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

GB/T 43595-2023

**Directives for commissioning and operation of hydraulic
turbines, pump-turbines and storage pumps**

水轮机、水泵水轮机和蓄能泵启动试验及试运行导则

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is equivalent to IEC 60545:2021 "Guidelines for startup testing and commissioning of hydraulic turbines, water pump turbines and energy storage pumps":

This document has made the following minimal editorial changes:

---Change the name of the standard to "Guidelines for startup testing and trial operation of hydraulic turbines, water pump turbines and energy storage pumps";

---Introductory words have been added before the items in 5:1:6:2, 5:1:6:3 and 5:1:6:5 respectively:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

1 Scope

This document gives the general start-up test and trial operation procedures for hydraulic turbines, water pump turbines, and energy storage pumps, and provides the start-up procedures for the above equipment:

Provide guidance on dynamic testing and trial operation:

This document does not describe in detail the start-up test and trial operation of the auxiliary equipment of the hydraulic turbine, water pump turbine and energy storage pump: It is considered that the auxiliary equipment the start-up test and trial operation of auxiliary equipment are completed separately:

This document is applicable to unit equipment with a capacity of 15MW and above or a nominal diameter of 3m and above, and a capacity below 15MW or with a nominal diameter of Unit equipment with a diameter of less than 3m shall be implemented in accordance with IEC 62006:

This document is binding only with the consent of the parties:

This document does not include matters of purely commercial interest unless the matter is closely related to commissioning and commissioning work:

This document does not cover flow channels, gates, drainage pumps, cooling water equipment, generators, generator motors, electrical devices (such as circuit breakers, transformers) and other single commissioning, unless its commissioning is inseparable from the start-up test of the turbine, water pump turbine and energy storage pump:

When the relevant documents, drawings or information specified in this document are

provided by one (or more) suppliers, each supplier shall provide information related to its own business:

related information:

2 Normative reference documents

This document has no normative references:

3 Terms and definitions

The following terms and definitions apply to this document:

3.1

Units and equipment 3.1.1 hydraulic machinery Turbines, storage pumps, pump turbines, valves, thrust bearings and guide bearings used in hydropower stations and pumped storage power stations:

Note 1: Including hydraulic conversion device and various types of water inlet main valves:

Note 2: Excluding turbine regulating system, see IEC 60308 for relevant terms of turbine regulating system:

[Source: IEC TR61364:1999,3:1, modified] 3.1.2 hydraulic machine Pelton or impact turbine, accumulator pump or pump turbine:

[Source: IEC TR61364:1999,3:1] 3.1.3 water turbine A device that converts water energy into mechanical energy: