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

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**Design and metrological characteristics of mechanical dial
gauges**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

The translation method used in this standard is equivalent to ISO 463:2006 "Technical Specification for Product Geometrical Quantity (GPS) Mechanical Index of Length Measuring Apparatus"

The design and measurement characteristics of the meter:

The Chinese documents that have a consistent correspondence with the international documents cited in this standard are as follows:

---GB/T 18779:1-2002 Product Geometrical Quantity Technical Specification (GPS) Part 1 of Measurement and Inspection of Workpiece and Measuring Equipment

Points: According to the rules for determining qualified or unqualified inspections (equivISO 14253-1:1998);

---GB/T 18779:2-2004 Product Geometrical Technical Specification (GPS) Measurement and Inspection of Workpieces and Measuring Equipment Part 2

Points: Guidelines for the Evaluation of Uncertainty of GPS Measurement in Measuring Equipment Calibration and Product Inspection (ISO /T S14253-2:1999,

IDT);

---GB/T 24634-2009 Product Geometric Technical Specification (GPS) General concepts and requirements for GPS measuring equipment (ISO 14978:

2006, IDT);

---GB/T 27418-2017 Measurement Uncertainty Evaluation and Expression (ISO /IEC Guide98-3:2008, MOD):

This standard has made the following editorial changes:

---Modified the standard name;

---Incorporated the technical errata content of ISO 463:2006/Cor:2:2009, and the clauses involved in these technical errata content have been passed in

The vertical line (|) of the margin position on the outer margin is marked:

This standard was proposed by China Machinery Industry Federation:

This standard is under the jurisdiction of the National Standardization Technical Committee for Measuring Instruments (SAC/TC132):

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Research Institute, Jingjiang Measuring Tool Co., Ltd., China Jiliang University:

1 Scope

This standard specifies the most important design and measurement characteristics of mechanical indicators:

2 Normative references

The following documents are indispensable for the application of this document: For dated reference documents, only the dated version applies to this article

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

ISO 14253-1 Product Geometrical Quantity Technical Specification (GPS) Measurement Inspection of Workpieces and Measuring Equipment Part 1: Inspection According to Specifications

[GeometricalProductSpecifications(GPS)-Inspectionbymeasurementof workpiecesandmeasuringequipment-Part 1:Decisionrulesforprovingconformanceornon-conformancewithspecifications]

ISO /T S14253-2 Product Geometrical Quantity Technical Specification (GPS) Measurement Inspection of Workpieces and Measuring Equipment Part 2: Measuring Equipment

Guide for evaluating the uncertainty of GPS measurement in calibration and product inspection [GeometricalProductSpecifications(GPS)-In-spectionbymeasurementofworkpiecesandmeasuringequipment-Part 2:Guidetotheestimationof uncertaintyinGPSmeasurement,in calibrationofmeasuringequipmentandinproductverification]

ISO 14978 Geometrical Product Technical Specification (GPS) General concepts and requirements for GPS measuring equipment [GeometricalProduct Specification(GPS)-GeneralconceptsandrequirementforGPSmeasuringequipment]

ISO /IEC Guide98-3 Measurement Uncertainty Part 3: Guidelines for Expression of Measurement Uncertainty (GUM:1995)

[Uncertaintyofmeasurement-Part 3:Guidetotheexpressionofuncertaintyin measurement (GUM:1995)]

ISO /IEC Guide99 Common concepts and related terms (VIM) [Internationalvocabu-

laryofmetrology-Basicandgeneralconceptsandassociatedterms(VIM)]

3 Terms and definitions

The terms and definitions defined in ISO 14253-1, ISO /T S14253-2, ISO 14978, ISO /IEC Guide99 and the following are applicable to

This document:

3:1

Mechanical dial gauges

Using the mechanical transmission system, the linear displacement of the measuring rod is converted into the angular displacement of the pointer on the circular dial, and the reading is measured by the dial

appliance:

Note: The measuring instrument may also have a revolution indicating device, such as: revolution pointer or rod displacement pointer:

4 Design features

4:1 Overview

The overall design and process should make the performance of the indicator meet the requirements: Unless otherwise specified by the manufacturer, comply with the requirements of this standard:

The design and rigidity of the mechanical indicator should ensure that the free movement of the measuring rod is not affected by the installation device, and can achieve the necessary for stable installation

degree: If other installation methods are used, such as the lugs installed on the back plate, the design and rigidity should meet the performance requirements without being damaged: