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

中华人民共和国国家标准

GB/T 14478-2012

Replace GB/T 14478-1993

**Fundamental technical requirements for large
and medium inlet valves of hydraulic turbine**

大中型水轮机进水阀门基本技术条件

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China**

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Foreword

This standard was drafted according to rules given by GB/T 1.1 2009.

This standard has replaced GB/T 14478-1993 *Fundamental technical requirements for large and medium inlet valves of hydraulic turbine* and the major technical changes in this part are the following compared with GB/T 14478-1993:

- Removed “and the above” in paragraph 2 of Chapter 1, which has been replaced by to “10 000 mm” and “to 5 000 mm” separately (see Chapter 1 and it is also the Chapter 1 in edition 1993);
- Increasing the normative references (see Chapter 2 and it is also the Chapter 2 in edition 1993);
- Modified the “resistance factor” to be “0.15” from “0.2” (see 4.5 and it is 4.4 in edition 1993);
- Added “The butterfly valve seal shall be solid shroud seal, which shall be set at the downstream side of butterfly valve, and there shall be sufficient bearing crush between shroud and seal seat” (see 4.9);
- Modified and defined the lock mode of inlet valve and that is “Reliable automatic hydraulic locking device shall be arranged at the fully closed position of inlet valve and manual mechanical locking device for maintenance shall be arranged at the fully open and closed position. In principle, automatic hydraulic locking device shall not be arranged at the fully open position of butterfly valve, but the decision whether setting it shall be determined according to the supply and demand and consultation; automatic hydraulic locking device shall not be arranged at the fully open position of ball valve.” (See 4.10 and it is the 4.9 in edition 1993);
- Added “Reliable locking device shall be arranged in the overhaul sealing of valve.” (See 4.10);
- Added “bypass valve switching signal” and “pressure difference signals of valve upstream and downstream” [see 4. 18d) and e)]
- Added “when the inlet valve uses a separate oil pressure device in operating oil sources and if a set of oil pressure device controls two or three sets of inlet valves, hydrodynamic shut of the inlet valve shall be ensured when the oil pump cannot be

started.” (See 4.16);

- Modified “the water pressure test time for strength” to be "30 min" from "10 min" (see 5.1 and it is 5.1 in edition 1993);
- Modified the coefficient in the formula for calculating the amount of leakage. The “K=0.402”, “K=0.223” and “K=0.1.3” were changed to be “K=0.052”, “K=0.023” and “K=0.223” separately. (See 5.1 and it is 5.3 in edition 1993);
- Modified the reference pressure of leak test of servomotor to be "4 MPa" from "2.5 MPa"[see 5.2b) and it is 5.4 in edition 1993];
- Added recommended list of spare parts (see Annex B).

This standard is proposed by the China Electrical Equipment Industrial Association.

This standard is under the jurisdiction of the National Hydraulic Turbine Technical Standardization Committee (SAC/TC 175).

Drafting units of this standard: DEC DONGFANG ELECTRIC MACHINERY CO.,LTD., Chengdu Hydroelectric Investigation & Design Institute of SPC, HARBIN ELECTRIC MACHINERY COMPANY LIMITED and Huaneng Manwan Hydropower Plant.

Main drafters of this standard: Lin Hongde, Jiang Dengyun, Gao Hongjun and Wang Wenbin.

Previous versions that this standard replaces are as follows:

-GB/T 14478-1993.

Fundamental technical requirements for large and medium inlet valves of hydraulic turbine

1 Scope

This standard specifies the fundamental technical requirements, model preparation methods and others of large and medium inlet valves of hydraulic turbine.

This standard applies to butterfly valves with a nominal diameter of inlet valve of 1 000 mm ~ 10 000 mm and ball valve of with nominal diameter of 500 mm ~ 5 000 mm. Other butterfly valves and ball valves (including storage pumps and pump turbines) can refer to this standard.

2 Normative references

The articles contained in the following documents have become this document when they are quoted herein. For the dated documents so quoted, all the modifications (Including all corrections) or revisions made thereafter shall be applicable to this document.

GB 150 (All parts) Pressure vessels

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 8564 Specification installation of hydraulic turbine generator units

GB/T 15468 Fundamental technical requirements for hydraulic turbines

GB/T 2900.45 Electrotechnical terminology - Hydroelectric powerplant machinery (GB/T 2900.45-2006, IEC/TR 61364: 1999, MOD)

GB/T 28546 Specification for package, transportation and storage of large and medium hydraulic units

HG 4-329 Rubber Sealing Products (Circular)

ASME VIII Section 1

3 Terms and definitions

For the purpose of this document, the following terms and definitions defined in GB/T 2900 apply.

3.1

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