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**Additive manufacturing - Atlas for the industrial endoscopic
visual testing of laser powder bed fusion metal parts**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. 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 was prepared by the National Technical Committee on Additive Manufacturing Standardization (SAC/TC562) and the National Technical Committee on Nondestructive Testing Standardization. (SAC/TC56) are jointly under the jurisdiction of the State Administration of Taxation. This document was drafted by: Beijing Power Machinery Research Institute, Shenzhen Jietai Technology Co., Ltd., Wuxi Inspection, Testing and Certification Institute, and Aerospace. Intelligent Manufacturing (Shanghai) Technology Co., Ltd., Antai Tianlong Tungsten & Molybdenum Technology Co., Ltd., Shanghai Aerospace Equipment Manufacturing General Factory Co., Ltd., China Aerospace Published by Beijing Institute of Aeronautical Materials, China Machinery Research Institute of Standards and Technology (Beijing) Co., Ltd., and Xi'an Bright Laser Technologies Co., Ltd. Nanjing Normal University, Shanghai Aerospace Precision Machinery Research Institute, Institute of Metal Research, Chinese Academy of Sciences, Xi'an National Research Institute of Additive Manufacturing Co., Ltd. Xi'an Aerospace Engine Co., Ltd., Ningxia Oriental Tantalum Industry Co., Ltd., Luzhou Hanfei Aerospace Technology Development Co., Ltd., China Aerospace Science and Technology Corporation Chengdu Engine Co., Ltd. and Beijing Satellite Manufacturing Co., Ltd. The main drafters of this document are. Li Jia, Kang Da, Li Wenfu, Hu Zhiyu, Lü Yanda, Huang

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Industrial endoscopic inspection, with its high precision and flexibility, can perform non-destructive testing on laser powder bed molten gold. Quality inspection of the surface condition, internal structural integrity, and foreign matter content of manufactured parts has become an important and widely used method for product quality control. application. Due to the unique nature of laser powder bed fusion molding process, surface defects such as nodules, poor fusion, and powder residue are novel. The types differ significantly from the current standard testing atlases. As a critical testing step in the manufacturing process, industrial endoscopy testing suffers from a lack of standardized testing methods. The lack of defined and evaluation standards leads to inconsistent quality control standards among manufacturing, user, and testing stakeholders, hindering the high-quality development of the additive manufacturing industry. Quality development. This document is formulated to standardize and unify detection techniques and evaluation methods. Based on collected image data of 18 typical defects across 5 categories, this document... The document clarifies the definition of defects and provides physical images of typical defect morphological characteristics, providing a basis for the surface fabrication of laser powder bed molten metal parts in additive manufacturing. This provides guidance for evaluating the quality of industrial endoscope inspection results. This document, as the first domestic standard for endoscopic inspection patterns of powder bed fusion additive manufacturing metal parts, will improve the testing standards for additive manufacturing. The system provides technical support to related enterprises and testing institutions in the industrial chain, promoting the quality improvement and technological advancement of laser powder bed molten metal parts. It extends to the high-quality development of industries. Additive manufacturing of laser powder bed molten metal parts Industrial Endoscope Inspection Atlas

1 Scope

GB/T 47008-2026 is the Chinese national standard covering an atlas of what defects look like down a borescope inside a printed metal part - the internal channels and cavities that additive manufacturing exists to create are exactly the surfaces no other inspection can reach. It is a reference of images rather than a procedure, which is the only way visual acceptance can be made consistent between inspectors. 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 specifies the defect classification and typical defect patterns for industrial endoscope inspection of additive manufacturing laser powder bed molten metal parts. This document applies to the evaluation of defect types detected by industrial endoscopy for the surface quality of additive manufacturing laser powder bed molten metal parts. The metal parts prepared by his additive manufacturing process are implemented in accordance with the instructions.

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 20737 General Terms and Definitions for Nondestructive Testing

GB/T 35351 Additive Manufacturing Terminology

3 Terms and Definitions

The terms and definitions defined in GB/T 20737 and GB/T 35351, as well as the following terms and definitions, apply to this document.

3.1 baling The surface of the part shows deposits that differ in morphology from the surrounding substrate.

3.2 Dross Adhesion Partially molten particles adhere to the surface of the part.

3.3 support residue Printed support structures that were not completely removed from the internal structure of the part.

3.4 Powder residuetrappedpowder Powder that was not completely removed from the internal structure of the part.

3.5 poor fusion Irregular gaps exist between layers or between melt channels where unmelted powder exists.

3.6 misalignment Observable linear geometric offsets appearing in adjacent forming layers or overlapping areas.

Note. This usually manifests as stop lines, overlapping edges, shrinkage lines, etc.