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

GB/T 46849.2-2025

**Technical product documentation - Requirements for model
based definition - Part 2: Three-dimensional annotation**

技术产品文件 基于模型定义要求 第2部分：三维标注

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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 2 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: Wanxiang Qianchao Co., Ltd., CRRC Qishuyan Locomotive Co., Ltd., and China Machinery Productivity Promotion Center Co., Ltd. Company, the 38th Research Institute of China Electronics Technology Group Corporation, CRRC Dalian Locomotive & Rolling Stock Co., Ltd., XCMG Construction Machinery Co., Ltd. The company, China Machinery Research Institute (Beijing) Co., Ltd., and Suzhou XueDian Refrigeration Technology Co., Ltd. The main drafters of this document are. Shi Bomei, Xie Li, Liu Jianhua, Pan Kanghua, Wang Yunfeng, Zhang Xiangxiang, Zhang Hongqi, Zhang Lichen, Wang Hong, and Wu Rui. Wang Liankun, Gao Hongwei, Chen Wei.

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... 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 46849.2-2025 is the Chinese national standard covering putting the dimensions and tolerances on the 3D model instead of on a drawing - where the annotations sit, how they attach to the geometry they control, and how they stay readable as the model is rotated.

Model based definition removes the drawing entirely, which only works if the model carries everything the drawing used to. Part 2, 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 3D annotations, as well as the general requirements for 3D annotation in product 3D digital models. Detailed requirements. This document serves as a standard and guide for performing 3D annotation in product 3D digital models.

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 14691 Technical Drawing Fonts

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, as well as the following terms and definitions, apply to this document.

3.1 Annotation Dimensions, tolerances, annotations, text, and symbols are visible without manual or external processing. [Source: GB/T 24734.1-2009, 3.1]

3.2 Annotation plane The conceptual plane in which the label is located. Note

1.The labeled surface should intersect or coincide with the model features. Note

2.This plane is "conceptual" and not the actual geometry of the model. [Source: GB/T 24734.1-2009, 3.2]

3.3 A method of annotating interrelated dimensions and technical requirements in a prescribed combination.

4 Process Data

GB/T 46849.5-2025 Technical Product Documentation - Model Definition Requirements -

Part

5 General Product Definition Data Require

GB/T 46849.3-2025 Technical Product Documentation - Model Definition Requirements -
Part

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