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GB/T 47121-2026

Optical gyroscope angle measuring instruments

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Foreword

This document is in accordance with GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Then draft it. 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). The drafting units involved in this document are. National Institute of Metrology, Zhejiang University, Zhejiang Provincial Institute of Quality Science, and Xi'an Zhongke Huaxin Measurement and Control. Limited Liability Company, Xi'an Jiaotong University, Shandong Haomai CNC Machine Tool Co., Ltd., Hefei University of Technology, Beijing Jiaotong University, Hangzhou Xihe Optoelectronic Technology Co., Ltd. Technology Co., Ltd., Zhejiang University Jiaying Research Institute, Beijing Jingdiao Technology Group Co., Ltd., Chengdu Tool Research Institute Co., Ltd., Beijing Micro-Arc Technology Co., Ltd. Technology Co., Ltd., Jinan Institute of Metrology and Testing, China Jiliang University. The main drafters of this document are. Huang Yao, Huang Tengchao, Chen Ting, Xue Zi, Wu Jinjie, Liu Hongzhong, Xu Jintao, Yang Zhijun, Sun Shuanghua, and Shi Yongsheng. Li Geng, Zhou Bing, Yan Fangqing, Li Chulai, Cheng Dandan, Zhao Huining, Meng Lingchuan, Liang Cui, Zhao Shuai, Zhu Jin, Shi Nianbao, Cao Hui, Yang Yifeng, Li Shuangdong Xu Gang, He Yixian, Li Xiaozhen, Zhao Jun. Optical gyroscope goniometer

1 Scope

GB/T 47121-2026 is the Chinese national standard covering the optical gyro used as an angle measuring instrument - a ring laser or fibre gyroscope on a rotating table, measuring an angle by integrating rate, which is how a precision indexing table or a north finder is calibrated. It fixes the accuracy and resolution, the drift and its compensation, the

environmental conditions and the calibration. First edition. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the China Machinery Industry Federation. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document defines the terminology and definitions of optical gyro angle measuring instruments, and specifies the types and basic parameters, technical requirements, inspection conditions, markings, and... The packaging describes the inspection methods, etc. This document applies to the design, manufacture, and inspection of optical gyroscope goniometers with accuracy classes 1, 2, and 3.

Note. Accuracy levels are classified according to angular position measurement error, with Level 1 having an angular position measurement error of $\pm 0.2''$ and Level 2 having an angular position measurement error of $\pm 1''$. The angular position measurement error for level 3 is within $\pm 5''$.

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.

GB/T 17163 Basic Terminology for Geometric Measuring Instruments

GB/T 17164 Terminology for Geometric Measuring Instruments - Product Terminology

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 Sagnace effect The optical path difference effect caused by the rotation of the optical path between two coherent light waves propagating in opposite directions along a closed optical path. [Source: GB/T 45570-2025, 3.1]

3.2 Based on the Sagnac effect, a circular optical path is constructed and the optical path difference between the clockwise and counterclockwise light paths is detected during the rotation process to achieve the cyclic rotation. An angle measuring instrument for dynamic parameter measurement. Note