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GB/T 47117-2026

Inspection methods for active magnetic bearing stators

主动磁悬浮轴承定子检测方法

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Foreword

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1.Structure and Drafting Rules of Standardization Documents". Drafting. 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 National Working Group on Standardization of Maglev Power Technology (SAC/SWG28). This document was prepared by the National Working Group on Standardization of Maglev Power Technology (SAC/SWG28) and the National Working Group on Standardization of Sliding Bearings. It is jointly managed by the Technical Committee (SAC/TC236). This document was drafted by: Shandong Maglev Industry Technology Research Institute Co., Ltd., Wuhan University of Technology, and Shandong Tianrui Heavy Industry Co., Ltd. CRRC Zhuzhou Electric Co., Ltd., Shandong Huadong Fan Co., Ltd., Shandong Ruifanghong Low Carbon Technology Co., Ltd., and Wolong Electric

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1 Scope

GB/T 47117-2026 is the Chinese national standard covering the stator of an active magnetic bearing - the electromagnet assembly that holds a shaft in mid-air, tested for its magnetic force characteristic, its inductance and losses, its insulation and the geometric accuracy that decides how well the control loop can behave. Magnetic bearings are what let a turbomolecular pump or a high-speed compressor run without oil. First edition, 15,500 words. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the testing requirements and methods for the geometric and electrical parameters of the stator of an active magnetic levitation bearing, and describes the radial and axial main... The measurement steps and data processing methods for the dimensions and tolerances (such as inner diameter, outer diameter, coaxiality, cylindricity, etc.) of the stator of a moving magnetic levitation bearing are given. Measurement principles and operating procedures for electrical parameters (including insulation resistance, inter-turn insulation, winding inductance/resistance, magnetic induction intensity, etc.). This document applies to the testing of stators in active magnetic levitation bearings. The same procedure applies to stators in hybrid magnetic levitation bearings. This document is not applicable to the dynamic performance testing of active magnetic levitation bearing stators.

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. For

references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 1957 Technical Requirements for Smooth Limit Gauges

GB/T 1958-2017 Product Geometric Specification (GPS) - Geometric Tolerance Inspection and Verification

GB/T 2900.60 Electrical Engineering Terminology. Electromagnetism

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 20160-2006 Insulation Resistance Test of Rotating Electrical Machines

GB/T 22717-2008 Test Specification for Inter-turn Insulation of Pole Coils and Field Windings of Electric Motors

GB/T 22719.1-2008 Inter-turn insulation of randomly embedded windings of AC low-voltage motors - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 2900.60 and GB/T 46078, as well as the following terms and definitions, apply to this document.

3.1 In a radial active magnetic levitation bearing, the part that provides radial levitation support for the rotor and has no relative movement with the bearing housing during operation.

Note. The stator of a radial active magnetic levitation bearing consists of a stator core and excitation windings, etc. A basic structure of a radial active magnetic levitation bearing stator is shown in Figure 1.