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

GB/T 46150.1-2025

**Boilers and pressure vessels - Part 1: Performance
requirements**

锅炉和压力容器 第1部分：性能要求

(English Translation)

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Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative References...	7
3 Terms and Definitions...	7
4 Units of Measurement...	9
5 Classification of Boilers and Pressure Vessels...	9
6 Obligations and Responsibilities...	9
7 Failure Modes...	12
8 Technical Requirements...	14
9 Conformity Assessment...	25
Appendix A (Informative) Common Failure Modes and Limit States...	26
Appendix B (Informative) Selection of Standards...	32
References...	37

1 Scope

This document specifies performance requirements for the construction of boilers and pressure vessels.

This document is applicable to construction requirements for boilers and pressure vessels; it does not cover requirements for operation, maintenance, or the inspection of equipment in service.

The scope of pressure vessels is defined as follows.

- a) The pressure vessel body, comprising the bevel face of the first circumferential joint connecting the pressure vessel to external piping or devices via welding (or bonding), the end face of the first threaded joint in a threaded connection, the first flange sealing face in a flange connection, and the first sealing face in a special connector or pipe fitting connection; the pressure-bearing covers and fasteners for pressure vessel openings; and the welds connecting non-pressure-bearing components to pressure-bearing components;
- b) Safety accessories and instruments directly connected to the pressure vessel;
- c) Non-pressure-bearing components directly connected to the pressure vessel, such as supports, skirts, etc.

The scope of boilers is defined as follows.

a) The boiler body, comprising the boiler drum (shell), start-up (steam-water) separator and water storage tank, heating surfaces, headers and their connecting piping, furnace, combustion equipment, air preheater, furnace walls, flue gas (air) ducts, and structural framework (including platforms and escalators).

b) Piping within the boiler boundary, including.

1) For power station boilers. main feedwater piping, main steam piping, reheat steam piping, etc., as well as branch piping up to the first valve (excluding the valve itself; the same applies hereinafter);

2) For boilers other than power station boilers. where a steam (water/oil) distribution header (hereinafter collectively referred to as the "steam distribution header") is installed, this includes pressure-bearing piping extending from the feedwater (oil) pump outlet to the first circumferential weld connecting the steam distribution header outlet to external piping; where no steam distribution header is installed, this includes pressure-bearing piping extending from the feedwater (oil) pump outlet to the main steam (water/oil) outlet valve.

NOTE: Main feedwater piping refers to the piping extending from the feedwater pump outlet check valve to the economizer inlet header; main steam piping refers to the piping extending from the final-stage superheater outlet header to the turbine high-pressure main steam valve (or to the first valve upstream of the header for boilers operating in a header system); cold reheat steam piping refers to the piping extending from the turbine exhaust check valve to the reheater inlet header; hot reheat steam piping refers to the piping extending from the final-stage reheater outlet header to the turbine intermediate-pressure main steam valve.

c) Safety accessories and instruments.

d) Auxiliary equipment and systems.

This document does not apply to nuclear components, railway and marine boilers, marine pressure vessels, gas cylinders, hyperbaric oxygen chambers, piping systems, or mechanical equipment such as turbines and machinery casings.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 2900.48 Electrotechnical terminology of boilers

GB/T 26929 Terminology for pressure vessels

3 Terms and Definitions

The terms and definitions defined in GB/T 26929 and GB/T 2900.48, as well as the following terms and definitions, are applicable to this document.

3.1 Certification

Third-party attestation related to the object of conformity assessment; accreditation is excluded.

[Source. ISO/IEC 17000.2020, 7.6]

3.2 Conformity

In compliance with specified requirements.

3.3 Contracting Party

The individual or organization that purchases the boiler or pressure vessel for the user.

3.4 Designer

An organization that designs boilers or pressure vessels in accordance with standards.

3.5 Examination

The activity in which qualified personnel assess-in accordance with standard procedures-whether a given product, process, or service complies with specified acceptance criteria.

3.6 Inspection

The activity of verifying whether the results of required examinations, checks, and testing comply with specified requirements.

3.7 Manufacturer

An independent legal entity that manufactures (including installation) boilers or pressure vessels in accordance with the following requirements.

- Users Design Specification (UDS) provided by the contracting party or user;
- Requirements of applicable construction standards for boilers and pressure vessels.

3.8 Qualification

The demonstration of the suitability of a specific person, method, procedure, or service in meeting specified requirements.

3.9 Regulation

Rules issued by government agencies in accordance with the law.

NOTE: Such as safety technical specifications.

3.10 Safety Accessory

A device used to protect a boiler or pressure vessel by preventing operating parameters from exceeding permissible limits.

NOTE: These devices may be used directly on boilers and pressure vessels, including. safety valves, bursting disc safety/buckling pins, and controlled safety pressure relief systems; limiting devices that can activate corrective measures or provide shutdown or lockout functions (e.g., pressure switches, temperature switches, or liquid level switches); and safety-related measuring, control, and regulating devices.

3.11 Standard/Code

A document established by a standardization body-through a process of drafting and approval-that prescribes common and repeated rules, guidelines, or characteristics for activities or their results.

3.12 Testing

The activity of verifying, through a specific procedure, whether one or more characteristics of a product, process, or service meet specified requirements.

3.13 Third-Party Inspection Body/Supervision Inspection Agency

An organization that conducts inspections of boilers or pressure vessels in accordance with regulations and standards, and which operates independently of the manufacturer, contracting party, or user.

3.14 User

The organization or individual that uses or operates a boiler or pressure vessel.

4 Units of Measurement

Units of measurement shall be in accordance with the International System of Units (SI). The use of other systems of measurement is permitted only when SI units are not available.