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

GB/T 25442-2026

Replacing GB/T 25442-2018

**Standard methods for determining losses and efficiency of
rotation electrical machines from tests (excluding machines for
traction vehicles)**

旋转电机（牵引电机除外）确定损耗和效率的试验方法
(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 replaces GB/T 25442-2018 "Test Methods for Determining Losses and Efficiency of Rotating Electrical Machines (excluding Traction Motors)" and is consistent with...

Compared with GB/T 25442-2018, apart from structural adjustments and editorial changes, the main technical changes are as follows.

a) The sampling time of the digital instrument during electrical parameter measurement has been changed from "no more than 15s" to "at least 5s but no more than 60s".

(See 5.5.1, 2018 version of 5.5.1);

b) The correction for torque readings has been removed (see 5.5.3 in the 2018 edition);

c) Added requirements for resistance measurement when performing the "extrapolation method to determine the rated load test resistance R_N " (see 5.7.1);

d) The requirements for seal treatment have been changed (see 5.8, 2018 version of 5.8);

e) The ambient temperature requirements have been changed (see 5.10, 2018 version 5.10);

Disconnect the tested motor from the permanent magnet to prevent residual torque from being generated (see 6.1.2.2, 7.1.2.2 and 8.2.2);

g) Added instructions on load point selection when performing load curve tests on induction motors (see 6.1.3.2.3);

h) The no-load test of the induction motor can also be carried out when "the no-load loss has reached a stable state" (see 6.1.3.2.4);

i) A calculation formula for determining load stray losses when using the "recommended value method" at non-rated points of induction motors has been added (see 6.1.4.2.5);

j) Added reading $\cos\phi$ during the synchronous motor "input-output method" test (see 7.1.2.2);

k) Added instructions for specifying brush electrical losses (see 7.1.3.2.1.4, 7.2.4.3.2.2 and 8.3.2.1.3).

This document is equivalent to IEC 60034-2-1:2024 "Rotating electrical machines - Part 2-1. Test methods for determining losses and efficiency (traction)".

(Excluding motors).

The following minimal editorial changes have been made to this document.

---To align with existing standards, this document has been renamed "Tests for Determining Losses and Efficiency of Rotating Electrical Machines (excluding traction motors)".

method".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Electrical Equipment Industry Association.

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

1 Scope

This document describes a method for determining efficiency through experimentation and specifies experimental methods for obtaining various losses.

This document applies to all DC motors within the scope of the IEC 60034-1 standard, as well as AC synchronous motors and inductors specified for grid operation.

Motor.

Note: This method is also applicable to other types of rotating motors, such as rotating converters, AC commutator motors, and single-phase induction motors.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

This document.

technology-Part 1: General) Note. GB/T 755-2025 Ratings and Performance of Rotating Electrical Machines (IEC 60034-1:2022, IDT) tests) Note. GB/T 40294-2021 Test methods for determining parameters of electrically excited synchronous motors (IEC 60034-4-1:2018, IDT) IEC 60034-19 Rotating electrical machines - Part 19: Special test methods for DC electrical machines powered by ordinary or rectified power supplies (Ro-er-fedsupplies) Note. GB/T 20114-2019 Special test methods for DC motors powered by ordinary or rectified power supplies (IEC 60034-19:2014, IDT) IEC 60034-29 Rotating electrical machines - Part 29: Determination of temperature rise (Ro-) of rotating electrical machines by indirect method using equivalent load and superposition test techniques Note. GB/T 21211-2017 Indirect method for determining temperature rise of rotating electrical machines using equivalent load and superposition test techniques (IEC 60034-29:2008, IDT) IEC 60034-30-1 Rotating electrical machines - Part 30-1. Efficiency classification of AC motors supplied by mains electricity (IE code) [Rotating] Note. GB/T 32891.1-2016 Efficiency Classification of Rotating Electrical Machines (IE Code) Part 1: AC Motors Powered by Mains (IEC 60034-30-1) 2014, IDT) IEC 60051-1 Direct-acting analog indicating electrical measuring instruments and accessories thereof - Part 1: Definitions and general requirements