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NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1950-2021

Calibration Specification for Thread Gauge Scanners

螺纹量规扫描测量仪校准规范

(English Translation)

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Introduction

JJF 1071-2010 "Rules for the Compilation of National Metrology Calibration Standards", JJF 1001-2011 "General Metrology Terms and Definition" and JJF 1059.1-2012 "Measurement Uncertainty Evaluation and Representation" together constitute the revision of this calibration specification the basic series of specifications.

This specification refers to GB/T 19600-2004 "Technical Specification for Product Geometric Quantity (GPS) Surface Structure Profile Method" the measurement characteristics and methods in "Calibration of Contact (Stylus) Instruments", combined with the working principle of the thread gauge scanning measuring instrument the combination and calibration method of the metrological characteristics are determined.

This specification is published for the first time.

Specification for calibration of thread gauge scanning gauges

1 Scope

This specification applies to the thread gauge scanning measuring instrument (hereinafter referred to as the thread scanner) calibration.

2 Reference documents this specification references the following documents.

JJF 1071-2010 Rules for Compilation of National Metrology and Calibration Specifications ISO 14253-1:2017 Technical Specification for Geometric Quantities of Products (GPS) Measurement Inspection of Workpieces and Measuring Equipment for dated references, only the dated version applies to this specification; for undated references the latest version (including all amendments) applies to this specification.

3 Terms and Definitions

3.1 Indication error of radial measurement the indication error of the thread scanner in the diameter direction of the thread gauge being measured.

3.2 Detection error

When scanning an ideal straight line or curve, the size and shape indication error measured by the thread scanner. by measuring the dimensional measurement indication error and its variation of the quasi-cylinder at different positions are evaluated.

3.3 Indication error of taper measurement the thread scanner measures the indication error of the taper of the smooth cone gauge. Using the error of the diameter change over the specified length (mm/mm) expression.

3.4 Indication error of cone diameter measurement when the thread scanner measures the smooth cone gauge, the diameter at the installation base surface (large end face of ring gauge, small end face of plug gauge) indication error.

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4 Overview

The thread scanner uses a fixture to position the thread gauge, so that the shaft section of the thread gauge and the probe of the thread scanner are aligned.

The needle movement planes coincide. The probe scans the profile surface on the axial section of the thread gauge, and collects the scan trajectory of the probe.

point set, and perform segmentation processing and mathematical calculation on the point set to obtain a single pitch diameter, pitch diameter, pitch, flank of the thread the data of parameters such as angle and taper can also obtain the value of the effective diameter.

The size of the plane of motion of the probe depends on the radial and axial travel of the thread scanner.

Depending on the design, probe, fixture configuration and software, the thread gauge size,

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