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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 46849.4-2025

Technical product documentation - Requirements for model based definition - Part 4: Process data

技术产品文件 基于模型定义要求 第4部分：工艺数据

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Standardization Administration of the PRC

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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 4 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: Shanghai Pairui Information Technology Co., Ltd., Inner Mongolia First Machinery Group Co., Ltd., and China Machinery Productivity Promotion Center. Xin Co., Ltd., Shandong Shanda Huatian Software Co., Ltd., CRRC Zhuzhou Electric Locomotive Co., Ltd., CRRC Qishuyan Locomotive Co., Ltd. SAIC-GM-Wuling Automobile Co., Ltd., the 38th Research Institute of China Electronics Technology Group Corporation, and the Beijing Radio Measurement Institute. XCMG Construction Machinery Co., Ltd. and China Machinery Research Institute (Beijing) Co., Ltd. The main drafters of this document are. Zeng Xiangyu, Lin Jingsong, Liu Wenzhong, Wang Yunfeng, Luo Haipeng, Li Jianxun, Xie Li, Xing Yingying, and Li Junping. Tian Fujun, Liu Hongyu, Wang Liankun, 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... Within enterprises, the development models and processes for mechanical products have undergone significant changes; three-dimensional digital models have replaced two-dimensional drawings. Gradually becoming the sole basis for product development represents a tremendous transformation 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... 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 46849.4-2025 is the Chinese national standard covering the manufacturing information carried on the model - the operations and their sequence, the datums and fixturing, the tooling and the inspection features, so that the shop floor works from the same model as the designer. Part 4 of the series, first edition. 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 model-defined process data, as well as the general requirements and details for process data definition and management. Detailed requirements, etc. This document applies to the definition and management of process 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 4863-2008 Basic Terminology of Mechanical Manufacturing Processes

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

3 Terms and Definitions

The following terms are defined in GB/T 4863-2008, GB/T 24734.1, GB/T 26102-2010, and GB/T 28282-2012. The definitions apply to this document.

3.1 process model A collection of 3D models that integrate process design information and reflect the manufacturing process of a product or component, with 3D models as the core.

Note. A process model is a complete, consistent, efficient, and storable structured description in a computer of all data related to the processes involved in a product.

3.2 Process route During the production process, from the preparation of raw materials to the packaging and warehousing of finished products or components, the products or components go through various relevant departments or processes within the enterprise in sequence. order. [Source: GB/T 4863-2008, 3.1.13]

3.3 Includes partial attribute information from the EBOM, process information such as process routes for process components and parts, reflecting the production delivery sequence. Bill of Materials. [Source: GB/T 28282-2012, 3.2]

3.4 process specification Process documents that specify the manufacturing process and operating methods for products or components.