ICS 35.240.50
CCS L 71

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 43850-2024

Classification and coding of R&D design resource for equipment manufacturing industry

面向装备制造业的研发设计资源分类及编码

Issued on: April 25, 2024 **Implemented on: November 1, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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1 Scope

The document describes the classification and the coding method of research and development design resources for the equipment manufacturing industry.

It applies to the classified management of research and development design resources, in support of the informatization of the equipment manufacturing industry.

2 Normative references

Three normative references are listed: GB/T 14885-2022, Basic classification and coding of fixed assets and other assets; GB/T 36475-2018, Classification of software products; and GB/T 39469-2020, Classification and coding method of general manufacturing process knowledge. For dated references only the edition corresponding to that date applies; for undated references the latest edition, including all amendments, applies.

3 Terms and definitions

The following terms and definitions apply to the document.

3.1 information resources: the sum of the valuable data generated, collected, stored and transmitted in business activities and processes.

3.2 knowledge: the understanding, judgement or skill acquired through learning, practice or

exploration of the information resources produced by business activities. Source: GB/T 23703.2-2010, 2.1.

3.3 knowledge resources: the collective name for the content resources that can be reused after being organized as knowledge (3.2).

3.4 R&D design resource: the elements that have to be available in order to secure product research and development, including the site resources, equipment resources, software resources, information resources, knowledge resources and human resources needed for product planning, design, trial production and similar work. Note 1: the definition of R&D design resource is given with reference to GB/T 19000-2016, combined with the actual needs of engineering. Note 2: R&D means research and development. Note 3: qualifying words may be used to describe the nature of design and development, for instance product design and development, or service design and development or process design and development. Note 4: design resources are the most basic elements making up the product design activity, and generally mean the sum of all the resources able to support the product design activity.

4 Abbreviated terms

The abbreviations used in the document are CAD for computer aided design, CAM for computer aided manufacturing, PLC for programmable logical controller, PLM for product lifecycle management and PDM for product data management.

5 Classification

5.1 Classification principles. The document classifies by the attributes of the object, while taking account of the needs of resource use and management in the research and development process.

5.2 Classification method. The classification of R&D design resources for the equipment manufacturing industry uses the line classification method, dividing the resources by their attributes into seven classes: site resources, equipment resources, knowledge resources, software resources, information resources, human resources and other resources.

5.3.1 Site resources. The classification of site resources is shown in Figure 1. Site resources divide into buildings, structures and land. Buildings divide into office buildings, business buildings and other buildings, and business buildings divide further into research buildings, industrial production buildings, storage buildings and other business buildings.

5.3.2 Equipment resources. The classification of equipment resources is shown in Figure 2. Equipment resources divide into information technology equipment, office equipment, mechanical equipment, communication equipment, electrical equipment, instruments and meters, electronic and communication measuring instruments, measurement standards together with measuring tools and weighing apparatus, engineering machinery, and other

equipment; each of these branches is broken down further in the figure.

5.3.3 Knowledge resources. The classification of knowledge resources is shown in Figure 3. Knowledge resources divide into patents, non-patented technology, copyright and other knowledge resources. Patents divide into invention patents, utility model patents and design patents. Non-patented technology divides into design drawings, process flows, technical standards, calculation formulae, material formulations, test schemes, scientific and technical intelligence, system documents, basic theory, management models and design models; technical standards divide further into international, national, national military, sectoral, local, association, enterprise and other standards, and design models divide further into architecture design, material models, physical models, functional models, structural models, constraint models, interface models, simulation models, traceability models, cost models, evaluation models and other design models.