

ICS 17.040.30

CCS J 42



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

GB/T 46655-2025

**Design and metrological characteristics of calliper depth
gauges**

深度卡尺的设计和计量特性

(English Translation)

Issued on: October 31, 2025

Implemented on: May 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface
1 Scope
2 Normative References
3 Terms and Definitions
4 Design Features
4.1 Overall Design and Naming
4.2 Dimensions
5 Measurement characteristics
5.1 Overview
5.2 Rated operating conditions
5.3 Reference Point
5.4 Detection Methods
5.5 Local contact error E on the measurement surface (limited by EMPE)
5.6 Displacement error S (limited by SMPE)
5.7 MPE value
5.8 Special Cases
6 Consistency verification with specifications
6.1 General Requirements
6.2 Measurement Uncertainty
6.3 Judgment Rules
7 Mark
Appendix A (Informative) Calibration Guidelines for Metrological Characteristics
Appendix B (Normative) Default MPE Values for Measurement Characteristics
Appendix C (Informative) Relationship with GPS Matrix Model
C.1 Overview
C.2 Information about this document and its use

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is equivalent to ISO 13385-2:2020 "Geometrical specifications for products (GPS) - Length measuring equipment - Part 2: Depth gauges".

The design and measurement characteristics of the ruler.

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

---To align with existing standards, the standard name has been changed to "Design and Measurement Characteristics of Depth Calipers".

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 China Machinery Industry Federation.

This document was prepared by the National Technical Committee on Standardization of Measuring Instruments and Gauges (SAC/TC132) and the National Technical Committee on Standardization of Product Geometric Specifications.

It is jointly managed by the committee (SAC/TC240).

1 Scope

This document specifies the following two most important design and measurement characteristics of depth calipers.

---With analog indicators. vernier scale or disc scale (dial);

---With digital indicators. digital display.

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.

ISO 14253-1 Product Geometry Specification (GPS) - Measurement and Inspection of Workpieces and Measuring Equipment - Part 1: Verification of conformity according to specifications Note. GB/T 18779.1-2022 Product Geometric Specification (GPS) - Measurement and Inspection of Workpieces and Measuring Equipment - Part 1: Verification of Conformity or Compliance with Specifications Nonconformity Judgment Rules (ISO 14253-1:2017, IDT) ISO 14253-5 Product Geometry Specification (GPS) - Measurement and Inspection of Workpieces and Measuring Equipment - Part 5: Indicating Measuring Instruments [inginstruments] Note. GB/T 18779.5-2020 Product Geometric Specification

(GPS) - Measurement and Inspection of Workpieces and Measuring Equipment - Part 5: Indicating Measuring Instruments Inspection uncertainty (ISO 14253-5:2015, MOD) ISO 14978:2018 Product Geometry Specification (GPS) - General Concepts and Requirements for GPS Measuring Equipment Note. GB/T 24634-2009 Product Geometric Specification (GPS) General Concepts and Requirements for GPS Measuring Equipment (ISO 14978:2006, IDT) ISO/IEC Guide 98-3 Measurement Uncertainty Part 3: Guidelines for the Expression of Measurement Uncertainty (GUM..1995) [Un-1995)

Note: GB/T 27418-2017 Evaluation and expression of measurement uncertainty (ISO/IEC Guide 98-3:2008, MOD) ISO/IEC Guide 99 International Metrology Vocabulary. Fundamentals, General Concepts, and Related Terms (VIM)

3 Terms and Definitions

The terms and definitions defined in ISO 14978 and ISO/IEC Guide 99, as well as the following terms and definitions, apply to this document.

Depth gauge

The ruler frame is moved along the main ruler, which has a certain degree of rigidity, so that the measuring reference surface of the ruler frame and the depth measuring surface (or the outer measuring surface of the measuring jaws) are aligned.