Chinastandards.org

ICS 27.140
CCS K55

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

chinastandards.org - PREVIEW

GB/T 22581-2024

Replacing GB/T 22581-2008

Fundamental technical requirements for Francis pump-turbines

混流式水泵水轮机基本技术条件

Issued on: May 28, 2024 **Implemented on: December 1, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of China

Preview: page 1 of 4 shown, 37 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-22581-2024

Chinastandards.org

Table of Contents

Chinastandards.org · PREVIEW

Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 22581-2008 "Basic Technical Requirements for Mixed Flow Pump Turbines" and is consistent with GB/T 22581-2008: In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) The terms "upper reservoir check flood level", "lower reservoir check flood level", "lower reservoir normal high water level" and "weighted average head" have been deleted: (See 3:1:1, 3:1:6, 3:1:9, 3:3:4 of the:2008 edition);

b) The definitions of head and lift have been changed (see 3:3, 3:3 of the:2008 edition);

c) Added the terms "abnormally low head", "S zone margin", "hump zone margin", "hydraulic excitation", "dynamic and static interference", "phase resonance", "normal "Operating conditions", "transition conditions" and "special conditions" (see 3:3:5, 3:12~3:16, 3:17:1, 3:17:2, 3:17:3);

d) The relevant definitions of efficiency have been changed (see 3:7, 3:7 of the:2008 edition);

e) The relevant definitions of pressure pulsation have been changed (see 3:11, 3:11 of the:2008 edition);

f) The description of bolt prestressing requirements has been changed (see 4:2:2:6, 4:2:2:6 of the:2008 edition);

Preview: page 2 of 4 shown, 37 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-22581-2024

g) Changed "pressurized water supply system" to "pressurized water system" and updated the relevant content (see 4:2:4, 4:2:4 of the:2008 edition);

h) Added that under the nominal frequency of the power grid, the margin of the turbine operating condition in the S zone should not be less than 0:06xHgmin 8m (see 5:4:1);

i) Added requirements on the effects of hydraulic excitation, dynamic-static interference, and phase resonance on operational stability (see 5:4:5);

j) Deleted some clauses of "Vibration" and incorporated its related requirements into "Pump Turbine Operation Stability" (see 5:4:6~5:4:9,:2008 Version 5:5);

k) The relevant contents of the vertical and horizontal vibration values of the top cover have been changed (see Table 2, Table 2 of the:2008 edition);

l) The guide vane leakage requirements have been changed (see 5:6, 5:7 of the:2008 edition);

m) The noise requirements have been changed (see 5:7 and 5:8 of the:2008 edition);

chinastandards.org PREVIEW

1 Scope

GB/T 22581-2024 is the Chinese national standard on fundamental technical requirements for francis pump-turbines, in the field of energy and heat transfer engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 28 May 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2024. Classification: ICS 27.140, CCS K55. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the technical requirements, performance guarantee, scope of supply and spare parts, data and drawings, engineering The basic technical conditions for factory inspection and testing, as well as the requirements for nameplate, packaging, transportation and storage, installation, operation, maintenance and acceptance testing: This document is applicable to the research and development, design, manufacturing, installation, commissioning, operation and maintenance of single-stage mixed flow pump turbines: It is used for reference by machines, diagonal flow pump turbines and variable speed mixed flow pump turbines:

2 Normative references

The contents of the following documents constitute the essential clauses of this document

Preview: page 3 of 4 shown, 37 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-22581-2024

through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document:

GB/T 150 Pressure Vessels

GB/T 191 Pictorial markings for packaging, storage and transportation GB/T 2900:

45 Electrical terminology - Hydraulic machinery and equipment for hydropower stations GB/T 3323:

1 Non-destructive testing of welds - Radiographic testing - Part 1: Film techniques for X-ray and gamma-rays

GB/T 8564 Technical specification for installation of hydro-generator sets GB/T 9239:

1 Mechanical vibration steady-state (rigid) rotor balancing quality requirements Part 1: Specification and balance tolerance inspection

GB/T 9797 Metallic and other inorganic coatings Nickel, nickel-chromium, copper-nickel and copper-nickel-chromium electroplated coatings GB 11120 Turbine Oil

GB/T 11345 Ultrasonic testing technology, testing levels and assessment for non-destructive testing of welds

GB/T 11805 Basic technical requirements for automation components (devices) and systems of hydro-generator sets

GB/T 15468 Basic technical requirements for hydraulic turbines GB/T 15469:

2 Cavitation erosion assessment of hydraulic turbines, storage pumps and pump-turbines Part 2: Cavitation erosion assessment of storage pumps and pump-turbines Corrosion Assessment

GB/T 15613 Acceptance test of hydraulic turbines, storage pumps and pump-turbine models

GB/T 17189 Specification for field testing of vibration and pulsation of hydraulic machinery (turbines, storage pumps and pump turbines)

chinastandards.org PREVIEW

Preview: page 4 of 4 shown, 37 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-22581-2024