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

GB/T 30844.1-2024

**Variable-frequency drive of 1 kV and below - Part 1: Technical
conditions**

1 kV及以下通用变频调速设备 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 is required. This

document is part 1 of GB/T 30844 "General-purpose variable frequency speed regulating equipment of 1 kV and below". GB/T 30844 has been published in Lower part. --Part

1 Scope

China's national technical requirements for general purpose low voltage variable frequency drives, and the current edition of GB/T 30844.1, replacing the 2014 edition. It is Part 1 of GB/T 30844 and specifies the ratings, the service conditions, the technical requirements, the tests, and the marking, packaging, transport and storage for variable frequency speed regulating equipment with a rated input of 1 kV AC or 1.5 kV DC and below. 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. This is the drive that is actually everywhere: the unit on the wall of every pump house, ventilation plant room, conveyor, machine tool and packaging line in the country, made in enormous numbers by dozens of manufacturers at every level of quality. Its economic significance is enormous and almost entirely invisible, because most of the electrical energy consumed by industry passes through motors and a large share of those motors drive pumps and fans whose output is throttled rather than controlled. A general purpose product standard for these drives is therefore a document about energy, about safety and about interoperability all at once. The most consequential change in the 2024 revision is the scope: the rated input is now stated as 1 kV AC and 1.5 kV DC and below, bringing DC-fed drives explicitly into the standard - a change that follows the growth of DC microgrids, battery installations and photovoltaic-coupled systems. The revision also deletes the classification of drive equipment, revises the environmental and normal electrical service conditions, revises the minimum clearance and creepage distances and the protective functions, revises the test items and the nameplate marking, and adds high and low voltage ride-through capability. Issued on 31 December 2024 and in force since 1 July 2025.

This document specifies the rated values, operating conditions, technical specifications, and other requirements of general variable frequency speed control equipment (hereinafter referred to as "speed control equipment") of 1 kV and below. Requirements, test item requirements and marking, packaging, transportation and storage. This document is applicable to power supplies with rated input voltage of 1 kV AC and

1.5 kV DC and below, rated input frequency of

50 Hz or Design, production and installation of speed regulating equipment with an output voltage not exceeding 1 kV and an output frequency less than 600 Hz.

Note. Speed regulating equipment with rated input voltage of 1 140 V or output frequency greater than 600 Hz is also usually implemented in accordance with this document. To be determined through negotiation between the manufacturer and the user.

2 Test methods; --Part

3.Safety regulations. This document replaces GB/T 30844.1-2014 "1 kV and below general frequency conversion speed regulation equipment Part

1.Technical conditions" and Compared with GB/T 30844.1-2014, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) Changed the scope of application of the document, changing the rated input voltage to 1 kV AC and

1.5 kV DC and below (see Chapter 1 of the.2014 edition);

b) The classification of speed regulating equipment has been deleted (see Chapter 4 of the.2014 edition);

c) The provisions related to "Environmental conditions of use" have been changed (see 5.1, 6.1 of the.2014 edition);

d) The provisions related to "normal electrical use conditions" have been changed (see 5.2.1,

6.2.1 of the.2014 edition);

e) Changed the provisions related to "minimum values of electrical clearance and creepage distance" (see 6.2.3.3,

7.3.3.3 of the.2014 edition);

f) The provisions related to "protection function" have been changed (see 6.5, 7.14 of the.2014 edition);

g) Added provisions related to "high and low voltage ride-through capability" (see 6.9);

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Overload capability 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 Voltage unbalance voltage unbalance (imbalance) A condition in which the effective values of the fundamental components of the line voltages or the phase angle differences between adjacent phases in a multiphase system are not completely equal.