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

GB/T 2820.5-2025

Replacing GB/T 2820.5-2009

**Reciprocating internal combustion engine driven alternating
current generating sets - Part 5: Generating sets
(English Translation)**

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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 5 of GB/T 2820 "Alternating current generating sets driven by reciprocating internal combustion engines". GB/T 2820 has been published the following parts.

- Part 1: Application, rating and performance;
- Part 2: Engine;
- Part 3: AC generators for generating sets;
- Part 4: Control devices and switchgear;
- Part 5: Generating sets;
- Part 6: Test methods;
- Part 7: Technical specifications for technical conditions and design;
- Part 8: Requirements and tests for small power generating sets;
- Part 9: Measurement and evaluation of mechanical vibration;
- Part 10: Measurement of noise (envelope method);
- Part 11: Performance requirements and test methods for rotating uninterruptible power supplies;
- Part 12: Emergency power supply for safety devices.

This document replaces GB/T 2820.5-2009 "Reciprocating internal combustion engine driven alternating current generating sets Part 5: Generating sets" and Compared with

GB/T 2820.5-2009, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Changed the definitions of some terms (see 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.9, 3.1.10, 3.1.27, 3.2, Chapter 3 of the 2009 edition);
- Added the terms and definitions of "maximum safe frequency", "minimum safe frequency" and " ΔP , ΔQ " (see 3.1.5, 3.1.6, 3.2);
- Deleted "maximum transient frequency rise, fall", "frequency of over-frequency limiting device", "recovery voltage", "set voltage peak value" and "add Terms and definitions such as "loading time" and "running time" (see Chapter 3 of the 2009 edition);
- Added the requirements for "safe frequency" (see 5.2);
- Deleted "over-frequency characteristics" (see Chapter 6 of the 2009 edition);
- Added the response characteristics of the ignition spark engine (see 8.4);
- Changed the "Guideline value of the maximum possible sudden increase of power at rated power" (see Figures 5 and 6, Figures 6 and 7 of the 2009 edition);
- Added the requirement of "generator set connected in parallel with the grid" (see 12.2);
- Changed the requirements for quota plates (see Chapter 13, Chapter 14 of the 2009 edition);
- Added new design requirements for exhaust systems [see 14.5 j) and k)];
- Changed the noise emission requirements (see 14.8, 15.8 of the 2009 edition);
- Changed the requirements for torsional vibration (see 14.10.2, 15.10.2 of the 2009 edition);
- Added the requirement of 100% sudden power reduction (see footnote r in Table 4);
- Changed the requirements for operating limits (see Table 4, Table 4 of the 2009 edition);
- Added the requirements for gas engine operating limits (see 15.2).

This document is equivalent to ISO 8528-5:2022 "Alternating current generating sets driven by reciprocating internal combustion engines - Part 5: Generating sets".

The following minimal editorial changes were made to this document.

---Adjusted references.

Introduction

GB/T 2820 "AC Generator Set Driven by Reciprocating Internal Combustion Engine" series standards are domestic reciprocating internal combustion engine driven AC generator set it

is one of the national standards mainly used in design, production, inspection and testing, and after-sales service. It plays an important role in guiding and regulating the development of my country's generator industry and promoting the development of enterprises.

It has played a positive role in improving the technical level and ensuring the safety performance of the unit. GB/T 2820 is planned to consist of the following parts.

- Part 1: Purpose, rating and performance. The purpose is to specify the general requirements such as purpose, rating and performance of generating sets.
- Part 2: Engine. The purpose is to specify the basic characteristics of engines used in generating sets.
- Part 3: AC generators for generating sets. The purpose is to specify the basic characteristics of AC generators for generating sets.
- Part 4: Control devices and switchgear. The purpose is to specify the basic Require.
- Part 5: Generating sets. The purpose is to specify the terminology, design requirements and performance of the generator set after assembly.
- Part 6: Test methods. The purpose is to provide test methods for generating sets.
- Part 7: Technical specifications for technical conditions and design. The purpose is to specify the technical conditions and design requirements of the generating set.
- Part 8: Requirements and tests for small power generating sets. The purpose is to provide the characteristics of small power generating sets below 10kW.

Don't ask and experiment.

- Part 9: Measurement and evaluation of mechanical vibration. The purpose is to provide measurement methods and evaluation procedures for mechanical vibration of generator sets.
- Part 10: Noise measurement (envelope method). The purpose is to provide a method for measuring the noise of a generator set.
- Part 11: Rotating uninterruptible power supply performance requirements and test methods. The purpose is to provide a rotating uninterruptible power supply (UPS) Performance requirements and test methods.
- Part 12: Emergency power supply to safety devices. The purpose is to specify the special requirements of the generator set for emergency power supply to safety devices.

Require.

This document sets forth requirements for the design, production, testing, sale, installation and use of reciprocating internal combustion engine driven AC generator sets.