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

GB/T 9239.2-2025

Replacing GB/T 6444-2008

**Mechanical vibration - Rotor balancing - Part 2: Vocabulary
(English Translation)**

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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 is Part 2 of GB/T 9239 Mechanical Vibration Rotor Balancing. GB/T 9239 has been published in the following parts.

- Part 2: Vocabulary;
- Part 11: Balancing methods and tolerances for rigid rotors;
- Part 12: Balancing methods and tolerances for rotors with flexible characteristics;
- Part 13: Criteria and safety precautions for field balancing of large and medium-sized rotors;
- Part 14: Procedure for evaluating balance errors;
- Part 21: Description and evaluation of balancing machines;
- Part 23: Protective covers and other protective measures for measuring stations of

balancing machines;

--- Part 31: Machine imbalance variability and imbalance sensitivity;

--- Part 32: Key criteria for balance between shafts and mating parts.

This document replaces GB/T 6444-2008 "Vocabulary for Mechanical Vibration Balance". Compared with GB/T 6444-2008, except for the structural adjustment and in addition to editorial changes, the main technical changes are as follows.

--- Deleted the terms "center of mass", "rotor", "overhang", "fully balanced rotor", "local mass eccentricity", "bearing bracket", "foundation", "precision Rigid rotor", "electrical deviation", "total deviation indication", "isotropic bearing bracket", "quasi-static imbalance", "ultimate imbalance", "unbalance" Balanced couple", "controlled initial imbalance", "static balance", "dynamic balance", "transposition imbalance", "correction method", "component correction", "polar coordinates Calibration", "Qualified Limit", "Balance Tolerance", "Mass Centering", "Differential Test Mass", "Differential Unbalance", "Vibration Sensor Plane", "Plan "Face conversion" and "quarter point" and their definitions (see 3.1, 4.1, 4.9.1, 4.10, 4.12~4.15, 4.19, 4.20, 4.22, 5.7, 5.10, 5.14, 5.17, 6.2~6.7, 6.12, 6.13, 6.16, 6.21, 6.22, 6.24, 6.26, 6.28);

--- Deleted the terms related to balancing equipment "gravity balancing machine", "centrifugal balancing machine", "rotary balancing machine" and "single-plane balancing machine" "Static balancing machine", "double-sided balancing machine", "dynamic balancing machine", "force balancing machine", "below resonance balancing machine", "resonance balancing machine", "above resonance balancing machine" Resonance balancing machine", "compensation balancing machine", "zero force balancing machine", "direct reading balancing machine", "rotation diameter", "field balancing equipment", "quantity Value indicator", "Practical correction unit", "Counterweight", "Phase angle indicator", "Sensitivity switch", "Phase angle reference generator", "Phase angle reference marker "Vector measurement device" "Component measurement device" "Balancing machine minimum response" "Balancing machine accuracy" "Correction plane interference" "Mutual Effects", "Balancing machine sensitivity", "Plane separation circuit", "Node network circuit", "Parasitic mass", "Permanent calibration", "Calibration", "Set "Station", "Mechanical adjustment", "Self-balancing device", "Process time", "Cycle rate", "Productivity", "Measurement test", "Vertical axis freedom", "Pendulum "weight", "false unbalance indication", "secondary compensator", "balance bearing", "auxiliary bearing" and their definitions (see 7.2~2008 edition) July 15, July 17-25, July 29-32, July 34-37, July 43-51);

--- Deleted the terms related to flexible rotors. "(rotor) flexural critical speed", "rigid rotor modal critical speed", "(rotor) flexural main "Mode shape", "Mode imbalance tolerance", "Frequency vibration", "Thermal imbalance", "Unbalance sensitivity", "Mode function", "Modal mass", "Vibration "Mode sensitivity", "dimensionless speed (nth order mode)", "mode eccentricity" and their definitions (see 8.1~8.3, 2008 edition, August 8-10, 14, 16,

17, 19, 20, 22);

--- Deleted the terms and definitions of rotating rigid free bodies, deleted the terms "simulated rotor", "spindle", "heart" and "heart" of balancing machine process equipment Shaft imbalance offset", "offset mass", "main rotor", "section rod", "calibration rotor" and their definitions (see Chapter 9, 2008 edition, 10.1~10.7);

--- Added the terms "speed", "rigid modal resonance speed", "flexural resonance speed", "rigid body mode", "flexural mode", "nth order flexural resonance speed" Modal vibration function", "shaft elastic characteristics", "torque imbalance", "correction", "tolerance plane", "unbalance tolerance", "bias imbalance", "shadow "Sound coefficient" and its definition (see 3.1.2, 3.1.4, 3.1.5, 3.1.9~3.1.11, 3.2.3, 3.3.7, 3.4.6, 3.4.10, 3.4.12, 3.4.19, 3.4.28);

--- Change "critical speed" to a disallowed term (see 3.1.3, 3.3 of the 2008 edition);

--- Change the term "mode magnification factor" to "modal magnification factor" (see 3.1.12, 8.18 of the 2008 edition);

--- Change the term "slow speed deviation" to "low speed jump" (see 3.2.11, 4.18 of the 2008 edition);

--- Change the term "couple imbalance" to "couple imbalance" (see 3.3.8, 5.8 of the 2008 edition);

--- Change the term "synthetic moment (couple) imbalance" to "synthetic moment imbalance" and "synthetic couple imbalance" (see 3.3.13, 3.3.14, 5.13 of the 2008 edition);

---Change the term "nth-order modal unbalance" to "nth-order modal unbalance" and change "equivalent nth-order modal unbalance" to Changed to "equivalent nth-order modal imbalance" (see 3.3.16, 3.3.17, 8.6 and 8.7 of the 2008 edition);

--- Change the term "modal balance" to "modal balance" (see 3.4.5, 8.5 of the 2008 edition);

--- Changed the English equivalent of the term "site balance" (see 3.4.14, 6.14 of the 2008 edition);

--- Added the term "step-by-step assembly balance", changed the term "step-by-step balance" to a rejected term, and added the rejected term "sequential balance" (See 3.4.22, 6.25 of the 2008 edition);

--- Change the term "imbalance sensitivity" to "imbalance variability" (see 3.4.26, 8.13 of the 2008 edition);

--- Change the term "unbalanced couple interference ratio" to "couple unbalanced interference ratio" (see 3.5.6, 7.27 of the 2008 edition).

This document is equivalent to ISO 21940-2:2017 "Mechanical vibration rotor balancing Part 2: Vocabulary".

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

---Added range note.

Introduction

GB/T 9239 Mechanical Vibration Rotor Balancing explains balance in a general way, using specific terms and definitions to help users choose Select appropriate balancing methods and provide guidance for the application of balancing technology. It includes most of the standards in the balancing field and is mainly divided into five aspects.

The following sections constitute the framework of the standard. introduction, vocabulary, balancing methods and tolerances, balancing machines, and machine design for balancing.

--- Part 1: Introduction. The purpose is to give the general background of the use of balancing technology in GB/T 9239 and to guide users Learn about the corresponding parts of the series, including vocabulary, balancing methods and tolerances, balancing machines, and machine design for balancing.

--- Part 2: Vocabulary. The purpose is to define the vocabulary used for balancing, to provide an alphabetical index of balancing vocabulary and a diagram of balancing machine terminology Solution Guide.

--- Part 11: Balancing methods and tolerances for rigid rotors. The purpose is to give balancing methods and tolerances for rigid rotors.

The permissible residual unbalance value, the necessary number of correction planes, the distribution of the residual unbalance tolerances on the correction planes and how to Explain errors in the balancing process.

--- Part 12: Balancing methods and tolerances for rotors with flexible characteristics. The purpose is to give balancing methods for flexible rotors the typical structure of the flexible rotor is given, the balancing requirements based on its own characteristics are specified, and the balancing methods are listed.

The method provides a method for assessing the final equilibrium state and gives guidance on the imbalance tolerance.

--- Part 13: Criteria and safety precautions for field balancing of large and medium-sized rotors. The purpose is to give the criteria and safety precautions for field balancing of large and medium-sized rotors on their own bearings.

The procedures for field balancing in the field are described. The conditions suitable for field balancing, the required instruments, specific safety measures, and reporting and maintenance procedures are described.

Requirements for record protection.