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

GB/T 12668.3-2025

Replacing GB/T 12668.3-2012

**Adjustable speed electrical power drive systems - Part 3: EMC
requirements and specific test methods for PDS and machine
tools**

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

This document is Part 3 of GB/T 12668 "Speed-regulating electrical drive systems". GB/T 12668 has already published the following parts.

---Part 1: General Requirements - Specifications for Ratings of Low-Voltage DC Speed-Regulating Electrical Drive Systems;

---Part 2: General Requirements - Specifications for Ratings of Low-Voltage AC Variable Frequency Electrical Drive Systems;

---Part 3: Electromagnetic compatibility requirements for electrical drive systems and machine tools and specific test methods;

---Part 4: Rated AC speed-regulating electric drive systems with AC voltage generally above 1000V but not exceeding 35kV Value specification;

- Part 5-1: Safety Requirements for Electrical, Thermal, and Energy;
- Part 5-2: Safety Requirements Functions;
- Part 6: Guidelines for determining load duty cycle type and corresponding current rating;
- Part 701: General Interfaces and Usage Specifications for Electrical Drive Systems;
- Part 7-201: General Interfaces and Usage Specifications for Electrical Drive Systems, Type 1 Specification Description;
- Part 7-202: General Interfaces and Usage Specifications for Electrical Drive Systems, Type 2 Specification Description;
- Part 7-301: General Interfaces and Usage Specifications for Electrical Drive Systems Type 1 Specification Corresponds to Network Technology;
- Part 7-302: General Interfaces and Usage Specifications for Electrical Drive Systems Type 2 Specification Corresponding to Network Technology;
- Part 8: Voltage Specifications for Power Interfaces;
- Part 9-1: Eco-design of electrical drive systems, motor starters, power electronic equipment and their drive applications adopts extended The Product Energy Management Act (EPA) and the Semi-Analytical Model (SAM) are used to establish general requirements for energy efficiency standards for electrical drive equipment;
- Part 9-2: Eco-design of electrical drive systems, motor starters, power electronic equipment and their drive applications Electrical Drives Energy efficiency indicators for the system and motor starter.

This document replaces GB/T 12668.3-2012 "Speed-regulating electrical drive systems - Part 3: Electromagnetic compatibility requirements and specific test requirements".

Compared with GB/T 12668.3-2012, the main technical changes in the "Test Methods" are as follows, except for structural adjustments and editorial modifications.

- a) Added relevant content on "machine tools" (see Chapter 1, 4.2, 5.1, 5.2.4, 6.2, and 6.4.1.4);
- b) Terms and definitions have been added and changed (see Chapter 3, Chapter 3 of the 2012 edition);
- c) The requirements for the "Test Report" have been changed (see 4.2.2, 2012 version 4.2.2);
- d) The requirements of the "Performance (Acceptance) Criteria" have been changed (see 5.1.1, 2012 version 5.1.1);
- e) The provisions regarding "Test Conditions" have been amended (see 5.1.2, 5.1.3 in the

2012 version);

- f) The requirements in "Basic Immunity Requirements - Low Frequency (< 150kHz) Disturbances" have been revised (see 5.2, 2012 version 5.2);
- g) The requirements for "Basic Immunity Requirements - High Frequency ($\geq 150\text{kHz}$) Interference" have been revised (see 5.3, 2012 version 5.3);
- h) The requirement for "Application of immunity requirements - Alternative verification methods" has been changed (see 5.4, 2012 version 5.4);
- i) The provisions of "General Launch Requirements" have been amended (see 6.1, 2012 version 6.1);
- j) The requirements for the "basic low-frequency (< 150kHz) emission limit" have been changed (see 6.3, 6.2 in the 2012 edition);
- k) The requirements for "Conditions related to high-frequency ($\geq 150\text{kHz}$) emission measurements" have been changed (see 6.4, 6.3 in the 2012 edition);
- l) The requirements for "Basic High-Frequency Emission Limits" have been changed (see 6.5, 6.4 in the 2012 edition);
- m) The requirements for "Engineering Design Practice" have been changed (see 6.6, 6.5 in the 2012 edition).

This document is equivalent to IEC 61800-3:2022 "Regulated electric drives - Part 3: Electromagnetic compatibility of electric drives and machine tools". Capacity requirements and specific test methods.

Introduction

GB/T 12668 provides a series of general specifications for speed-regulating electric drive systems. It is proposed to consist of the following parts.

---Part 1: General Requirements - Specifications for Ratings of Low-Voltage DC Speed-Regulating Electrical Drive Systems. The purpose is to provide a specification for the ratings of DC electrical drive systems.

The performance of the drive system should be considered, rather than defining the entire DC electric drive system based on the functional units of each subsystem.

---Part 2: General Requirements for Ratings of AC Speed-Regulating Electrical Drive Systems. The purpose is to specify the ratings for the electrical drive system.

The entire AC speed-regulating electric drive system is defined by its performance, rather than by the functional units of each subsystem.

---Part 3: Electromagnetic Compatibility Requirements for Electrical Drive Systems and