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

GB/T 46713.1-2025

**Railway applications - Rolling stock - Batteries for auxiliary
power supply systems - Part 1: General requirements**

轨道交通 机车车辆 辅助供电系统蓄电池 第1部分：通用要求

(English Translation)

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Foreword

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

Drafting is scheduled.

This document is Part 1 of GB/T 46713 "Batteries for Auxiliary Power Supply Systems of Rail Transit Locomotives and Rolling Stock".

The following sections have been released.

---Part 1: General Requirements;

---Part 2: Nickel-Cadmium Batteries;

---Part 4: Nickel-Metal Hydrate Batteries;

---Part 5: Lithium-ion Batteries.

This document is modified to adopt IEC 62973-1:2018 "Batteries for auxiliary power supply systems of rail transport locomotives and rolling stock - Part 1: General purpose".

"Requirements".

This document has undergone the following structural adjustments compared to IEC 62973-1:2018.

---Added 9.2.2, and subsequent item numbers will be modified accordingly.

The technical differences between this document and IEC 62973-1:2018, and the reasons therefor, are as follows.

---The nominal voltage value of the battery system has been changed (see Chapter 1), and the 32V and 36V standards, which are not available in China, have been removed;

---GB/T 2900.41-2008 has been added as a reference document in the introductory text of the "Terms and Definitions" chapter (see Chapter 3);

---The definitions of terms have been revised (see 3.1.3, 3.1.6) to conform to domestic practices;

---The system voltage has been changed (see Table 1), and standards not available in China have been removed;

---The description of the battery type has been changed (see 4.2) to conform to domestic usage habits;

---IEC 61373:2010 has been replaced with the normatively referenced GB/T 21563-2018 (see 4.3, 9.2.5), and the two documents are separated by...

The degree of consistency is modified to adapt to my country's technological conditions;

---IEC 60077-1 (see 4.3, 9.2.3, 9.3.3) has been replaced with the normatively referenced GB/T 21413.1 to accommodate my country's technical requirements.

condition;

---The requirements for operation within the maximum or minimum operating temperature range in the environmental conditions have been changed (see 4.3) to conform to domestic conditions;

---The representation of current ratio has been changed (see 4.4.1) to take into account the differences in the dimensions of capacity and current, in order to conform to the domestic situation;

---The verification requirements for temperature compensation and the accuracy inspection requirements for chargers have been changed (see 4.4.2) to comply with domestic requirements;

---The parameters related to battery capacity selection have been changed (see Table 3), and the supplier has been removed. This requirement is a management requirement.

---The requirements for battery trays have been changed (see 4.5.1) to comply with domestic regulations;

---ISO 7010 (see 7.1.1, 7.1.2) has been replaced with the normatively referenced GB/T 31523.1-2015 to adapt to my country's technical requirements.

condition;

---The requirements for safety signs have been changed (see 7.1.1 and 7.1.2) to comply with domestic regulations;

---The requirements for the content on the nameplate have been changed (see 7.2.1) to comply with domestic regulations;

---The content to be negotiated between the supply and demand parties (see 9.1, 9.3.1 and B.2) has been modified to conform to domestic conditions;

---The analytical method was modified to replace the experimental method (see 9.2.1) to conform to domestic practices;

---A "visual inspection" (see 9.2.2) has been added to improve the completeness of the inspection.

The following editorial changes have been made to this document.

---Informative descriptions within the scope have been modified;

---The URLs for the ISO and IEC terminology databases have been removed;

---Added notes to the terms "single battery cell," "integrated battery," and "battery module," and removed the terms "depth of discharge" and "storage capacity." the "note" in the "pool system";

---Footnote b and note in Table 1 of IEC 62973-1:2018, and note in B.1 have been deleted;

---Based on the actual citation in the text, IEC 62847 has been adjusted to the references and replaced with GB/T 34119;

---The informative appendix "Functional Example of Load Curve" has been deleted;

---The references have been adjusted.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the National Railway Administration.

This document is under the jurisdiction of the National Technical Committee on Standardization of Rail Transit Electrical Equipment and Systems (SAC/TC278).

Introduction

With the rapid development of my country's rail transit industry, battery products for auxiliary power supply systems are constantly being innovated and the technology is

becoming increasingly mature. To adapt to...

To meet market demand, my country should maintain its international standards for battery technology in auxiliary power supply systems for rail transit and improve the auxiliary power supply system for rail transit.

The system's battery standard framework is based on the international standard IEC 62973 and, based on domestic application realities, GB/T 46713 "Rail Transit Vehicle Battery Standard".

The standard GB/T 46713, "Vehicle Auxiliary Power Supply System Battery", is proposed to consist of five parts.

---Part 1: General Requirements. The aim is to standardize the electrical interfaces of battery systems by considering various types of batteries.

Based on specific load curves, the required capacity for various types of battery systems is calculated.

---Part 2: Nickel-Cadmium Batteries. The purpose is to specify the general requirements for nickel-cadmium batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage, and testing, while also specifying the use of individual/integrated nickel-cadmium batteries in rail transit.

Requirements for use on locomotives and rolling stock.

---Part 3: Lead-acid Batteries. The purpose is to specify the general requirements for lead-acid batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage and testing.

---Part 4: Nickel-Metal Hydrate Batteries. The purpose is to specify the general requirements for nickel-metal hydride batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage and testing.

---Part 5: Lithium-ion Batteries. The purpose is to specify the general requirements for lithium-ion batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, storage, transportation, and testing.