

ICS 71.120; 83.200
CCS G95



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

GB/T 45337-2025

**Tires intelligent manufacturing - Manufacturing execution
system (MES) deployment - General specification**

轮胎智能制造 制造执行系统(MES)部署 通用规范

Issued on: February 28, 2025

Implemented on: September 1, 2025

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

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

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1 Scope

GB/T 45337-2025 is the Chinese general specification for deploying a manufacturing execution system in tyre production. Tyre making is an unusually hard MES case: it is a hybrid of continuous processes, mixing, extrusion and calendaring, and discrete assembly and curing, the intermediate components have short and temperature-dependent shelf lives, and a single tyre carries a genealogy of a dozen semi-finished parts that must be traceable for the life of the product because of recall liability. The standard sets the deployment framework and then the requirements: the functional scope of the MES across the tyre process, the data model and the identification of materials, semi-finished components and finished tyres, the interfaces to the process control and to the enterprise systems, the traceability and genealogy requirements, the scheduling and dispatching, the quality management and the handling of non-conforming material, the equipment and energy monitoring, and the deployment process, testing, acceptance and the operation and maintenance of the system. It takes effect on 1 September 2025.

This document specifies the general principles, deployment architecture, management system, data storage service, interface service, Requirements for device sensing layer and basic network hardware. This document is applicable to the planning, deployment and implementation of MES for intelligent tire manufacturing.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 25485 Industrial automation systems and integrated manufacturing execution system functional architecture

GB/T 36587 Rubber and Plastics Machinery Terminology

3 Terms and definitions

The terms and definitions defined in GB/T 25485 and GB/T 36587 apply to this document.

4 Abbreviations

The following abbreviations apply to this document. AGV. Automated Guided Vehicle APS. Advanced Planning and Scheduling System BOM. Bill of Materials BI. Business Intelligence ERP. Enterprise Resource Planning HR. Human Resources MES. Manufacturing Execution System MQTT. Message Queuing Telemetry Transport Protocol OA. Office Automation OEE. Overall Equipment Effectiveness OPC. Industrial standard protocol for process control (OLE for Process Control) PCS. Process Control System PDA. Personal Digital Assistant

PLC. Programmable Logic Controller PLM. Product Lifecycle Management RGV. Rail Guided Vehicle

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