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PEOPLE'S REPUBLIC OF CHINA**

GB/T 16702.1-2025

Replacing GB/T 16702-2019

**Design specification for mechanical components in nuclear
island of pressurized water reactor nuclear power plants - Part
1: General principle**

压水堆核电站核岛机械设备设计规范 第1部分：总则

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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 is part 1 of GB/T 16702 "Design Specifications for Mechanical Equipment of Nuclear Island in Pressurized Water Reactor Nuclear Power Plant".

The following parts are published.

- Part 1: General;
- Part 2: Class 1 equipment;
- Part 3: Level 2 equipment;
- Part 4: Level 3 equipment;
- Part 5: Small equipment;
- Part 6: Reactor internals;
- Part 7: Equipment support;
- Part 8: Low-pressure or atmospheric pressure storage tanks.

This document partially replaces GB/T 16702-2019 "Design Specification for Mechanical Equipment of Nuclear Island of Pressurized Water Reactor Nuclear Power Plant" and GB/T 16702- Compared with 2019, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Changed the scope of application of this document (see Chapter 1, Chapter 1 of the 2019 edition);
- Added normative references to GB/T 4960.2, HAD003/08, HAF003, HAF601, and HAF603 (see Chapter 3, 6.8.1, Chapter 7, Appendix N);
- Deleted the relevant provisions of "Handling of Non-Conformities" (see 4.2 of the 2019 edition);
- Deleted the relevant provisions of "Parts List" and "Deviation Report" (see 4.3.2.2, 4.3.6.2 of the 2019 edition);
- Added relevant requirements for "small equipment" (see 5.2.1.2, Table 1);
- Changed the relevant requirements for "weld classification" (see 5.2.4, 4.4.2.5 of the 2019 edition);
- Added the main content of "Equipment Design Specification" (see 6.1);
- Deleted "Level 1 equipment", "Level 2 equipment", "Level 3 equipment", "small equipment", "core components", "equipment support", "low pressure or normal pressure storage "Cans" (see Chapters 5 to 11 of the 2019 edition);
- Changed the material grades and their corresponding material standard numbers, performance data, allowable stress values, fatigue curve data and fatigue curves (see

Appendix A , Appendix A of the 2019 edition);

- Added Table E.1, Table E.3, definitions of gasket parameters, forces required to ensure initial gasket sealing and forces required to ensure sealing of connection structures The force calculation formula is as follows (see Appendix E);
- Added the scope of reinforcement for takeover (see Appendix G);
- Changed the requirements on chemical elements and mechanical properties, deleted the use of stock materials, small batch material purchases and residual elements of materials Related requirements. Added the integrated lower head of the reactor pressure vessel (see Appendix M, Appendix M of the 2019 edition);
- Changed the requirements for heat treatment and welding process assessment, and added the measurement method and acceptance requirements for ferrite content (see Appendix N,

Appendix N of the 2019 edition);

- Added relevant provisions for "integral flat head with large opening" (see Appendix U).

Please note that some of the contents of this document may involve patents. The issuing

organization of this document does not assume the responsibility for identifying patents.

This document was proposed and coordinated by the National Nuclear Energy Standardization Technical Committee (SAC/TC58).

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The previous versions of this document and the documents it replaces are as follows.

- First published in 1996 as GB/T 16702-1996, first revised in 2019;

Introduction

GB/T 16702 "Design Specification for Mechanical Equipment of Nuclear Island of Pressurized Water Reactor Nuclear Power Plant" is a general technical specification for the design of mechanical equipment of nuclear island of pressurized water reactor nuclear power plant.

The standard is to implement the spirit of China's nuclear safety regulations, actively promote the unification of the standard technical route of mechanical equipment of the nuclear island of pressurized water reactor nuclear power plants, and promote the development of pressurized water reactors.

GB/T 16702 is an important part of the relevant standards for the independent design and localization of nuclear island mechanical equipment.

The basic and universal standards for design activities of mechanical equipment in the