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

GB 12668.501-2013

**Adjustable speed electrical power drive systems -- Part 5-1:
Safety requirements -- Electrical, thermal and energy**

调速电气传动系统 第5-1部分：安全要求 电气、热和能量

(English Translation)

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Foreword

This part of Chapters 4 and 5 are mandatory, the rest are recommended.

GB 12668 "speed electric drive systems" is divided into the following sections.

- Part 1. General requirements for low-voltage DC speed electric drive systems rating requirements;
- Part 2. General requirements for low-voltage adjustable frequency ac power drive systems rating requirements;
- Part 3. EMC requirements and specific test methods;
- Part 4. General requirements AC voltage 1000V or more but not exceeding 35kV AC rated speed electric drive systems A predetermined value;
- Part 5. Safety requirements;
- Part 6. Determine the type of load duty and corresponding current ratings guidelines;
- Part 7. PDSs common interface specification and use;
- Part 8. power supply voltage Interface specification.

This section GB 12668 Part 5-1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method identical with IEC 61800-5-1:2007 "Adjustable speed electrical power drive systems Part 5-1. Safety requirements - Electrical Gas, heat and energy. " Consistency correspondence between this part of the normative international documents referenced with our document Appendix NA.

This part made the following editorial changes.

- Increase the informative appendix NA "international normative documents referenced in our country and there is a correspondence between file consistency", for reference;
- Remove the foreword to international standards;
- Decimal symbol used in place of ",", ". ", ";";
- For unnumbered column item, prior to the first level of the column items with a dash before the second level of the column items with a dot, the third level Before column items with squares;
- Of misrepresentation in Table 2, line 9 of the first two changes.

This part is proposed by the China Electrical Equipment Industrial Association.

This part of the National Science Power Electronics Standardization Technical Committee

(SAC/TC60) centralized.

This section is drafted. Tianjin Electric Drive Design Institute, Shandong scenery of Electronic Science and Technology Development Co., Ltd., Beijing Hiconics change Frequency Technology Co., CISDI Electrical Technology Co., Ltd., Guangzhou Zhiguang Electric Co., Ltd., Harbin Jiuzhou Electric Co.

Ltd., Shenzhen INVT Electric Co., Ltd., hope Senlan Technology Co., Ltd., Shandong Taikai Automation Co., Ltd., North Beijing Leader & Harvest Electric Technologies Co., Ltd., on Haileinuor Technology Co., Ltd., Shanghai and Australia-Vail Power Electronic Co., Emerson Network Power Co., Ltd., Dalian Pu-Technology Co., Ltd., ABB Beijing Drive Systems Co., Ltd., Shenzhen marks the new Technology Co., Ltd., Shenzhen Sine Electric Co., Ltd., Beijing Power Source Technology Co., Ltd., Dongfang Hitachi (Chengdu) Electric Control provided Preparation Ltd., Beijing gold from Tengen Intelligent Control Co., Ltd., Yaskawa Electric (Shanghai) Co., Ltd., the state-controlled electricity distribution equipment Quality Supervision and Inspection Center, Guangdong China take East Energy Limited.

1 Scope

GB 12668 of the provisions of this part of the speed electric drive systems or electrical, thermal and energy security-related element requirements. except the interface requirements, this part is not covered by the transmission equipment.

This section applies to include power converter equipment, transmission equipment and control motor speed electrical power drive systems. But does not include transfer of traction Moving vehicles and electric drive. This section applies to connect the AC supply voltage 1kV and below, the DC transmission system to 50Hz or 60Hz and the converter input or output voltage 35kV below 50Hz or 60Hz AC drive system.

Other part of the "speed electric drive systems," relates rating requirements, electromagnetic compatibility (EMC) and functional security.

If used for electrical drive systems (PDS) consisting of part of the equipment comply with the safety requirements of the relevant product standard under the appropriate environment, this Part Sub-range does not include these devices. For example, the motor used in the PDS should meet the requirements of the relevant part of IEC 60034.

Unless otherwise specified, the requirements of this part apply to all parts of the PDS, including the CDM/BDM (see Figure 1).

Note: In some cases, the entire PDS security requirements (for example, direct contact protection) may require the use of special components and/or additional measures.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 12113-2003 touch current and protective conductor current measurement method (IEC 60990:1999, IDT) Part 5-54 GB 16895.3-2004 Electrical installations of buildings. Selection and erection of electrical equipment grounding configuration protection guide Body protection and bonding conductor (IEC 60364-5-54:2002, IDT) GB/T 16935.3-2005 within low-voltage systems Insulation coordination for equipment - Part 3. Using the coating, potting or molding for antifouling Protection (IEC 60664-3:2003, IDT) IEC 60034 (all parts) rotary motor (Rotating electrical machines) IEC 60034-1 Rotating electrical machines - Part 1. Rating and performance (Rotating electrical machines-Part 1. Rating and performance) IEC 60034-5 rotating electrical machines - Part 5. Rotary motors designed to provide overall protection (IP code) Categories [Rotating electrical machines-Part 5. Degrees of protection provided by the integral design of rotating electrical machines (IP code) -Classification] IEC 60050-111 International Electrotechnical Vocabulary (IEV) Chapter 111. Physical and chemical [International Electrotechnical Vocabulary (IEV) -Chapter 111. Physics and chemistry] IEC 60050-151 International Electrotechnical Vocabulary (IEV) Chapter 151. Electrical and magnetic devices [International Electrotechnical Vocabulary (IEV) -Part 151. Electrical and magnetic devices] IEC 60050-161 International Electrotechnical Vocabulary (IEV) Chapter 161. Electromagnetic compatibility [International Electrotechnical Vocabulary (IEV) -Chapter 161. Electromagnetic compatibility] IEC 60050-191 International Electrotechnical Vocabulary (IEV) Chapter 191. Reliability and Maintainability [International Electrotechnical Vocabulary (IEV) -Chapter 191. Dependability and quality of service] IEC 60050-441 International Electrotechnical Vocabulary (IEV) Chapter 441. Switchgear, control devices and fuses [International Electrotechnical Vocabulary (IEV) -Chapter 441. Switchgear, control gear and fuses] IEC 60050-442 International Electrotechnical Vocabulary (IEV) Chapter 442. Electrical accessories [International Electrotechnical Vocabulary (IEV) -Part 442. Electrical accessories] IEC 60050-551 International Electrotechnical Vocabulary (IEV) Chapter 551. Power Electronics [International Electrotechnical Vocabulary (IEV) -Part 551. Power electronics] IEC 60050-601 International Electrotechnical Vocabulary (IEV) Chapter 601. Generation, transmission and distribution of electricity - General [International Electrotechnical Vocabulary (IEV) -Chapter 601. Generation, transmission and distribution of electricity-General] IEC 60060-1. 1989 High-voltage test techniques - Part 1. General definitions and test requirements (High-voltage test techniques-Part 1. General definitions and test requirements) IEC 60068-2-2. 1974 Environmental testing Part 2. Tests - Test B. Dry heat test (Environmental testing-Part 2. Tests-Test B. Dry heat) IEC 60068-2-6 Environmental testing -