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NB

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

NB/T 10341.1-2019

Replacing DL/T 5167-2002

**Code for design of hoists for hydropower projects - Part 1:
Code for design of fixed wire rope hoists**

水电工程启闭机设计规范 第1部分：固定卷扬式启闭机设计规范

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Foreword

This document was issued on 30 December 2019 by the National Energy Administration of the PRC and takes effect on 1 July 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 26.

It replaces DL/T 5167-2002, which is superseded.

This Code has been revised by the drafting group in accordance with the requirements of the Notice of the General Office of the National Development and Reform Commission on Issuing the 2006 Industry Standard Project Plan (Fa Gai Ban Gong Ye [2006] No. 1093), on the basis of extensive investigation and research, careful summing-up of practical experience, reference to the relevant domestic standards, and wide solicitation of opinions.

The main technical contents of this Code are: basic requirements, design principles and requirements, loads, materials, mechanical design, structural design, electrical design, and safety.

The main technical contents revised in this Code are as follows.

This Code replaces the contents relating to the design of fixed wire rope hoists contained in Code for Design of Hoists for Hydropower and Water Resources Projects DL/T 5167-2002.

Contents relating to the torque calculation of motors have been added.

Contents relating to safety brakes have been added.

Calculation of the starting time, the braking time and the acceleration and deceleration of the hoisting mechanism has been added.

Calculation of the maximum static working tension of the wire rope has been added.

Contents relating to drums with broken line rope grooves have been added.

Formulas for the calculation of allowable stresses used in structural calculation have been added.

A chapter entitled Safety has been added.

The principles governing the classification of the duty class of hoists have been adjusted.

The contents of the chapter Electrical Design have been adjusted.

The material requirements for structural members have been modified.

This Code is under the administration of the National Energy Administration. It is proposed by, and its routine administration is undertaken by, the General Institute of Hydropower and Water Resources Planning and Design (China Renewable Energy Engineering Institute). The Standardization Technical Committee for Hydraulic Metal Structures and Hoists of the energy industry is responsible for the interpretation of its specific technical contents.

Comments and suggestions arising during the implementation of this Code should be sent to the General Institute of Hydropower and Water Resources Planning and Design (address: No. 2 Beixiaojie, Liupukang, Xicheng District, Beijing; postcode 100120).

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Publication Notice

Announcement of the National Energy Administration of the People's Republic of China, No. 8 of 2019.

The National Energy Administration has approved 152 energy industry standards, including Operation and Maintenance Code for Excitation Systems of Small Hydro Generating Units (Annex 1), and 39 English versions of energy industry standards, including Code for Safe and Civilized Construction of Onshore Wind Power Projects (Annex 2). They are hereby issued.

Annexes: 1. Catalogue of industry standards; 2. Catalogue of English versions of industry standards.

Issued by the National Energy Administration on 30 December 2019.

In the catalogue of industry standards (Annex 1), serial number 16 lists standard number NB/T 10341.1-2019, standard title Code for Design of Hoists for Hydropower Projects - Part 1: Code for Design of Fixed Wire Rope Hoists, standard replaced DL/T 5167-2002, date of approval 2019-12-30, date of implementation 2020-07-01.

1 Scope

NB/T 10341.1-2019 is Part 1 of the Chinese design code for hoists on hydropower projects and covers fixed wire rope hoists, replacing DL/T 5167-2002. These are the electrically driven drum hoists mounted permanently above a gate slot that raise and lower spillway gates, intake gates, bulkheads and trashracks - machines that may stand idle for months and then must lift a loaded gate reliably, sometimes against an unbalanced head, sometimes in an emergency closure. The code sets the general provisions and the defined terms and symbols, then the basic requirements: the duty classification, the design loads including gate weight, friction, hydrodynamic down-pull and ice, the load combinations and the allowable safety factors. Design principles and requirements follow, covering the mechanical parts - drums, wire ropes and their sheaves, reducers, couplings, brakes with their redundancy, open gearing, shafts and bearings, and the connection to the gate - then the structural design of the frame and supports, and the electrical design with the motors, control, position and load indication, limit and overload protection, and the power supply. Safety devices, corrosion protection, lubrication, manufacture and installation tolerances, and the testing performed before handover complete the code, with seven appendices of calculation methods. It applies to gate hoists on hydropower projects in China.

1.0.1 This Code is formulated in order to standardize the design of fixed wire rope hoists for hydropower projects.

1.0.2 This Code is applicable to the design of electrically driven fixed wire rope hoists used in hydropower projects for operating gates or trash racks.