

ICS 27.120.20

CCS F69



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

GB/T 16702.6-2025

Replacing GB/T 16702-2019

**Design specification for mechanical components in nuclear
island of pressurized water reactor nuclear power plants - Part
6: Reactor vessel internals**

压水堆核电站核岛机械设备设计规范 第6部分：堆内构件

Issued on: February 28, 2025

Implemented on: February 28, 2025

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

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	2
4 General	2
4.1 File	2
4.2 Scope and classification of reactor internals	2
4.3 Identification	3
5 Materials	4
5.1 Overview	4
5.2 Material selection requirements	4
5.3 Intergranular corrosion sensitivity	5
5.4 Cobalt content in materials used in reactor internals	5
6 Design	6
6.1 General design principles	6
6.2 Analysis rules for the structural performance of reactor internals	8
6.3 Welding design of core support structures	30
7 Manufacturing and Inspection	33
7.1 Overview	33
7.2 Documentation and requirements for manufacturing and inspection	33
7.3 Manufacturing process	33
7.4 Welding	34
7.5 Special requirements for non-destructive testing	35

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 6 of GB/T 16702 "Design Specifications 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 9 of GB/T 16702-2019 "Design Specifications for Mechanical Equipment of Nuclear Island in Pressurized Water Reactor Nuclear Power Plants" and Compared with Chapter 9 in GB/T 16702-2019, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

--- Changed the boundary division (see 4.2.3, 9.1.1.1.3 of the.2019 edition);

--- Changed the relevant requirements of the document (see 4.1,

4.1.2 of the.2019 edition);

--- Added relevant requirements for welding materials (see 5.2);

--- Changed the requirements for cobalt content in materials used for reactor internals (see 5.4,

1 Scope

GB/T 16702.6-2025 is the Chinese national standard on design specification for mechanical components in nuclear island of pressurized water reactor nuclear power plants - part 6: reactor vessel internals, 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 February 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 28 February 2025. Classification: ICS 27.120.20, CCS F69. 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 requirements for materials, design, manufacturing and inspection of the internal components of the nuclear island mechanical equipment of a pressurized water reactor nuclear power plant. This document applies to the design of reactor internals and their components.

2 Normative references

The contents of the following documents constitute the 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

chinastandards.org · PREVIEW