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

**GB/T 16702.5-2025**

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**Design specification for mechanical components in the nuclear  
island of pressurised water reactor nuclear power plants - Part  
5: Small components**

压水堆核电站核岛机械设备设计规范 第5部分：小型设备

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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 5 of GB/T 16702 "Design Specification for Mechanical Equipment of Nuclear Island in

Pressurized Water Reactor Nuclear Power Plant". The following parts are published.

2. Class 1 equipment;

3. Level 2 equipment;

4. Level 3 equipment;

5. Small equipment;

6. Reactor internals;

7. Equipment support;

8. Low-pressure or atmospheric pressure storage tanks. This document replaces Chapter

8 Small Equipment in GB/T 16702-2019 "Design Specifications for Mechanical Equipment of Nuclear Island in Pressurized Water Reactor Nuclear Power Plants" Compared with Chapter 8 in GB/T 16702-2019, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

--- For carbon steel and alloy steel to be welded, the requirements for S and P content in smelting analysis have been changed (see 5.2.1.1, 2019 edition 8.2.2.1.1);

--- Added evaluation criteria and stress limits corresponding to test conditions (see 6.1.4.6 and 6.1.6);

--- Changed the value of the instrument pipeline length reduction factor (see 6.3.4.2, 8.3.3.4.2 of the 2019 edition);

## 1 Scope

GB/T 16702.5-2025 is the fifth part of the Chinese design specification for mechanical components in the nuclear island of a pressurised water reactor, and it covers small components. The large components of a nuclear island, the vessel, the steam generators, the main pipework, have long had their own design rules; the small ones, the supports, the small-bore piping, the instrument lines, the tanks, the heat exchangers and the internals that do not fall under the major component codes, did not, and they are where a great deal of the engineering hours and a fair share of the plant's problems live. This part sets the design requirements for them: the classification and the design conditions, the materials and their qualification, the design rules and the stress analysis requirements, the fatigue and seismic requirements, the fabrication, welding and examination requirements, the testing and the acceptance, and the documentation. For a nuclear component supplier, a design institute or an inspection body working in China, this is the governing text.

This document specifies the requirements for materials, design, manufacturing, inspection, etc. of small and medium-sized equipment of nuclear island mechanical equipment of pressurized water reactor nuclear power plants, and describes the relevant test. This

document applies to the design of small equipment specified in GB/T 16702.1-2025.

## 2 Normative references

The contents of the following documents constitute essential clauses of this document 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 16702.1-2025 Specification for design of mechanical equipment of nuclear island of pressurized water reactor nuclear power plant Part

## 3 Terms and definitions

The terms and definitions defined in GB/T 16702.1-2025 apply to this document.

## 4 General requirements

4.1 General This document includes small equipment specified in

5.2 of GB/T 16702.1-2025. In the equipment specification or purchase order, Provide a list of equipment manufactured in accordance with the requirements of this document and the scope of jurisdiction. Chapters 4 to 7 specify requirements applicable to vessels, heat exchangers and piping. The requirements applicable to pumps are specified in Chapters 4 and 8.