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Product lifecycle data model based on BOM

基于BOM的产品生命周期数据模型

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Foreword

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Corporation Hunan Southern Aerospace Industry Co., Ltd., Dongfang Electric Corporation Dongfang Steam Turbine Co., Ltd., Beijing Harbin Institute of Technology Huiyu Technology Co., Ltd., CRRC Dalian Locomotive and Rolling Stock Co., Ltd., Qing'an Group Co., Ltd., Jiangsu Sugang Intelligent Equipment Industry Innovation Center Co., Ltd., Nanjing Port Machinery Heavy Industry Manufacturing Co., Ltd. The main drafters of this document are. Wang Chen, Wang Jianmin, Liu Jun, Wang Haidan, Xu Zhe, Zhao Qin, Li Furong, Wang Shaohua, Sun Jiexiang, Li Zhigang, Lan Xiaoping, Lin Rui, Zhang Chuanhui, Dai Yongchang, Liu Wenjun, Yang Fan, Gao Qi, Qu Yaning, Wang Honglian, Zheng Bowen, Wang Ping, Liu Gang, Ouyang Senshan, Chen Bin, Yang Xiumao, Guo Hongwei, Ma Chunna, Xu Lei, Wang Zhaohui, Guo Dong, Zhou Xian, Yang Changzhu, Xu Songyan, Guo Xifeng, Zhao Gang, Wang Wenshan, Sun Cheng, She Zhongjian, Zhang Chuanping, Liu Hui, Liu Cuihua, Zhong Xiao, and Mo Tong. Product life cycle data model based on BOM

1 Scope

GB/T 45226-2025 defines a product lifecycle data model built on the bill of materials. The bill of materials is the one structure that every stage of a product's life shares, and the standard's premise is that the engineering, manufacturing, service and disposal views of a product should be expressed as transformations of a single BOM rather than as separate documents that drift apart, which is the failure mode of most PLM implementations. The standard sets the framework of the BOM-based lifecycle data model and then the data model for each stage in turn: the research and design stage with the engineering BOM, the process planning and manufacturing stages with the process and manufacturing BOM, the procurement and supply, the sales and delivery, the service and maintenance stage, and the retirement and recycling stage, giving for each the entities, attributes and relationships and the rules by which one view is derived from another. It takes effect on 1 August 2025.

This document provides a data model for R&D design, production and manufacturing, and delivery services in the product life cycle stage based on BOM. This document applies to the development of product lifecycle management and integration platforms, and cross-system data integration.

2 Normative references

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Used to define and describe BOM information, product information, A comprehensive information model of process information, manufacturing information, quality information, delivery information, service information, etc.

3.2 Bill of material; BOM A hierarchical list of all the materials that make up a specified product. [Source: GB/T 32236-2015, 2.16]

3.3 Design BOM engineering BOM; EBOM Design Bill of Materials Hierarchical parts list for product design process.

Note. Used to manage data such as the superior-subordinate dependency relationships of various components in the product design structure.

3.4 processBOM;PBOM Process Bill of Materials A hierarchical list of product process design procedures.

Note. It is used to manage data such as the superior-subordinate dependency relationships of various components and virtual parts in the product process structure.

3.5 manufacturingBOM;MBOM Manufacturing Bill of Materials A hierarchical list of the manufacturing process for a product.

Note. It is used to manage data such as the superior-subordinate dependency relationships of various production units and parts in the product manufacturing structure.

3.6 Finished product BOM buildingBOM; BBOM Finished Product Bill of Materials A hierarchical list of actual parts when the product is delivered.

Note. Used to manage instance material data of each component in a specific product.