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

GB 19156-2003

General specifications for fire monitors

锅壳锅炉 第 1 部分：总则

(English Translation)

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1 Scope

1.1

This Part of GB/T 16508 specifies the general technical requirements for the material, design, fabrication, inspection, safety accessories, combustion system, installation, operation, energy-saving and environment protection of stationary shell boilers.

1.2

This Part is applicable to the stationary pressure shell boilers with water as medium, evaporating heating surface mainly arranged on shell OR boiler furnace arranged in shell which meet the following conditions:

- a) Steam boiler of which the water volume at the design normal water level is greater than or equal to 30L, and the rated steam pressure is greater than or equal to 0.1MPa (gauge pressure; the same below);
- b) Hot-water boiler of which the rated outflow pressure is greater than or equal to 0.1Mpa, or the rated power is greater than or equal to 0.1MW.

1.3

This Part is not applicable to the following equipment:

- a) Portable boiler (e.g. marine boiler, railway locomotive traction boiler);
- b) Cooling devices required for equipment and process flow cooling;

c) Boiler for military use.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the normative document (including any amendments) applies.

GB/T 1576 Water Quality for Industrial Boilers

GB/T 1921 Parameters for Industrial Steam Boilers

GB/T 3166 Parameters for Hot Water Boilers

GB/T 16508.1-2013

GB/T 2900.48 Electrotechnical Terminology of Boilers

GB 8978 Integrated Wastewater Discharge Standard

GB/T 10180 Thermal Performance Test Code for Industrial Boilers

GB/T 10863 Thermal Test Method for Gas Pass Heat Recovery Boiler

GB/T 12145 Quality Criterion of Water and Steam for Generating Unit and Steam Power Equipment

GB 12348 Standard of Noise at Boundary of Industrial Enterprises

GB 13271 Emission Standard of Air Pollutants for Boiler

GB/T 16507 Water-tube Boilers

GB/T 16508.2 Shell Boilers - Part 2: Material

GB/T 16508.3 Shell Boilers - Part 3: Design and Strength Calculation

GB/T 16508.4 Shell Boilers - Part 4: Fabrication, Inspection and Acceptance

GB/T 16508.5 Shell Boilers - Part 5: Safety Appurtenances and Instruments

GB/T 16508.6 Shell Boilers - Part 6: Combustion Systems

GB/T 16508.7 Shell Boilers - Part 7: Installation

GB/T 16508.8 Shell Boilers - Part 8: Operation

GB/T 22395 Specification for Design of Boiler Steel Structures

GB 24747 Safety Technology Conditions for Heat Transfer Fluids

JB/T 6734 Strength Calculation Method for Boiler Fillet Weld

JB/T 6735 Calculation Method for Strength of Boiler Hanger Rod

NB/T 47013 (JB/T 4730)

Nondestructive Testing of Pressure Equipment

GB/T 16508.1-2013

3.5

Safety release pressure

The pressure of safety valve upon releasing, also referred to as set pressure of safety valve.

3.6

Hydrostatic test pressure

The pressure applied when conducting hydrostatic test for boiler system or pressure component (part) as required.

3.7

Rated temperature

The working fluid temperature at the outlet which shall be ensured for long-term continuous operation under specified design conditions.

3.8

Calculating temperature

The metal temperature of part set under normal operating conditions (the mean temperature along the metal section of part).

3.9

Test temperature

The metal temperature of pressure part in pressure test.

3.10

Required thickness

The thickness of pressure part determined according to theoretical calculation formula.

Where necessary, thickness required by other loads shall also be calculated.

3.11

Design thickness

GB/T 16508.1-2013

3.18

The highest fire line

The highest point of water-side under the erosion of flame or high-temperature flue gas on the evaporating heating surface of boiler.

3.19

Component space

It means that adequate space must be provided between adjacent parts of different wall temperatures on the tube plate so as to avoid overlarge temperature difference stress.

4.1.1 Organization qualification

The fabrication, inspection, testing and installation organizations of boilers shall obtain corresponding special equipment license qualification according to the requirements of "Regulations on Safety Supervision over Special Equipment".

4.1.2 Personnel qualification

4.1.2.1

The welding personnel of the boiler pressure parts shall be assessed according to the requirements of relevant safety technical codes such as

"Examination Rules for Welding Operators of Special Equipment" and may be engaged in the welding work within the acceptable project scope within the period of validity after obtaining the "Special Equipment Operator Certificate".

4.1.2.2

The non-destructive inspection personnel may only undertake non-destructive testing with type and technical level corresponding to the qualification certificate after obtaining the special equipment operator qualification certificate according to the requirements of relevant technical codes.

4.1.2.3

The operation personnel of boiler using organization shall be provided with corresponding qualification required by safety technical codes.

4.2 Responsibilities

GB/T 16508.1-2013 main pressure part, welding quality certificate, non-destructive testing report and hydrostatic test report, etc.);

e) Installation instructions and operating instructions of boiler;

f) Significant design change information of pressure part;

g) Water flow diagram and hydrodynamic calculation sheet of hot-water boiler (except