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

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**1 000 MW class hydro-generator -- Part 1: Technical guide
(English Translation)**

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Foreword

GB/Z 32519 "1000MW-class hydro-generator" is divided into the following three parts.

- Part 1. Technical guidelines;
- Part 2. Tests, test guidelines;
- Part 3. Installation of quality inspection guidelines.

This section GB/Z 32519 Part 1.

This instructional document has been drafted in accordance with the rules given in GB/T 1.1-2009.

This guidance document is proposed by China Electrical Equipment Industry Association.

This guidance document is organized by the National Large Scale Generator Standardization Technical Committee (SAC/TC511).

The drafting of the guidance of technical documents. Harbin Electric Works Co., Ltd., China Construction Group Beijing Institute of Survey and Design Limited Company, Harbin Institute of Electrical Engineers, China Hydropower Engineering Consulting Group Co., Ltd., Dongfang Electric Group Dongfang Electric Co., Ltd., State Water Power Generation Engineering Research Center, the Yangtze River Design Company, China Construction Group East China Survey and Design Institute Co., Ltd., China Electric Industry Association, China Three Gorges Corporation.

Introduction

Hydropower construction in China's energy development has an important strategic position, plays an important role in the national economy. With the market for power generation the requirements for the development of high capacity, high parameters, high efficiency and low consumption, safety and environmental protection are continually increasing, and the requirements of the state in the "12th Five-Year Plan" Indeed proposed to vigorously develop hydropower, China will have a group of 1000MW super-large hydropower unit design and manufacture. To this end has prepared the following series Standard. "1000MW-class hydro-generator", for hydro-generator, there are GB/T 7894 "hydro-generator basic technical conditions" GB/T 8564 "Technical Specifications for Installation of Hydro-generating Sets", GB/T 1029 "Three-phase synchronous motor test methods" and related manufacturing, testing, etc.

Aspects of standards and norms. When the single generator capacity increases to 1000MW, the operating conditions of hydropower units, performance parameters, overall Structural and material applications will change. Due to the size of the unit, operating conditions, performance parameters have undergone major changes, these are current of the hydropower unit national design, manufacture, installation, inspection standards will not be fully applicable. Therefore, based on the existing standards and norms, 1000MW-class generators related to the special characteristics of the corresponding research, and developed for the 1000MW-class hydropower unit design, system Made, installed, inspection standards and specifications.

This guidance document is based on the research results and summary of the 1000MW giant vertical hydro-generator in recent years 700MW large-scale vertical hydro-generator design, manufacture, installation, inspection, operating experience compiled, is 1000MW-class hydro-generator Guidance documents related to technical work.

1000MW water turbine generator Part 1. Technical guidelines

1 Scope

This Guidance Document specifies the main technologies of a 1000 MW three-phase salient pole synchronous hydrogenerator (hereinafter referred to as hydrogenerator) Surgical parameters and performance requirements, the overall structure design, the main components of the structure, material selection principles, work stress and evaluation criteria.

This Guidance Document is applicable to three-phase salient pole synchronous hydrogenerators of 800 MW and above.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Rotating electrical machinery quota and performance GB 755-2008 GB/T 1408.1 Insulating material Electrical strength test methods Part 1 GB/T 2900.25 Electrotechnical terminology rotary motor GB/T 5321 calorimeter Determination of motor loss and efficiency (GB/T 5321-2005, IEC 60034-2A.1974, IDT) GB/T 7409.3 synchronous motor excitation system Large and medium synchronous generator excitation system technical requirements Basic technical requirements of hydroelectric generators GB/T 7894-2009 GB/T 13394 Electrotechnical rotary motors with letter symbols GB/T 28570 turbine generator online monitoring system Technical Guidelines Turbine generators of 1000 MW class - Part 2. Guidelines for testing and inspection GB/T Preventive test code for power equipment DL/T 1067 evaporative cooling hydro-generator (power generation/motor) basic technical conditions IEEE1043-1996 (R2009) forming rod and coil electrical aging test Recommended Practice (RecommendedPracticefor Voltage-Endurance Test of form-WoundBars and Coil) IEEE1310-2012 large rotating electrical machine stator bar and coil thermal cycle test Recommended Practice (Recommended PracticeforThermalCycleTestingofForm-WoundStatorBarsandCoilforLargeRotatingMa-chine s IEEE1553-2002 (R2007) hydroelectric generator forming coil and bar electrical aging test standard (StandardforVoltage-En-duranceTestingofForm-WoundCoilsandBarsforHydrogenerators)

3 Terms and definitions

The terms and definitions used in this guidance document are found in the relevant standards such as GB 755-2008 and GB/T 2900.25. Commonly used things Quantitative symbols see GB/T 13394.

4 Use of environmental conditions

Turbine generator operating conditions should meet the GB/T 7894-2009 Chapter 4 requirements.