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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18110-2016

Replacing GB/T 18110-2000

Electromechanical equipment guide for small hydroelectric installations

小型水电站机电设备导则

(English Translation)

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Preview: page 1 of 5 shown, 41 in the full document. Complete English PDF, instant download:
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Table of Contents

Preface
1 Scope
2 Normative reference document
3 Operating conditions of electromechanical equipment
3.1 Site conditions
3.2 Hydraulic conditions and requirements for unit design
3.3 Electrical operating conditions
3.4 Adjustment type and its operation mode or condition
3.5 Automatic monitoring system
4 Mechanical and electrical equipment technical requirements
4.1 General requirements
4.2 Scope of supply
4.3 Technical conditions of power station equipment
4.4 Technical assurance
4.5 Bidding and Bidding
5 Inspection, delivery, installation, operation and maintenance
5.1 Review of design and inspection of product
5.2 Packaging, Transportation
5.3 Installation and commissioning
5.4 Running
5.5 Staff training
5.6 Inspection and Maintenance
Appendix A (Informative Annex) Structural changes in this standard compared to IEC 61116.:1992
Appendix B (informative) Technical differences and causes of this standard with IEC 61116.:1992
Appendix C (informative appendix) Schematic diagram of power plant units
Appendix D (informative appendix) Schematic diagram of runoff plant layout
Appendix E (informative) Flow duration curve
Appendix F (informative) Slotting device diagram
Appendix G (Normative Appendix) Generator Single Line Figure
Appendix H (informative) Construction steps for small hydropower stations
Reference

Preview: page 2 of 5 shown, 41 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-18110-2016

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work Part 1. Structure of Standards and Preparation".

This standard instead of GB/T 18110-2000 "small hydropower station mechanical and electrical equipment guide", compared with GB/T 18110-2000, the main technology the changes are as follows.

--- the name of this standard will be revised to "small hydropower station electrical and mechanical equipment guidelines";

--- the scope of application will be amended to "applicable to the installed capacity of 50MW and below the hydropower station of electrical and mechanical equipment" (see Chapter 1);

- the deletion of the scope and purpose with the purpose of the content (see 2000 version 1.1);

- the terms related to the term (see 1.3 of 2000);

--- increase the protection of the main unit of the unit should use heavy hammer hydraulic valve or high oil storage valve, in the event of power failure, can rely on the valve from Automatic storage of heavy hammer, or automatic closure of high oil pressure to protect the reliability of emergency shutdown [see 4.3.4.2d)];

--- increase the wheel should adopt the overall casting, can also choose casting, CNC machining [see 4.3.6.2c)];

--- Increased turbine runner blades, movable guide vanes should be manufactured using CNC machining [see 4.3.6.3b)];

--- increase the stator core diameter smaller generator can be used core and coil overall VPI vacuum impregnation process related to the internal space [see 4.3.7.1e)];

- modified the general conditions for tendering and evaluation (see 4.5).

This standard uses the re-drafting method to amend IEC 61116.:1992 "Guidelines for Electromechanical Equipment for Small Hydropower Stations".

This standard has a greater structural adjustment compared to IEC 61116.:1992, which is listed in Appendix A and IEC 61116.:1992 of the chapter number of the control list.

There are technical differences between this standard and IEC 61116.:1992, and Appendix B gives the corresponding technical differences and their causes.

Table.

This standard is proposed and centralized by the Ministry of Water Resources of the People's Republic of China.

Preview: page 3 of 5 shown, 41 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-18110-2016

The main drafting unit of this standard. Ministry of Water Resources Institute of Rural Electrification, China Institute of Water Resources and Hydropower Research, Hangzhou Asia-Pacific Hydropower Equipment into Sets of Technology Co., Ltd., Hangzhou think Green Energy Technology Co., Ltd.

1 Scope

This standard specifies the operating conditions, technical requirements and inspection, delivery, installation, operation and maintenance requirements of electromechanical equipment for small hydropower stations.

This standard is applicable to electromechanical equipment of hydropower stations with installed capacity of 50MW and below.

This standard only relates to the technical relationship between the supply and demand sides of the mechanical and electrical equipment, does not involve civil engineering, administrative affairs or business.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB 1094.1 Power transformers - Part 1. General (GB 1094.1-2013, IEC 60076-1.:2011, MOD) GB 1094.2 Power transformers - Part 2. Temperature rise of liquid immersion transformers (GB 1094.2-2013, IEC 60076-2.:2011, MOD) GB 1094.3 Power transformers - Part 3. Insulation level, insulation test and external insulation air gap (GB 1094.2-2003, IEC 60076-3.:2000, MOD) GB 1094.5 Power transformers - Part 5. Capacity to withstand short circuits (GB 1094.5-2008, IEC 60076-5.:2006, MOD) GB 1208 current transformer (GB 1208-2006, IEC 60044-1.:2003, MOD) GB 1984 High voltage AC circuit breakers (GB 1984-2003, IEC 62271-100.:2001, MOD) GB 1985 High voltage AC disconnectors and earthing switches (GB 1985-2004, IEC 62271-102.:2002, MOD) Basic technical conditions of GB/T 7894 hydro - generator Specification for installation of GB/T 8564 hydro - generator sets Technical condition of hydraulic turbine control system GB/T 9652.1 GB 11032 AC gapless metal oxide surge arresters (GB 11032-2010, IEC 60099.:2006, MOD) Basic technical conditions for large and medium - sized turbine inlet valves GB/T Basic technical conditions for hydraulic turbine GB/T GB/T 15469.1 Evaluation of cavitation erosion of turbines, pump and water pump turbines - Part 1. Cavitation assessment of counterattack turbines (GB/T 15469.1-2008, IEC 60609-1.:2004, MOD) GB/T 15613 (all parts) Turbine, Pump and Pump Turbine Model Acceptance Test (GB/T 15613.1-2008, GB/T 15613.2-2008, GB/T 15613.3-2008, IEC 60193.:1999, NEQ) GB 20840.3 Transformers - Part 3. Supplementary technical requirements for electromagnetic voltage transformers (GB

Preview: page 4 of 5 shown, 41 in the full document. Complete English PDF, instant download:
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20840.3-2013, IEC 61869-3.:2011, MOD) GB/T 21717 small turbine type parameters and performance technical requirements GB/T 21718 basic technical conditions for small turbines GB/T 27989 basic technical conditions for small hydro - generators Code for design of shunt capacitor device GB 50227 Code for start - up of DL/T 507 hydro - generator unit Specification for Static Balance of Small and Medium - sized Turbine Runners in JB/T 6752

Preview: page 5 of 5 shown, 41 in the full document. Complete English PDF, instant download:
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