

ICS 29.160.30

CCS K 23



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

GB/T 20114-2019

Replacing GB/T 20114-2006

**Specific test methods for d.c. machines on conventional and
rectifier-fed supplies**

Issued on: June 4, 2019

Implemented on: January 1, 2020

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

1 Scope

2 Normative references

3 terms, definitions, symbols and subscripts

3.1 Terms and definitions

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 20114-2006 "Special test method for ordinary power supply or rectifier power supply DC motor". With GB/T

Compared with 20114-2006, the main technical changes are as follows.

- Added terms, definitions, symbols and subscripts (see Chapter 3);
- Explain in more detail the non-sparking commutation zone test procedure (see Chapter 7);
- Increased and (he) excitation adjustment curve test procedure (see Chapter 11);
- Increased the magnetization curve test procedure under no-load and load conditions (see Chapter 12).

This standard uses the translation method equivalent to IEC 60034-19:2014 "Rotating electrical machines Part 19. General power supply or rectifier power supply

Special Test Method for DC Motors.

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

---GB/T 755-2008 Rotating electrical machine rating and performance (IEC 60034-1:2004, IDT);

---GB/T 25442-2018 Rotating electrical machines (except traction motors) - Test methods for determining loss and efficiency (IEC 60034-2-1.

2014, IDT).

This standard makes the following editorial changes.

--- The standard name was changed to "Special Test Method for DC Motors for Common

Power Supply or Rectifier Power Supply".

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

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

This standard was drafted. Shanghai Motor System Energy Conservation Engineering Technology Research Center Co., Ltd., Anhui Mingteng Permanent Magnet Electromechanical Equipment Co., Ltd.

Division, Anhui Province Motor Products and Parts Quality Supervision and Inspection Center, Shandong Huali Motor Group Co., Ltd., Zhejiang Hulong Technology Co., Ltd.

Co., Ltd., Xi'an Taifu Xima Motor Co., Ltd., Shanghai Dianke Motor Technology Co., Ltd.

1 Scope

This standard applies to DC motors with rated output 1kW and above for rectifier power supply, DC bus or other DC power supply.

This standard gives a test method for determining the characteristics of a DC motor that is supplied by a common power supply or a rectified power supply.

This standard does not include DC motors for special applications.

The test method given in this standard is a necessary addition to IEC 60034-1 and IEC 60034-2-1.

Note. No or all of the test items described in this standard should be construed as requiring execution of any specified motor.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

IEC 60034-1 Rotating electrical machines - Part 1. Quantitative and performance (Rotating electrical machines - Part 1 . Rating and

Performance)

IEC 60034-2-1 Rotating electrical machines - Part 2-1. Test methods for determining loss and efficiency (except traction motors) [Rotating

electrical machines-Part 2-1.

Standard methods for determining losses and efficiency from tests (ex-

Cludingmachinesfortractionvehicles)]

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

Current ripple currentripple

The peak-to-peak value of the armature current of the DC motor supplied by the rectified power supply.

3.1.2

Voltage ripple voltageripple

The peak-to-peak voltage of the DC motor terminal voltage supplied by the rectified power supply.

3.1.3

Time constant timeconstant

The time to reach a steady state value of 63.2% after a DC step input is applied to the first-order inertia system.

3.1.4

Non-sparking commutation area blackbandzone

The interval between the commutating pole current limit values, during which the load current is increased to not less than the rated current to obtain a spark-free commutation.

3.1.5

Non-sparking sparkless

No sparks of any level.