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

GB/T 4755-2025

Replacing GB/T 4755-2004

Microcaters

扭簧比较仪

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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 replaces GB/T 4755-2004 "Torsion Spring Comparator". Compared with GB/T 4755-2004, the main differences are structural adjustments and editorial changes. Aside from the changes, the main technical changes are as follows:

a) The term and definition of "maximum permissible error" have been added (see 3.3);

- b) The requirement to include a spherical measuring head has been removed (see 5.3.2 of the 2004 edition);
- c) The requirement for the clearance between the pointer tip and the dial surface has been changed (see 5.5.4, 2004 edition of 5.5.4);
- d) Increased requirements for distance-limited assembly during storage and transportation (see 5.6.2);
- e) The ambient temperature requirements before testing have been changed (see 6.1, 2004 edition of 6.1);
- f) Requirements for temperature changes, equilibrium temperature, and humidity have been added (see 6.1);
- g) The method for testing indication error has been changed (see 6.4, 2004 edition of 6.4);
- h) The method for testing the variability of the indicated value has been changed (see 6.5, 2004 edition of 6.5). 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 China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Measuring Instruments and Gauges (SAC/TC132). This document was drafted by: Harbin Measuring & Cutting Tools Co., Ltd., Chengdu Tool Research Institute Co., Ltd., and General Technology Group. The Group's Machine Tool Engineering Research Institute (Tianjin) Co., Ltd., and Qinghai Measuring Tools (Changzhou) Co., Ltd. The main drafters of this document are: Li Tao, Wei Jianguo, He Yixian, Xu Gang, Yang Fulai, Zhang Liwei, Huang Dawei, and Chen Yongjun. This document was first published in 1984, revised for the first time in 2004, and this is the second revision. Torsion Spring Comparator

1 Scope

GB/T 4755-2025 is the Chinese national standard covering the twisted-strip comparator - a gauge that reads to a fraction of a micrometre with no gear train to wear, with its scale interval and measuring range, its repeatability and hysteresis, and the verification of the instrument itself. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 4755-2004.

This document specifies the types and basic parameters, requirements, inspection methods, marking, packaging and transportation of torsion spring comparators. This document applies to scale divisions of 0.1µm, 0.2µm, 0.5µm, 1µm, 2µm, 5µm, and 10µm, with a display range of ±30 scale divisions. Design and manufacture of a torsion spring comparator with ±60 mm and ±100 mm scale divisions and a clamping sleeve diameter of 28 mm.

2 Normative references

The following documents contain essential clauses through normative references. Dated citations are listed below. For references to documents, only the version corresponding to the specified date applies to this document; for undated references, the latest version (including all amendments) applies. document.

GB/T 17163-2022 Basic Terminology for Geometric Measuring Instruments

3 Terms and Definitions

The terms and definitions defined in GB/T 17163-2022, as well as the following terms and definitions, apply to this document.

3.1 Microcator Torsion Spring Comparator By using a torsion spring element as a size conversion and amplification mechanism, the linear displacement of the measuring rod is converted into the angular position of the pointer on the arc-shaped scale. A measuring instrument that moves and reads the value using a scale.

Note. Also known as a torsion spring micrometer.

3.2 freeplace The position of the measuring rod when it is in a free state.

3.3 For torsion spring comparators, the allowable error limits are specified by technical specifications and procedures.

4 Types and Basic Parameters

4.1 Type The type of torsion spring comparator is shown in Figure

1. The illustration is for illustrative purposes only.