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**NATIONAL STANDARD OF THE
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GB/T 10932-2024

Replacing GB/T 10932-2004

Screw thread micrometer

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1 Scope

GB/T 10932-2024 is the Chinese national standard on screw thread micrometer, in the field of metrology and measurement. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 25 April 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 November 2024. Classification: ICS 17.040.30, CCS J 42. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the types and basic parameters, requirements, inspection conditions, inspection methods, marking and packaging of screw thread micrometers (excluding electronic digital screw thread micrometers). This document applies to the design, manufacture, and inspection of screw thread micrometers (excluding electronic digital screw thread micrometers) with graduation values of

0.01 mm,

0.001 mm, and

0.002 mm and a measuring range of less than or equal to 300 mm.

2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for any dated reference, only the version corresponding to that date applies to this document; for any undated reference, the latest version (including all amendments) applies to this document.

GB/T 1216-2018 External micrometer

GB/T 17163 Glossary of terms for dimensional measuring instruments - General terms

GB/T 17164 Glossary of terms for dimensional measuring instruments - Product terms

3 Terms and definitions

The terms and definitions defined in GB/T 17163 and GB/T 17164, as well as the following terms and definitions, apply to this document.

3.1 screw thread micrometer A measuring instrument for measuring the pitch diameter of a thread, which uses the principle of a helical pair to read the distance between the conical measuring surface and the V-shaped groove measuring surface on an arc-shaped ruler frame.

4.1 Types

4.1.1 A schematic diagram of a rotary screw thread micrometer is shown in Figure 1, and a schematic diagram of a straight-in screw thread micrometer is shown in Figure 2. The illustrations are for illustrative purposes only and do not represent detailed structures.

4.1.2 Schematic diagrams of V-shaped and conical measuring heads are shown in Figure

3. The illustrations are for illustrative purposes only.

4.1.3 Schematic diagrams of the V-shaped measuring head and knife-edge measuring head are shown in Figure

4. The illustrations are for illustrative purposes only.

4.2 Basic parameters

4.2.1 The measuring range of a screw thread micrometer should be 0 mm~25 mm, 25 mm~50 mm, 50 mm~75 mm, 75 mm~100 mm, 100 mm~125 mm, 125 mm~150 mm, 150 mm~175 mm, 175 mm~200 mm, 200 mm~225 mm, 225 mm~250 mm, 250 mm~275 mm, and 275 mm~300 mm.

4.2.2 The pitch of the micrometer spindle of a screw thread micrometer should be 0.5 mm or 1 mm.

4.2.3 The nominal diameter of the smooth cylindrical part of the micrometer spindle extending out of the frame should preferably be

4.2.4 The parameters of the screw thread micrometer measuring head should be as specified in Table 1.

5.1 Appearance

5.1.1 The surface of the screw thread micrometer shall be free from defects such as cracks, scratches, dents, rust, and burrs that affect its appearance and performance.

5.5 Interactions

5.5.1 The micrometer spindle and nut shall be fully engaged and well-fitted throughout the full measuring range, without any jamming or significant axial movement. The axial movement of a rotary screw thread micrometer shall not exceed

0.01 mm, and the axial movement of a straight-in screw thread micrometer shall not exceed 0.02 mm.

5.5.2 The smooth cylindrical part of the micrometer spindle extending from the scale frame shall fit well with the bushing, and there shall be no obvious radial wobble. The radial wobble value should not exceed

0.01 mm.

5.6 Force measuring device The screw thread micrometer shall have a force-measuring device. When the micrometer spindle is moved by the force measuring device, the force acting on the contact surface between the measuring surface (plane) of the micrometer spindle and the spherical surface shall be 5 N~10 N, and the variation shall not exceed 2 N.

5.7 Locking device For rotary screw thread micrometers, there shall be a device that can effectively lock the micrometer spindle; when locked, the difference in distance between the two measuring surfaces shall not exceed 2.0 μm compared to when unlocked.

5.8 Measuring surface

5.8.1 The hardness of the measuring surfaces of alloy tool steel shall not be less than 740 HV (or

61.8 HRC); the hardness of the measuring surfaces of stainless steel shall not be less than 552 HV (or

52.5 HRC). Hardness requirements are not specified for the measuring surfaces of

cemented carbide.

5.8.2 The surface roughness Ra of the measuring surface shall not be greater than 0.4 μm .

5.9 Scale Refer to the requirements of section

5.9 in GB/T 1216-2018.

5.10 Calibration measuring rod

5.10.1 The screw thread micrometer shall be provided with an adjustment tool for adjusting the zero position.

5.10.2 For screw thread micrometers with a lower measurement limit greater than 25 mm, a calibration measuring rod shall be provided. The nominal dimensions and dimensional deviations of the calibration measuring rod are specified in Table