document is applicable to the rated input voltage between 1kV and 35kV AC, the rated input frequency is 50Hz or 60Hz, and the output voltage is Design, production and installation of speed regulating equipment with voltage not exceeding 35kV and output frequency not exceeding 120Hz.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 3797 Electrical control equipment

GB/T 4208 Enclosure protection grade (IP code)

GB/T 4798.2 Classification of environmental conditions Classification of environmental parameter groups and their severity classification Part

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Overload capacity Under specified operating conditions, the maximum output current that can be supplied within a specified period of time without exceeding the specified limit.

[Source: GB/T 12668.2-2002, 2.5.2, modified]

3.2 fundamentalcomponent fundamental The frequency is the component of the fundamental frequency.

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