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

GB/T 46849.5-2025

**Technical product documentation - Requirements for model
based definition - Part 5: Inspection data**

技术产品文件 基于模型定义要求 第5部分：检测数据

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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. This document is Part 5 of GB/T 46849 "Technical Product Documentation Requirements Based on Model Definition". GB/T 46849 has been published. The following parts were included.

1.General Provisions;

---Part 2.3D Annotation;

5.Detection Data;

7.Data Organization;

8.Data Inspection;

9.Data Release. 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 and is under the jurisdiction of the National Technical Committee on Standardization of Technical Product Documentation (SAC/TC146). This document was drafted by: the 38th Research Institute of China Electronics Technology Group Corporation, Beijing Kexin Era Information Technology Co., Ltd., and CRRC. Zhuzhou Electric Locomotive Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd., China Machinery Productivity Promotion Center Co., Ltd., XCMG Group Cheng Machinery Co., Ltd., Suzhou Xuedian Refrigeration Technology Co., Ltd., and China Machinery Research Institute (Beijing) Co., Ltd. The main drafters of this document are. Wei Yixiong, Zhang Hongqi, Li Daisong, Liu Jing, Li Junping, Pan Kanghua, Wang Yunfeng, Chen Wei, Chen Jie, and Gao Hongwei.

With the gradual application and promotion of 3D computer-aided design (CAD) technology, and the application of model-defined design (MBD) technology in manufacturing... The implementation within enterprises has brought about significant changes in the development model and process of mechanical products, with three-dimensional digital models replacing two-dimensional drawings. Paper gradually became the sole basis for product development, which was a huge change in terms of technology, management, and mindset. To adapt to this change, systematically address the bottlenecks in product 3D design and manufacturing, and promote the popularization of model-based definition technology... Engineering applications support the digital transformation and upgrading of my country's manufacturing industry, and have led to the formulation of GB/T 46849 "Technical Product Documentation Based on Model Definition". The requirements are as follows: GB/T 46849 is based on the definition and application process of the three-dimensional model of the entire product life cycle, and is proposed to consist of 9 parts.

1.General Provisions. The purpose is to define the general, detailed, and management requirements based on the model definition, serving as a framework for the entire system. The foundation and framework of the standards.

---Part 2.3D Annotation. The purpose is to define the classification and composition of 3D annotation, and its application in 3D digital models of products. General and detailed requirements for 3D annotation are provided to ensure that the annotation information is clear, complete, and understandable.

3.Design Data. The purpose is to define the classification and composition of design data based on the model definition, and to define the design data definition... General and detailed requirements for design and management are required to ensure the accuracy and sufficiency of design data as the sole data source.

4.Process Data. The purpose is to define the classification and composition of model-based process data, as well as the definition of process data. General and detailed requirements for management and control are established to ensure effective coordination between process design and manufacturing processes.

5.Detection Data. The purpose is to define the classification and composition of detection data based on the model definition, and its relationship with the geometric model. The requirements, as well as the general and detailed requirements for the definition and management of test data, ensure the accurate implementation of quality control.

1 Scope

GB/T 46849.5-2025 is the Chinese national standard covering the inspection information on the model - the characteristics to be measured and their balloon identification, the methods and the datums, and the return of measured results against the model rather than against a

drawing. It is one of the nine parts of GB/T 46849 issued together on the same day, a first edition, and it belongs with the design data management series GB/T 46848. It was issued on 31 December 2025 and has been in force since 1 April 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2025 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 classification and composition of detection data based on model definitions, the requirements for their association with geometric models, and the definition of detection data. General and detailed requirements for management. This document applies to the definition and management of detection data based on model definitions.

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 20308-2020 Product Geometric Specification (GPS) Matrix Model

GB/T 24734.1-2009 Technical Product Documentation - Digital Product Definition Data - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 24734.1-2009, GB/T 24734.6-2009, and GB/T 46849.1-2025, as well as the following terms and definitions, shall apply. Used in this document.

3.1 Geometric information of the target object to be detected and evaluated on the geometric model.

Note. For example, when inspecting the internal surface structure of a hole, the internal surface of the hole is the inspection element.

3.2 Based on the design model and corresponding annotation information (such as dimensional parameters and tolerance parameters), and combined with information such as inspection requirements and evaluation rules, this is generated for... This provides basic information data to guide the selection of backend detection methods and the planning of detection paths.

3.3 Based on the detection requirements defined on the front end, this involves planning

the corresponding detection methods, equipment, paths, and all detection operations performed based on the plan. The information and data generated during the process.

3.4 Inspection rules Criteria used to determine whether product testing data results meet design requirements.

3.5 Inspection features A set of one or more sets of detection data that are oriented towards the typical characteristics of the detection elements.

6 Geometric Modeling Feature Specifications

GB/T 46849.1-2025 Technical Product Documentation - Requirements Based on Model Definition - Part