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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 8128-2022

Replacing GB/T 8128-2008

Test methods for single-phase series motors

单相串励电动机试验方法

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Standardization Administration of the PRC

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Foreword

This document was issued on 30 December 2022 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 29.160.30, Chinese classification K24.

It replaces GB/T 8128-2008, which is superseded.

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 8128-2008 "Test methods for single-phase series excited motors". Compared with GB/T 8128-2008, except for structural adjustment

In addition to rectification and editorial changes, the main technical changes are as follows.

--- Deleted "test items" and "test equipment" (see Chapter 3 and Chapter 4 of the.2008 edition);

--- Added "Basic Requirements for Test" and "Test Preparation" (see Chapter 4 and Chapter 5);

---Changed the temperature rise test method, according to the provisions of 6.5 in GB/T 5171.21-2016 (see Chapter 6, Chapter 7 of the.2008 edition);

--- Changed the efficiency test method, using the direct method (A method) (see Chapter 7, 6.2 of the.2008 edition);

--- Added "dimension inspection", "measurement of maximum torque", "determination of minimum torque", "determination of moment of inertia", "no-load test" and "repeat

Electric strength test", "other environmental tests" and "other safety tests" (see 9.1, 9.3, 9.4, 9.5, 9.8, 9.10, 9.17 and

9.18).

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

This document is proposed by China Electrical Equipment Industry Association.

This document is under the jurisdiction of the National Standardization Technical Committee of Rotating Electric Machines (SAC/TC26).

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The release status of previous versions of this document and the documents it replaces are as follows.

---It was first published as GB/T 8128-1987 in 1987, and it was revised for the first time in.2008;

--- This is the second revision.

Test methods for single-phase series-excited motors

1 Scope

GB/T 8128-2022 sets out how a single-phase series motor - the brushed universal motor behind power tools, vacuum cleaners and small domestic appliances - is put on a bench and measured. The basic test requirements for ambient conditions, supply and instrumentation follow GB/T 5171.21-2016, as does test preparation: insulation resistance, and the cold winding temperature and cold winding resistance from which every later temperature figure is derived. Then come the temperature rise test, which establishes how far the windings and other parts run above the cooling medium under a stated load; the determination of efficiency; the stall test, which loads the motor at zero speed, where current and heating are at their worst; and further test items. A normative annex gives the criteria for judging the sparking level at the commutator. Sparking is the reason this type of motor reaches the end of its life: brushes and commutator erode, and the same arcing is a source of radio interference, so a spark level that two laboratories grade differently means two verdicts on the same motor. The 2022 text replaces the 2008 edition. Motor manufacturers, appliance and tool makers qualifying a supplier, and the laboratories testing for them are the users.

This document describes the basic requirements, test preparation and temperature rise test, efficiency measurement, stall test and

Other test items.

This document applies to single-phase series-wound motors.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 5171.21-2016 Small power motors Part 21.General test methods

GB/T 10069.1 Measurement methods and limits of noise of rotating electrical machines Part 1.Measurement methods of noise of rotating electrical machines

GB/T 12350 Safety requirements for small power motors

JB/T 10490 Vibration measurement method, evaluation and limit value of mechanical vibration of small power motor

3 Terms and Definitions

The terms and definitions defined in GB/T 5171.21-2016 apply to this document.

4 Basic requirements of the test

4.1 The environmental conditions of the test shall comply with the provisions in 4.1 of GB/T 5171.21-2016.

4.2 The test power supply shall comply with the provisions in 4.2 of GB/T 5171.21-2016.

4.3 The use of measuring instruments shall comply with the provisions in 4.3 of GB/T 5171.21-2016.

5 Test preparation

5.1 The measurement of insulation resistance shall comply with the provisions in 5.1 of GB/T 5171.21-2016.

5.2 The measurement of cold winding temperature theta1 and cold winding resistance R1 shall comply with the provisions in 5.2 of GB/T 5171.21-2016.

6 Temperature rise test

6.1 Overview

The purpose of the temperature rise test is to determine that the temperature of the winding and some parts of the motor is higher than that of the cooling medium when the motor is running under specified load conditions

temperature rise.