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NB

**ENERGY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NB/T 10237-2019

Replacing DL/T 5133-2001

**Code for design of construction machinery and equipment
selection for hydropower projects**

水电工程施工机械选择设计规范

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Foreword

This document was issued on 4 November 2019 by the National Energy Administration of the PRC and takes effect on 1 May 2020.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 27.140, Chinese classification P 59.

It replaces DL/T 5133-2001, which is superseded.

In accordance with the requirements of the Notice of the National Energy Administration on Issuing the First Batch of Plans for the Formulation (Revision) of Industry Standards in the Energy Field in 2014 (Guo Neng Ke Ji [2014] No. 298), the code drafting group carried out extensive investigation and research, conscientiously summarized practical experience, referred to relevant advanced standards at home and abroad, and revised this code on the basis of a wide solicitation of opinions.

The main technical contents of this code are: selection and combination of construction machinery and equipment; drilling machinery; ground improvement and grouting machinery; bulldozing and loading machinery; transporting equipment; hoisting equipment; compacting machinery; engineering ships; construction auxiliary machinery; and dedicated construction machinery.

The main technical contents revised in this code are as follows:

- Terms have been added.
- Contents concerning engineering ships, construction auxiliary machinery and dedicated construction machinery have been added.
- The scope of application has been modified.
- The arrangement of the chapters of the code has been adjusted, the division being made according to the characteristics of the use of the construction machinery.
- Specific provisions on the combination of construction machinery and equipment have been supplemented.

This code is administered by the National Energy Administration. The General Institute of Hydropower and Water Resources Planning and Design proposed this code and is responsible for its routine administration. The Standardization Technical Committee for Hydropower Survey and Design of the Energy Industry is responsible for the interpretation of the specific technical contents.

Should any comment or suggestion arise in the course of implementation, it is requested that it be sent to the General Institute of Hydropower and Water Resources Planning and Design (address: No. 2 Liupukang Beixiaojie, Xicheng District, Beijing; postcode 100120).

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Announcement of the National Energy Administration, 2019 No. 6: the National Energy Administration approved 384 energy industry standards headed by Technical Code for Electrical Prospecting of Hydropower Projects (Attachment 1), the English versions of 48 energy industry standards headed by Technical Guide for Rock-Filled Concrete Dams (Attachment 2), Amendment No. 1 to 7 energy industry standards headed by Technical Code for Environmental Impact Assessment of Wind Farm Projects (Attachment 3), and the abolition of 5 energy industry standards or plans headed by Charging Standard for Survey and Design of Wind Farm Projects (Attachment 4); these are hereby issued.

Attachments to the Announcement: 1. Catalogue of industry standards; 2. Catalogue of English versions of industry standards; 3. Notification sheet of amendments to industry standards; 4. Catalogue of abolished industry standards and plans. Signed by the National Energy Administration, 4 November 2019.

Attachment 1, Catalogue of Industry Standards, serial number 14: standard number NB/T 10237-2019; standard title Code for Design of Construction Machinery and Equipment Selection for Hydropower Projects; superseded standard DL/T 5133-2001; date of approval 2019-11-04; date of implementation 2020-05-01.

1 Scope

NB/T 10237-2019 governs how the construction plant for a hydropower project is selected at the design stage, replacing DL/T 5133-2001. On a large dam the choice of machinery is not a site decision taken later: the excavation method, the concrete placing system and the haulage fleet determine the construction schedule, the temporary works and a large part of the cost, so they are designed alongside the permanent works. The code sets the general provisions and defined terms, then the principles by which a fleet is chosen and combined -

matching machine capacity to the peak monthly output required, balancing the units in a production chain so none starves the next, allowing for utilisation, availability and standby, and accounting for altitude, climate and haul distance. It then works through the machine families in turn: drilling equipment for surface and underground excavation, blasting and loading plant, excavators and loaders, haulage by truck and by belt conveyor, dozers, graders and compaction plant, rock drilling jumbos and tunnel boring machines, concrete batching, transport and placing systems including cable cranes, belt placers and tower cranes, grouting plant, dewatering and compressed air, and the lifting equipment used for permanent plant installation. For each it gives the selection parameters, the output calculation and the criteria for sizing the fleet. It applies to the design stages of hydropower projects in China.

1.0.1 This code is formulated in order to standardize the design of the selection of construction machinery and equipment within the construction organization design of hydropower projects.

1.0.2 This code is applicable to the design of the selection of construction machinery and equipment for hydropower projects.

1.0.3 The design of the selection of construction machinery and equipment for hydropower projects shall be combined with the specific conditions of the project, shall satisfy the requirements for the construction schedule, the construction intensity and the quality of the project, and shall achieve safety, applicability, environmental protection and energy conservation.

1.0.4 The design of the selection of construction machinery and equipment for hydropower projects shall comply not only with this code but also with the provisions of the relevant current national standards.

2 Terms

2.0.1 Construction machinery and equipment: the general designation of the machinery and the equipment used for the construction of a project.

2.0.2 Machine efficiency: the ratio of the production capacity actually attained by a machine under given conditions to its rated production capacity.

2.0.3 Equipment availability: the percentage of the number of items of machinery and equipment that are in good condition within a given period of time to the total number of items of that machinery and equipment.

3 Selection and Combination of Construction Machinery and Equipment

3.0.1 The design of the selection of construction machinery and equipment shall, in