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

GB/T 1311-2024

Replacing GB/T 1311-2008

Test methods for direct current machines

直流电机试验方法

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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 replaces GB/T 1311-2008 "DC Motor Test Methods". Compared with GB/T 1311-2008, in addition to structural adjustments and In addition to logical changes, the main technical changes are as follows:

a) Added terms, definitions and symbols (see Chapter 3 and Chapter 4);

- b) Changed the requirements for the accuracy of the test instrument (see 5.2, 3.2 of the.2008 edition);
- c) Added the method for determining winding resistance and temperature (see 5.4);
- d) Added requirements for test conditions (see 5.5);
- e) The selection range of DC measurement voltage for insulation resistance meter has been changed (see 6.2, 4.2 of the.2008 edition);
- f) The no-load test voltage point and the maximum test voltage have been changed (see Chapter 10, Chapter 8 of the.2008 edition);
- g) The test methods for determining efficiency have been changed to include five methods. 2-1-3A, 2-1-3B, 2-1-3C, 2-1-3D and 2-1-3E (see Chapter 14, Chapter 12 in the.2008 edition);
- h) Added the test method for determining the PLL DC component by dynamometer test (see 14.4.3.3);
- i) Added the test method for determining the voltage regulation of the generator and prime mover combination (see 15.3);
- j) Added the requirements for parallel (or external) excitation adjustment curve test (see Chapter 19);

1 Scope

GB/T 1311-2024 is the Chinese national standard on test methods for direct current machines, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 23 August 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2025.

Classification: ICS 29.160.01, CCS K23. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the test requirements for DC motors and describes the test methods. This document applies to DC motors within the scope of GB/T 755-2019.

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 755-2019 Ratings and performance of rotating electrical machines

GB 4824-2019 Limits and measurement methods of radio frequency disturbance characteristics of industrial, scientific and medical equipment

GB/T 10068-2020 Mechanical vibration of motors with shaft center height of 56 mm and above - Measurement, evaluation and limits of vibration

GB/T 10069.1-2006 Measurement methods and limits for noise from rotating electrical machines Part

3 Terms and definitions

The terms and definitions defined in GB/T 755-2019 and GB/T 25442-2018 and the following apply to this document.

3.1 A motor whose armature winding is connected to a DC system via a commutator and whose magnetic poles are excited by DC or fluctuating current or are permanent magnets. [Source: GB/T 2900.25-2008,411-31-05]

3.2 Inspection test routine test A test is carried out on each motor after it is manufactured to determine whether it meets the standard. [Source: GB/T 2900.25-2008,411-53-02]

3.3 Thermal test Test to determine the temperature rise of one or more parts of an electric machine under specified operating conditions. [Source: GB/T 2900.25-2008, 411-53-28, modified]

3.4 Load test loadtest A test to determine the load characteristics of a motor under specified operating conditions.

3.5 No-load test The motor is tested with no effective mechanical output on the shaft when operating as a motor, or with the line terminals open circuit when operating as a generator. [Source: GB/T 2900.25-2008, 411-53-57]