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

GB/T 28546-2026

Replacing GB/T 28546-2012

**Technical requirements for the packaging, transport and
storage of large and medium hydraulic units**

大中型水电机组包装、运输和保管技术要求

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Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	2
4 General Principles	3
5.1 General Requirements	3
5.2 Packaging Method	4
5.3 Packaging Materials	4
5.4 Packaging boxes	4
5.5 Protective Packaging	5
5.6 Placement and reinforcement of packaged components	6
5.7 Packaging Test.....	6
5.8 Packing and Delivery Documents	6
5.9 Delivery and handover	7
6.1 General Requirements	7
6.2 Shipped as a complete set	8
6.3 Loading and reinforcement	8
6.4 Installation Supervision	8
6.5 Running	8
6.6 Transportation and Loading/Unloading	8
6.7 Transportation handover 8 7 safekeeping.....	9
7.1 General Requirements	9
7.2 Warehouse Category	9
7.3 Other	9
7.4 Storage conditions	10
10 References	12

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 28546-2012 "Specifications for Packaging, Transportation and Storage of

Large and Medium-Sized Hydropower Units". In comparison, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---The scope of application has been changed, and the definition of large and medium-sized hydropower units has been added to the scope of application (see Chapter 1);

---The normative references have been modified, and GB 150 and its provisions (see.2012 version 6.1.6) that are irrelevant to the content of this document have been deleted; In addition to the obsolete GB/T 6980, GB/T 13041 and their provisions (see.2012 edition 4.4.1), provisions concerning hazardous chemicals have been added. GB 12463 and GB 15603 (see

5.1.9 and 7.1.6) specify requirements for packaging, storage, and warehousing; additional provisions regarding warehousing have been added. GB/T 21072 (see 7.4.5) specifies requirements for equipment and facilities, operational management level, and personnel; honeycomb cardboard boxes have been added. Packaging requirements are specified in GB/T 31269 (see 5.4.1);

---Added terms. "boxed," "naked," "partially packaged," "bundled," "clamped," "palletized," "self-formed packaging," "self-formed boxed," and "combination packaging." "Hazardous chemical warehouse", "hazardous chemicals" and "box markings" and their definitions (see Chapter 3);

---Changes were made to the clearance of boxed components, packaging of hazardous chemicals, inspection and quarantine of wooden packaging, surface treatment of steel structure chassis, and prevention of packaging defects. Damage during box lifting, waterproofing, reinforcement methods for packaging components, preconditions for packaging testing, quantity of packaging test samples, and shipping list. Contents, requirements for the transportation of large and hazardous chemicals, requirements for the storage of sealed packaging, and requirements for the unpacking, inspection, and handover of parts (see 5.1.6). 5.1.9, 5.1.10, 5.4.2, 5.4.4, 5.5.1, 5.6.3, 5.7.1c), 5.7.3, 5.9.2, 6.1.3, 6.1.6, 7.1.4, 7.5.2,.2012 edition (4.1.6, 4.1.8, 4.1.9, 4.4.2, 4.4.4, 4.5.1, 4.6.3, 4.7.1c), 4.7.2, 4.10.2, 5.1.3, 5.1.6, 6.1.4, 6.4.2)

---Added basic requirements for electrical equipment such as instruments and meters, contents of main packaging materials and honeycomb cardboard in packaging boxes, and basic requirements for air freight packaging boxes. Requirements, requirements for the storage and safekeeping of hazardous chemicals, recommended storage levels for hazardous chemicals warehouses and parts/components at construction sites, and warehouse storage conditions. Requirements (see 5.1.8, 5.3.1j, 5.4.1, 5.4.7, 7.1.6, 7.2.5, 7.3.1 Table 1, 7.4.5);

---The content regarding magnesium oxychloride concrete and calcium plastic corrugated

board in the main packaging materials and packaging boxes, as well as the storage and handling requirements for pressure vessels, have been removed (see.2012). Versions 4.3.1i and k), 4.4.1, and 6.1.6).

---The definitions and applicable objects of constant temperature and humidity warehouses (Grade A), shed warehouses (Grade C), and open-air warehouses (Grade D) have been revised (see 7.2.1, 7.2.3,...). 7.2.4 (6.2.1, 6.2.3, and

6.2.4 in the.2012 version). 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 China Electrical Equipment Industry Association. This document is under the jurisdiction of the National Technical Committee on Standardization of Hydropower Turbines (SAC/TC175). This document was drafted by: Dongfang Electric Corporation Dongfang Electric Machinery Co., Ltd., Harbin Electric Machinery Co., Ltd., and China Gezhouba Group Corporation. Electromechanical Construction Co., Ltd., Three Gorges Materials Bidding Management Co., Ltd., and Tibet Datang Zhala Hydropower Development Co., Ltd. The main drafters of this document are: Zheng Qingxin, Hu Jiaqi, Zhu Sunyi, Xu Tiejun, Liu Yingchun, Hu Aiguo, Liang Quanwei, Zhao Hua, Zhang Hong, and Liu Tingting. Liu Zhendong. The release history of this document and the document it replaces is as follows:

---First published in.2012 as GB/T 28546-2012;

---This is the first revision. Large and medium-sized hydropower units Packaging, transportation and storage technical requirements

1 Scope

GB/T 28546-2026 is the Chinese national standard covering moving a hydro turbine and generator to site - components weighing hundreds of tonnes, shipped in pieces over months to a remote valley, with the preservation against corrosion, the packing against shock and the storage before erection. It replaces GB/T 28546-2012. It was issued on 28 January 2026 and has been in force since 1 August 2026, replacing GB/T 28546-2012. The document is under the responsibility of the China Electrical Equipment Industry Association. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document defines the terms and definitions for the packaging, transportation, and storage of components for large and medium-sized hydropower units, and establishes the standards for the handling of components for large and medium-sized hydropower units. The general principles for the packaging, transportation and storage of components stipulate the technical requirements for the packaging, transportation and storage of components for large and medium-sized hydropower units. This document applies to the

packaging, transportation, handover and acceptance, and on-site storage of components for large and medium-sized hydropower units that meet one of the following conditions. The packaging, transportation, handover and acceptance, and on-site storage of the type hydropower unit shall be carried out in accordance with the relevant procedures.

- a) Mixed-flow and axial-flow types, with a single unit rated power of 25MW or above.
- b) Axial flow and impulse flow types, with a single unit rated power of 10MW or above.
- c) Axial flow, through flow, and mixed flow types, with a nominal runner diameter of 3.0m or more.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 153 Coniferous Sawn Timber

GB/T 191 Pictorial Symbols for Packaging and Storage

GB/T 700 Carbon Structural Steel

GB/T 706 Hot-rolled steel sections

GB/T 4768 Anti-mildew packaging

GB/T 4817 Broadleaf timber

GB/T 4857 (all parts) Basic tests for transport packages

GB/T 4879 Rust-proof packaging GB/T 4897 Particleboard

GB/T 5048 Moisture-proof packaging

GB/T 5398 Test methods for large transport packages

GB/T 6388 Transport Packaging Receipt and Delivery Marks

GB/T 6543 Single-wall and double-wall corrugated cardboard boxes for transport packaging

GB/T 6544 Corrugated Cardboard