



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

GB/T 35132.5-2020

**Automation system and integration. Energy efficiency of
manufacturing system and other environmental impact factors -
Part 5: Environmental performance evaluation data**

Issued on: November 19, 2020

Implemented on: June 1, 2021

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

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification of Environmental Performance Evaluation (EPE) Data	3
4.1 Semantic information of environmental performance evaluation data	3
4.2 EPE data classified by source and time	4
4.3 Further detailed classification of data	4
5 Actual data	5
5.1 Overview	5
5.2 Sources of actual data	5
5.3 Actual data of running steps	7
5.4 Actual data of the CRR step	12
6 External data	12
6.1 Overview	12
6.2 Upstream data	12
6.3 Environmental Characteristic Data (ECD)	13
6.4 Exchange remaining CRR data	13
7 Reference data	14
7.1 General	14
7.2 Remaining CRR data	14
7.3 Production control data	14
7.4 Manufacturing system data	15
7.5 Process planning data	15
8 Environmental performance assessment data mapping	15
8.1 Overview	15
8.2 Energy management related classification	17
8.3 Differences between the actual data of the second and third layers and the third and fourth layers	17
Appendix A (informative appendix) EPE data mapping	19
Appendix B (informative appendix) IEC 62264-2 general object model	35
Appendix C (informative appendix) The key performance indicator record structure described in ISO 22400-2	38

Appendix D (informative appendix) Use case. measuring the total actual energy consumption of individual equipment and systems	41
Appendix E (Informative Appendix) Material Upstream Data-Regional Directives and International Standards	43
Appendix F (Informative Appendix) Greenhouse Gas Emission Life Cycle	46
Appendix G (informative appendix) Commonly used energy data model attributes	47
Reference	49

Foreword

GB/T 35132 "Assessment of energy efficiency of automation systems and integrated manufacturing systems and other environmental impact factors" is divided into the following section.

- Part 1.Overview and general rules;
- Part 2.Environmental performance evaluation process;
- Part 3.Environmental performance evaluation data aggregation process;
- Part 4.The allocation and loading process of indirect impact and CRR impact;
- Part 5.Environmental performance evaluation data.

This part is Part 5 of GB/T 35132.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this part is equivalent to ISO.20140-5.2017 ``Energy efficiency of automation systems and integrated manufacturing systems and other

Evaluation of Environmental Impact Factors Part 5.Environmental Performance Evaluation Data.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Automation System and Integration Standardization Technical Committee (SAC/TC159).

Drafting organizations of this section. Zhejiang University, Beijing Institute of Machinery Industry Automation Co., Ltd., Zhejiang Zhongzhida Technology Co., Ltd., Zhejiang

University Ningbo Institute of Technology, Shenzhen Vocational and Technical College.

Introduction

GB/T 35132 specifies methods for evaluating energy efficiency and other environmental impact factors of manufacturing systems, such as energy consumption, losses, and emissions.

Release and so on, namely the environmental performance evaluation (EPE) method. This assessment method provides guidance for analyzing the energy use and environmental impact of manufacturing systems.

GB/T 35132 systematically assesses environmental impacts by analyzing manufacturing systems and activities.

GB/T 35132 is mainly aimed at discrete manufacturing systems, including aircraft, automobiles, electronic devices, mechanical tools and their related product parts.

The forming, mechanical processing, painting, equipment, testing and other links in the production process. GB/T 35132 focuses on the environmental performance evaluation (EPE) method

It is applied to a hierarchical manufacturing system composed of multiple manufacturing equipment, such as work cells, work centers, areas and factories. Environmental performance

Effectiveness Evaluation (EPE) method can also be applied to the configuration of different manufacturing systems and the improvement of production management and manufacturing equipment operation level.

Line quantification.

The environmental performance evaluation (EPE) method and basic concepts in GB/T 35132 can also be used in the environment of continuous production and mass production processes

Impact assessment.

GB/T 35132 can be used for.

- As a benchmark to measure the environmental impact of the manufacturing system;
- Conduct environmental performance studies to improve the current manufacturing process, reset manufacturing systems or equipment, and design new manufacturing systems;
- Compare the environmental performance of different manufacturing systems producing the same product;
- Set the highest goal of environmental improvement, as well as a detailed list of intermediate systems, work units, and manufacturing equipment;

---Improve workshop operations by observing the actual state of environmental performance.

The intended users of GB/T 35132 include.

---Environmental supervision managers of factories, sites and enterprises;

---Product production planning engineer;

---Manufacturing system planner and designer;

---Production engineers and supervisors.

This part provides a comprehensive and universal principle for the environmental performance evaluation of the production system.

Automation system and integrated manufacturing system energy

Evaluation of efficiency and other environmental impact factors

Part 5.Environmental performance evaluation data

1 Scope

This part of GB/T 35132 specifies the types of EPE data and the attributes contained in various EPE data, which can be based on GB/T 35132.1

The general principles described in the use of various EPE data to evaluate the environmental performance of the production system. In addition, this section also suggests that environmental performance

The evaluation data is mapped to the information model specified by IEC 62264.

This section applies to discrete, batch and continuous production.

This section applies to both the evaluation of the entire production facility and the evaluation of the part of the production facility.

This section does not involve the structure of data and information models, the protocols used when exchanging data models, nor does it involve what can be implemented by data models.

The functional level and the activities in the first and second layers specified by IEC 62264.

The scope of this section includes. Explain the differences between various data and information models and the differences in actual data under different environmental indicators.

This section deals with the semantics of structured data and information models used by communication protocols. The "semantic" here refers to the ability to explain the attributes and