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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 42383.1-2023

Intelligent manufacturing - Network collaborative design - Part 1: General requirements

智能制造 网络协同设计 第1部分：通用要求

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Foreword

This document was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 October 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 35.240, Chinese classification N10.

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents"

drafting.

This document is the first part of GB/T 42383 "Smart Manufacturing Network Collaborative Design". GB/T 42383 has issued the following

part.

--- Part 1. General requirements;

--- Part 2. Software interface and data interaction;

--- Part 4. Design requirements for the whole life cycle;

--- Part 5. Multidisciplinary collaborative simulation.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

This document is proposed by China Machinery Industry Federation.

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This document is drafted by. Shanghai Industrial Automation Instrument Research Institute Co., Ltd., Shanghai Aerospace Systems Engineering Research Institute, China Aviation Development Shanghai

Commercial Aviation Engine Manufacturing Co., Ltd., China Institute of Electronic Technology Standardization, Nanjing Youbei Automation System Co., Ltd., Daquan

Group Co., Ltd., SINOMACH Industrial Internet Research Institute (Henan) Co., Ltd., Guangzhou Energy Testing Research Institute, Machinery Industry Instrumentation Comprehensive

Institute of Technology and Economics, Shanghai Intelligent Manufacturing Functional Platform Co., Ltd., Shenzhen Future Intelligent Control Technology Co., Ltd., Jiangsu Jack Instrument Co., Ltd.

Division, Shaanxi Oliver IOT Technology Co., Ltd., Dongguan Institute of Technology, Kaos Industrial Intelligence Research Institute (Qingdao) Co., Ltd., Xiamen Yudian

Dynamic Technology Co., Ltd., Shenyang University of Technology, Shanghai Computer Software Technology Development Center, Ruili Group Ruian Auto Parts Co., Ltd.,

Hangzhou Wolei Intelligent Technology Co., Ltd.

The main drafters of this document. Wang Ying, Xiao Honglian, Li Shaoyang, Xiang Hongwei, Li Jia, Dong Jian, Xu Hui, Guan Juntao, Zhang Aisen, Sun Yuxin, Wan Yong,

Feng Xiawei, Liu Jun, Wei Tiancai, Min Pei, Wu Yukun, Zhang Zhaoyun, Chen Lucheng, Su Xiaoli, Mei Jun, Dong Ying, Wang Jianing, Zhang Xiaoling, Huang Yan, Li Chuanwu,

Guo Bin, Liu Jinghua, Ren Taolin.

Introduction

GB/T 42383 "Smart Manufacturing Network Collaborative Design" is proposed to be composed of the following five parts.

--- Part 1. General requirements. The purpose is to specify the general principles, general requirements and requirements of the network collaborative design platform.

beg. It is suitable for remote design participants to develop complex product systems in the field of intelligent manufacturing with the support of the network collaborative design platform

Implementation and management of collaborative design. It is also applicable to the establishment of a network collaborative design platform.

--- Part 2. Software interface and data interaction. The purpose is to specify the software interface in the network collaborative design platform in the field of intelligent manufacturing

The technical requirements that need to be met in the design of interaction with data, and the description of the software interface type and the basic protocol of data interaction are given.

The software interface and data interaction framework in the design process of the network collaborative design platform suitable for complex products and equipment in the field of intelligent manufacturing

structure construction and technology implementation.

--- Part 3. Knowledge Base. The purpose is to specify the model and management requirements of the network collaborative design system knowledge base, knowledge base construction,

Knowledge base functions and knowledge base application requirements. It is suitable for the construction, management, application and maintenance of the network collaborative design system knowledge base.

--- Part 4. Design requirements for the whole life cycle. The purpose is to specify the general requirements for the design of the whole life cycle and the

Life cycle collaborative design requirements and specific design requirements for each stage of product life cycle. Applicable to the complex field of intelligent manufacturing

Collaborative design and management of the product system and its subsystem's full life cycle network.

--- Part 5. Multidisciplinary collaborative simulation. The purpose is to specify the architecture of the multidisciplinary co-simulation system in the process of network co-design

Requirements, technical requirements, functional requirements, simulation system construction, simulation process construction and system application logic, etc. for smart

Multidisciplinary collaborative simulation in the process of network collaborative design in the manufacturing field, the scope of the field can include multi-field strong coupling simulation, multi-field weak coupling simulation

Co-simulation and multi-disciplinary co-simulation and other fields.

Intelligent Manufacturing Network Collaborative Design

Part 1. General requirements

1 Scope

GB/T 42383.1-2023 covers network collaborative design in intelligent manufacturing, the arrangement under which design participants at different sites develop one complex product system through a shared platform. It gives the collaborative design mode and process, the general requirements covering design, collaboration, software interfaces and data interaction, and security, and then the platform: its architecture, the basic environment layer, the data resource layer, the design functional layer and collaborative management, with an informative appendix on the knowledge base of such a system. Distributed design fails at the joins rather than at the drawing board. Partners run different design and data management tools, so models arrive in a form the receiving side cannot fully read, versions fall out of step, and the reasoning behind a change survives only in somebody's mailbox. That is why software interface and data interaction and collaborative management sit beside the design requirements, and why security has a clause of its own: the same link that sends a model out to a supplier carries unreleased product data with it. Part 1 of GB/T 42383, a series proposed in five parts, with terms taken from GB/T 37413-2019. For platform developers, for manufacturers setting up joint design programmes, and for the suppliers asked to join them.

This document specifies the general principles, general requirements and requirements of the network collaborative design platform.

This document is suitable for remote design participants to carry out complex product system collaboration in the field of intelligent manufacturing with the support of the network collaborative design platform.

Implementation and management of the same design. This document is also applicable to the establishment of a network collaborative design platform.

Note. The complex product system in this document refers to a product system composed of multiple types of parts or subsystems and involving multi-disciplinary technologies, including but not limited to aerospace