

ICS 25.040.01
CCS N 10



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

GB/T 35132.1-2024

Replacing GB/T 35132.1-2017

**Automation systems and integration - Evaluating energy efficiency and
other factors of manufacturing systems that influence the environment
- Part 1: Overview and general principles**

自动化系统与集成 制造系统能源效率以及其他环境影响因素的评估 第1部分：概
述和总则

(English Translation)

Issued on: November 28, 2024

Implemented on: June 1, 2025

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

- Preface
- Introduction
- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Environmental Performance Assessment of Manufacturing Systems
 - 4.1 Manufacturing system life cycle phases and product life cycle phases
 - 4.2 Manufacturing system life cycle steps and their environmental impacts
- 5 Environmental Performance Assessment Requirements
- Appendix A (Informative) ISO.20140 Use Case
- References

Foreword

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 a supplement to GB/T 35132 "Evaluation of energy efficiency and other environmental impact factors of automation systems and integrated manufacturing systems" Part 1: GB/T 35132 has published the following parts.

- Part 1: Overview and general principles;
- Part 2: Environmental performance assessment process;
- Part 3: Environmental performance assessment data aggregation process;
- Part 5: Environmental performance evaluation data.

This document replaces GB/T 35132.1-2017 "Energy efficiency and other environmental impact factors of automation systems and integrated manufacturing systems" Compared with GB/T 35132.1-2017, in addition to structural adjustments and editorial changes, the main technical the technical changes are as follows.

- Deleted the environmental impact assessment method (see Chapter 5 of the 2017 edition);
- Deleted the environmental impact assessment process (see Chapter 6 of the 2017

edition);

--- Deleted the environmental impact assessment data (see Chapter 7 of the 2017 edition);

--- Changed Figures 1 and 2 (see Chapter 4, Chapter 4 of the 2017 edition);

--- Deleted Figures 3 and 4 (see Chapter 4 and Chapter 5 of the 2017 edition).

This document is equivalent to ISO.20140-1.2019 "Energy efficiency and other environmental impact factors of automation systems and integrated manufacturing systems".

Assessment of biosafety factors Part 1: Overview and general principles.

Introduction

GB/T 35132 "Evaluation of energy efficiency and other environmental factors of automation systems and integrated manufacturing systems" stipulates the Methods for assessing system energy efficiency and other environmental impact factors, such as energy consumption, losses and emissions.

GB/T 35132 is applicable to discrete, batch and continuous manufacturing systems.

GB/T 35132 focuses on manufacturing systems with a hierarchical structure.

GB/T 35132 can be used for.

--- To benchmark general manufacturing systems or to compare different manufacturing systems;

--- Conduct optional research on improving environmental performance;

---Set environmental performance improvement goals;

---Monitor shop floor operations through visualization of manufacturing system environmental performance.

The intended users of GB/T 35132 include.

---Managers responsible for the environmental conditions of the manufacturing system;

---Engineers who plan product manufacturing processes;

---Planners and designers who design and manufacture systems;

---Engineers and supervisors responsible for manufacturing products.

This document provides an overview and basic principles of the methodology for environmental impact assessment of manufacturing systems.

The environmental performance of manufacturing systems has a significant impact on the environmental performance of manufactured products throughout their life cycle.

Environmental performance assessment is an important contribution to product life cycle environmental performance assessment and the circular economy.

GB/T 35132 is intended to consist of four parts.

--- Part 1: Overview and general principles. The purpose is to provide an overview and basic principles for the environmental impact assessment method of manufacturing systems.

--- Part 2: Environmental performance assessment process. The purpose is to specify the environmental performance assessment process for activities performed by manufacturing systems.

--- Part 3: Environmental performance assessment data aggregation process. The purpose is to use the environmental performance assessment data based on Part 5 Provide aggregated environmental performance assessment data according to the environmental performance assessment specifications given in Part 2.

--- Part 5: Environmental performance evaluation data. The purpose is to specify the types of EPE data and the attributes contained in each type of EPE data.

Based on the general principles described in Part 1, various types of EPE data can be used to evaluate the environmental performance of the production system.

Automation Systems and Integrated Manufacturing Systems Energy Evaluation of efficiency and other environmental impact factors Part 1: Overview and general principles

1 Scope

This document provides an overview and basic principles of a methodology for assessing the environmental impact of manufacturing systems, including energy efficiency and other factors that affect the environment.

factor.

This document is applicable to discrete, batch and continuous manufacturing systems. This document is applicable to entire manufacturing systems and parts of manufacturing systems.

Life cycle assessment of products produced by manufacturing systems is outside the scope of this document.

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 35132.2-2020 Assessment of energy efficiency and other environmental impact factors of automation systems and integrated manufacturing systems Part 2: Environmental performance assessment process (ISO.20140-2.2018, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

The terminology databases used for standardization maintained by ISO and IEC are located at.

CRRstepCRRstep

step in the life cycle (3.11) of a manufacturing system (3.15) rather than an operational step
3.2 Energy Electricity, fuel, steam, heat, compressed air and other similar media that provide power.

[Source. GB/T 23331-2020, 3.5.1, modified] 3.3 Energy efficiency ratio or other quantitative relationship of output performance, service, product, good or energy (3.2) to input energy
Example. Conversion efficiency, energy required/energy consumed.

NOTE Inputs and outputs should be clearly defined and measurable in terms of quantity and quality.

[Source. GB/T 23331-2020, 3.5.3]