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

GB/T 9239.13-2023

Replacing GB/T 28785-2012

**Mechanical vibration - Rotor balancing - Part 13: Criteria and
safeguards for the in-situ balancing of medium and large rotors**

Issued on: March 17, 2023

Implemented on: October 1, 2023

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

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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 13 of GB/T 9239 "Rotor Balance for Mechanical Vibration": GB/T 9239 has issued the following parts:

- Part 12: Balancing methods and tolerances for rotors with flexible characteristics;
- Part 13: Criteria and safety protection for on-site balancing of large and medium-sized rotors;
- Part 14: Evaluation procedures for balance errors;
- Part 21: Description and evaluation of balancing machines;
- Part 31: Machine unbalance variability and unbalance sensitivity;
- Part 32: Key criteria for shaft and mating balance:

This document replaces GB/T 28785-2012 "Criteria and protection for on-site balancing of large and medium-sized rotors due to mechanical vibration": This document is related to

Compared with GB/T 28785-2012, except for structural adjustment and editorial changes, the main technical changes are as follows:

- Deleted ISO 2041 and the term "site balance" (see Chapter 3 of GB/T 28785-2012);
- Change "magnitude" to "magnitude" (see Chapter 5, Chapter 5 of GB/T 28785-2012);

--- Change "critical speed" to "resonance speed" (see Chapter 9, Chapter 9 of GB/T 28785-2012):

This document is equivalent to ISO 21940-13:2012 "Mechanical Vibration Rotor Balancing Part 13: Standards for On-site Balancing of Large and Medium-sized Rotors"

Rules and Security Protection":

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

Introduction

Vibration caused by rotor unbalance is one of the most critical issues in the design and maintenance of rotating machinery: The dynamic forces it generates will have an impact on the machine and

adverse effects on human health and safety:

Balancing is the process of checking the mass distribution of a rotor and, if necessary, correcting it so that the remaining unbalance, or

Vibration, or the process in which the forces on a bearing are within specified limits:

GB/T 9239 "Mechanical Vibration Rotor Balance" explains balance in a general way, uses specific terms and definitions, and helps users choose

Choose the appropriate balancing method and provide guidance for the application of balancing techniques: Contains most of the standards in the field of balance, grouped into five main areas:

Introduction, vocabulary, balancing methods and tolerances, balancing machines, and mechanical design for balancing are intended to consist of the following parts:

--- Part 1: Introduction: The purpose is to give the general background of the use of balancing technology in the GB/T 9239 series of documents, and to guide

The user understands the corresponding part of the series, including vocabulary, balancing methods and tolerances, balancing machines and mechanical design for balancing:

--- Part 2: Vocabulary: The purpose is to define the vocabulary used for balancing, giving an alphabetical index of the balancing vocabulary and a diagram of the balancing machine term

solution guide:

--- Part 11: Balance methods and tolerances for rotors with rigid characteristics: The purpose is to give a balancing method for rigid rotors

and tolerances: It specifies the allowable value of residual unbalance, the necessary

number of correction surfaces, the distribution of residual unbalance tolerance of correction surfaces and

How to account for errors in the balancing process:

--- Part 12: Balance methods and tolerances for rotors with flexible characteristics: The purpose is to give a balancing method for flexible rotors

and tolerances: The typical structural forms of flexible rotors are given, the balance requirements according to their own characteristics are specified, and the balance methods are listed:

method, provides a method for assessing the final state of equilibrium and gives guidance on tolerances for unbalance:

--- Part 13: Criteria and safety protection for on-site balancing of large and medium-sized rotors: The purpose is to give large and medium-sized rotors in their own bearings

The procedure for in-field balancing: Describes the conditions suitable for on-site balancing, the required instruments, the contents of safety measures, reports and

Requirements for maintaining records:

--- Part 14: Evaluation procedures for balance errors: The purpose is to give a procedure for evaluating the balance error and to specify the rotor

Requirements for the identification of errors during balance measurements, the evaluation of identified errors and the consideration of errors in the determination of residual unbalance:

--- Part 21: Description and evaluation of balancing machines: The purpose is to give the requirements for the performance evaluation of the balancing machine:

--- Part 23: Balancing machine guards and other protective measures for measuring stations: The purpose is to give balancing machine shields and other protection

Requirements for protective measures, define the different levels of protection provided by protective covers and other protective measures, and give the application of each level of protection

scope:

--- Part 31: Machine unbalance variability and unbalance sensitivity: The purpose is to give the determination of machine vibration sensitive to unbalance

It provides a method for evaluating vibration sensitivity considering that the resonant speed is close to the operating speed:

--- Part 32: Key criteria for shaft and mating balance: The purpose is to give a keyed rotor assembly when the individual components are balanced

the only criterion:

Mechanical Vibration Rotor Balancing Part 13:

Criteria and safety protection for on-site balancing of large and medium-sized rotors

1 Scope

This document specifies the procedure for on-site balancing of large and medium sized rotors in their own bearings: Describes the conditions suitable for on-site balancing, the required

equipment, content of safety measures, and requirements for reporting and maintenance records:

This document applies to the basis of the on-site balancing contract:

This document does not provide guidance on methods for calculating corrected mass from measured vibration data:

NOTE: The procedures specified in this document are suitable for medium and large machines: However, when it comes to small machines that need to maintain a good record of vibration characteristics and alignment mass configuration, many principles

The same principle applies to smaller machines:

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:

Note: GB/T 13824-2015 Requirements for Mechanical Vibration of Rotating and Reciprocating Machines on Vibration Severity Measuring Instruments (ISO 2954;:2012, IDT)

Note: GB/T 11348 (all parts) Mechanical vibration is measured on the rotating shaft to evaluate the vibration of the machine [ISO 7919 (all parts)]

Note: GB/T 6075 (all parts) Mechanical vibration is measured and evaluated on non-rotating parts Vibration of machines [ISO 10816 (all parts)]

ISO 10817-1 Rotating shaft vibration measurement system Part 1: Relative and absolute detection of radial vibration (Rotatingshaft