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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 16857.7-2022

Geometrical product specifications(GPS) - Acceptance and reverification tests for coordinate measuring systems(CMS) - Part 7: CMMs equipped with imaging probing systems

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foreword

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

drafting.

This document is GB/T 16857 "Geometric Product Specification (GPS) Coordinate Measurement System (CMS) Acceptance Test and Re-inspection Test"

Part 7 of. GB/T 16857 has issued the following parts.

--- Part 1.Vocabulary;

--- Part 2.Coordinate measuring machines for measuring linear dimensions;

--- Part 3.Coordinate measuring machine with the axis of the turntable as the fourth axis;

--- Part 4.Coordinate measuring machines used in scanning mode;

--- Part 5.Coordinate measuring machines using single-probe or multi-probe tactile probing systems;

--- Part 6.Evaluation of errors in calculating Gaussian fitting elements;

--- Part 7.Coordinate measuring machine equipped with image detection system;

--- Part 8.Coordinate measuring machines using optical distance sensors;

--- Part 9.Coordinate measuring machines equipped with multiple detection systems;

--- Part 901.Coordinate measuring machines equipped with multi-image detection systems;

--- Part 10.Laser tracker;

--- Part 12.Articulated arm coordinate measuring machine.

This document is equivalent to ISO 10360-7.2011 "Product Geometric Specifications (GPS) - Acceptance testing and re-inspection of coordinate measuring machines.

Measurement Part 7.Coordinate Measuring Machines Equipped with Vision Probes".

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Aiming at the key issues such as the lack of acceptance testing and re-inspection testing standards of coordinate measuring machines, and the urgent demand for corresponding testing standards, the focus of research

Acceptance testing and re-inspection testing methods of coordinate measuring machines, qualification judgment rules, application of acceptance testing and re-inspection testing, formulate conforming product

National standard for acceptance testing and re-inspection testing of Coordinate Measuring System (CMS) for Geometric Specifications (GPS).

GB/T 16857 "Geometric Product Specification (GPS) Coordinate Measurement System (CMS) Acceptance Test and Re-inspection Test" is based on the product

Geometry Specification (GPS) system, using coordinate measurement technology, sensor technology and error theory, etc., through theoretical analysis, international standard research

Recommended national standards for acceptance testing and re-inspection testing of coordinate measuring machines formulated through research, measurement application practice experience summary, etc.

The formulation of GB/T 16857 can fill in the gaps in my country's coordinate measuring machine acceptance testing and re-inspection testing standards, and contribute to the development of relevant coordinate measuring machines.

The manufacturer unifies the detection method, improves the consistency and stability of the performance of the coordinate measuring machine at the factory, and provides a basis for the acceptance detection and re-inspection of the coordinate measuring machine.

provide strong technical support.

GB/T 16857 is proposed to consist of 14 parts.

--- Part 1.Vocabulary. The purpose is to define a vocabulary for coordinate measuring machines and their acceptance and re-inspection tests.

--- Part 2.Coordinate measuring machines for measuring linear dimensions. The purpose is to specify coordinate measurements for measuring linear dimensions

For the measuring machine, the verification method for acceptance testing according to the characteristic indicators given by the manufacturer, and the periodic re-inspection of the measuring machine by the user

method of verification.

--- Part 3.Coordinate measuring machine configured with the axis of the turntable as the fourth axis. The purpose is to specify to verify a specified by the manufacturer

Acceptance testing specifications for the performance of the four-axis coordinate measuring machine, and the re-inspection for the user to periodically re-verify the performance of the four-axis coordinate measuring machine

Inspection specification.

--- Part 4.Coordinate measuring machine used in scanning mode. The purpose is to specify the coordinate measuring machine used in scan mode

Performance acceptance testing and re-inspection testing.

--- Part 5.Coordinate measuring machines using single-probe or multi-probe tactile probing systems. The purpose is to specify the

Methods for acceptance testing and re-inspection testing of coordinate measuring machine characteristics for measurement systems.

--- Part 6.Calculate the error assessment of Gaussian fitting elements. The purpose of this document is to specify a method for detecting software that is used for coordinate

The measure calculates the fitted features.

--- Part 7.Coordinate measuring machine with image detection system. The purpose is to specify the verification of coordinate measuring machines used to measure dimensions

Acceptance testing methods to determine whether it meets the performance specified by the manufacturer, and the user regularly verifies the performance of the coordinate measuring machine

capable retesting methods.

--- Part 8.Coordinate measuring machines using optical distance sensors. The purpose is to specify the parameters specified by the CMM manufacturer or user

The specified performance requirements, the acceptance test method for verifying the coordinate measuring machine according to the characteristic indicators given by the manufacturer, and the user regularly verifying the position

The application of re-inspection testing methods, qualification judgment rules, acceptance testing and re-inspection testing for standard measuring machine performance.

--- Part 9.Coordinate measuring machine configured with multiple detection systems. The purpose is to provide for multiple probes equipped with contact/non-contact measurement modes.

The detection method of the coordinate measuring machine of the measurement system.

--- Part 901.Coordinate measuring machine with multi-image detection system. The purpose is to specify the location of the multi-image detection system

Method for acceptance testing and re-inspection testing of marking measuring machines.

--- Part 10.Laser tracker. The purpose is to specify the acceptance test specifications for the performance of the laser tracker and the user's periodic re-verification incentives.

Re-inspection test specification for optical tracker performance.

--- Part 11.Industrial CT. The purpose is to specify the principle of X-ray computed tomography (CT) based on X-ray attenuation