

ICS 37.020
CCS N38



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

GB/T 20244-2025

Replacing GB/T 20244-2006

Fibre optic elements for image transmission

光学纤维传像元件

Issued on: February 28, 2025

Implemented on: September 1, 2025

**Issued by: the State Administration for Market Regulation,
Standardization Administration of the People's Republic of China**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Classification, effective diameter and mass zone
4.1	Classification
4.2	Effective diameter and mass area
5	Requirements
5.1	Fiber Optic Panel
5.2	Image Inverter
5.3	Light cone
6	Test methods
6.1	Fiber Optic Panel
6.2	Image Inverter
6.3	Light cone
7	Inspection Rules
7.1	Inspection categories
7.2	Factory Inspection
7.3	Type inspection
8	Marking, packaging, transportation and storage
8.1	Sign
8.2	Packaging
8.3	Transportation
14	Acid resistance stability
25	Reference

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 replaces GB/T 20244-2006 "Optical fiber image transmission elements". Compared with GB/T 20244-2006, in addition to structural adjustments and In addition to editorial changes,

the main technical changes are as follows:

- Changed the scope (see Chapter 1, Chapter 1 of the.2006 edition);
- Added some terms and definitions (see 3.2, 3.5, 3.6, 3.10~3.20);
- Changed some terms and definitions (see 3.1, 3.3, 3.4 and 3.8, 3.1, 3.3, 3.7 of the.2006 edition);
- Deleted the term "like inversion" (see 3.5 of the.2006 edition);
- Added a chapter on "Classification, Effective Diameter and Mass Area" (see Chapter 4);
- Changed the content of "Requirements" (see Chapter 5, Chapter 4 of the.2006 edition);
- Changed the content of "Test Method" (see Chapter 6, Chapter 5 of the.2006 edition);
- Changed the content of "Inspection Rules" (see Chapter 7, Chapter 6 of the.2006 edition);
- Changed the content of "Marking, packaging, transportation and storage" (see Chapter 8, Chapter 7 and Chapter 8 of the.2006 edition). Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the 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 Optics and Photonics Standardization (SAC/TC103). This document was drafted by: China Building Materials Science Research Institute Co., Ltd., North Night Vision Technology (Nanjing) Research Institute Co., Ltd., China University of Metrology, China National Building Materials Optical Core Technology Co., Ltd., Shenzhen Rongzhe Optoelectronics Technology Development Co., Ltd., Ningbo Yongxin Optical Co., Ltd. Company, Shanghai University of Technology, Jiangxi Phoenix Optical Technology Co., Ltd., Suzhou Huili Instrument Co., Ltd., Changchun University of Science and Technology Zhongshan Research Institute Institute, Nanjing Chunhui Technology Industry Co., Ltd., Ningbo Bolet Optoelectronics Technology Co., Ltd., Hongan Group Co., Ltd., Shanghai Qianxin Instrument Co., Ltd., Guangzhou Mingmei Optoelectronics Technology Co., Ltd., Guangzhou Jinghua Precision Optics Co., Ltd., Ningbo Huaguang Precision Instrument Co., Ltd. Company, Nanjing Donglilai Optoelectronics Industry Co., Ltd., Shanghai Optical Instrument Research Institute, Shenzhen Qili Electronic Technology Co., Ltd., Ningbo Zhanjing Optical Instrument Co., Ltd., Micro Instrument Optoelectronics (Tianjin) Co., Ltd., Nanjing Jiangnan Yongxin Optical Co., Ltd., Ningbo Sunny Optical Instrument Co., Ltd., Ningbo Teaching Instrument Co., Ltd., Ningbo Xingxiang Optoelectronics Technology Co., Ltd., and Shanghai Xiongbo Precision Instrument Co., Ltd. The main drafters of this document are. Huang Yonggang, Liu Wenwei, Zhang Shuqin, Feng Yuechong, Zhou Qiang,

Cui Zhiying, Zhang Wei, Cao Xiaohong, Han Sen, Fu Xiuhua, Li Hui, Shen Xiaofeng, Sun Lin, Hua Yue, Zhang Chunwang, He Jian, Kong Yanbo, Hong Yiping, Feng Qionghui, Cheng Gen, Bao Pengfei, Yan Wei, Yao Chen, Hu Senhu, Wang Guorui, Bao Jinqun, Zhu Yongjin, Zhang Xian, Wang Sanzhao, Zhang Lei, Wang Yun, Fu Yang, Chu Miao, Guo Yan, Zhang Yakun, Pan Yonggang, Yin Lin, and Yang Zhelin. The previous versions of this document and the documents it replaces are as follows:

1 Scope

GB/T 20244-2025 is the Chinese standard for fibre optic image transmission elements: the fused fibre optic faceplates, tapers, inverters and image conduits that carry an image from one surface to another without a lens. They are the components inside an image intensifier, a night vision tube, a scientific camera and a range of medical and industrial imaging devices, and they are made by fusing millions of individual fibres, which is why their defects are peculiar to them: shear distortion, gross distortion, blemishes, chicken wire and blocked fibres. The standard sets the classification and designation, the requirements on the optical properties including numerical aperture, transmittance and resolution, on the geometry and the dimensional tolerances, on the image quality and the permitted defects by class, and on the mechanical and environmental properties, together with the test methods, the inspection rules and the marking, packaging, transport and storage. The 2025 edition replaces GB/T 20244-2006. For a maker or a buyer of imaging components in China, this is the acceptance text.

This document defines the terms and definitions of optical fiber image transmission elements, gives classifications, specifies effective diameters and quality ranges, requirements, inspections Rules and marking, packaging, transportation and storage, and describes the corresponding test methods. This document applies to image intensifiers, image converters, intensified charge coupled devices (ICCDs) or complementary metal oxide semiconductors (CMOS) Optical fiber imaging elements used in optoelectronic devices such as.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 191 Pictorial markings for packaging, storage and transportation

GB/T 903-2019 Colorless optical glass

GB/T 2828.1 Sampling procedures for inspection by attributes Part

3 Terms and definitions

The terms and definitions defined in GB/T 26597 and the following apply to this document.

3.1 Optical glass fibers are arranged and shaped according to certain rules, and are functional components that can transmit images from the input end face to the output end face.

3.2 fiberopticplate Optical glass fibers are arranged and shaped according to certain rules, and can transmit images from the input end to the output end in equal proportions and without changing direction. Functional elements of the surface.

3.3 Fiber Optic Inverter Optical glass fibers are arranged and formed according to certain rules, which can reverse the image from the input end face by 180° and transmit it to the output end face in equal proportion. Functional element.

3.4 Fiber Optic Taper Optical glass fibers are arranged and shaped according to certain rules, and can enlarge or reduce the image from the input end to the output end. element.

14 Acid resistance stability

GB/T 9969 General principles for instructions for use of industrial products

GB/T 13384 General technical requirements for packaging of electromechanical products

GB/T 26597 Test methods for optical fiber image transmission elements