

Notice

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The First Revision to Boiler Safety Technical Supervision Administration Regulation (TSG G0001-2012)

1. Revisions to Article 1.1

1.1 Purpose

With a view to strengthening safety supervision of boilers, preventing and minimizing accidents, guaranteeing life and property safety of the masses and promoting the economic development, this Regulation is formulated according to the relevant requirements of *Law on Safety of Special Equipment of the People's Republic of China* and *Regulation on Safety Supervision of Special Equipment*.

2. Revisions to Article 1.2

1.2 Applicable scope

This Regulation is applicable to the boilers defined in *Special Equipment Catalog* including the stationary pressure-bearing steam boilers (Note 1-1), pressure-bearing hot-water boilers, organic heat transfer material boilers as well as flue waste heat boilers and flue-shell composite waste heat boilers, both of which utilizes the waste heat as the fundamental purpose.

3. Revisions to Article 1.3

1.3 Non-applicable scope

This Regulation is not applicable to the following equipments:

- (1) Steam boilers with the normal design water volume less than 30L;
- (2) Steam boilers with the rated steam pressure less than 0.1MPa;
- (3) Hot-water boilers with the rated water-delivery pressure less than 0.1MPa or the rated thermal power less than 0.1MW;
- (4) Organic heat transfer material boilers with the rated thermal power less than

0.1MW;

(5) Heat exchangers required for equipment and process flow cooling.

4. Revisions to Article 1.4.3

1.4.3 Level C boilers

(1) Steam boilers, $p \leq 0.8\text{MPa}$ and $V > 50\text{L}$ (V is the normal design water volume, the same below);

(2) Hot-water boilers, $p < 3.8\text{MPa}$ and $t < 120^\circ\text{C}$;

(3) Gas-phase organic heat transfer material boilers, $0.1\text{MW} \leq Q \leq 0.7\text{MW}$; liquid-phase organic heat transfer material boilers, $0.1\text{MW} \leq Q \leq 4.2\text{MW}$.

5. Revisions to Article 1.4.4

1.4.4 Level D boilers

(1) Steam boilers, $p \leq 0.8\text{MPa}$ and $30\text{L} \leq V \leq 50\text{L}$;

(2) Hot-water boilers with tap water pressurization only and $t \leq 95^\circ\text{C}$.

Note 1-4 is deleted.

6. Revisions to Article 1.5

1.5 Imported boilers

Boilers manufactured outside China but used in China shall meet the requirements of this Regulation; in case of any inconsistency, it shall carry out the technical evaluations and assessments and get the approval according to the requirements of Article 1.6 of this Regulation.

7. Revisions to Article 1.6

For boilers constructed with new material, new process or new technology (including adopting the foreign technology, fabricating according to the foreign standard, new structure etc.) that do not meet the requirements of this Regulation, or may cause significant impact on safety performance while not be stipulated in this Regulation, the involved enterprises/institutes shall report to General Administration of Quality Supervision, Inspection and Quarantine of P. R. China (abbreviated AQSIQ). The safety technology consulting bodies or professional organizations entrusted by AQSIQ shall carry out technical evaluations and assessments. The boilers cannot start construction or be put into service unless the results are approved by

AQSIQ.

8. Revisions to Note 2-3 of Article 2.3.1:

Note 2-3: Where other materials listed in GB 713 are used for the boiler steel plate, the applicable scope may reference the relevant requirements of GB 150 *Pressure Vessels*.

Add Item (3) to Note 2-5 of Article 2.3.2: The materials such as 09CrCuSb whose service conditions and technical requirements conform to GB/T 16507 *Water Tube Boilers* and GB/T 16508 *Shell Boilers* can be used for the tail heating surface of boilers

9. Revisions to the first paragraph of Article 3.3.2

The strength of pressure components of the boiler proper may be calculated and checked according to GB/T 16507.4 *Water Tube Boilers Part 4: Strength Calculation of Pressure Components* or GB/T 16508.3 *Shell Boilers Part 3: Design and Strength Calculation*. Where testing design method, comparable empirical design method or other design method is adopted to determine the strength of boiler pressure components, it shall be implemented according to the requirements of Article 1.6 of this Regulation.

10. Revisions to the first paragraph of Article 3.7.2

For horizontal internal combustion boilers, once-through boilers and shell waste heat boilers with the rated working pressure less than or equal to 2.5MPa, the T-type joints cannot be used for the parts with gas temperature in the service environment more than 600°C and scoured by the gas directly; for the pressure components of other parts, the butt connection but not the lapping connection of T-type joints can be used under the following conditions.

11. Revisions to the last line of Table 4-1 of Article 4.5.4.6

The testing method and percentage of the fillet joints between drums and header's pipes of Level A steam boilers are revised as: 100% ultrasonic testing for the fillet joints with full penetration structure and the outside diameter more than 108mm; surface inspection for at least 20% of the number of fillet joints of other pipe joints.

Article 4.5.4.6 (2) is revised as: For Level B or above hot-water boilers, the percentage and method of non-destructive testing shall meet the requirements for steam boilers with corresponding levels in Table 4-1; for Level C hot-water boilers, the non-destructive testing is not required for the circumferential butt joints and fillet joints of the header, pipe, pipeline and other fittings, and the main welds of other main pressure components shall be subject to 10% radiographic or ultrasonic testing;

12. Revisions to Note 4-4 of Article 4.5.6.2.2

Note 4-4: For such parts as the open header, pipe joint header (not-in-row in the heating surface and in-row with inner-bore welded cap), start-up (steam-water) separator, piping, storage tank, desuperheater and distribution header, if all of the welds are 100% qualified in the non-destructive testing and the butt-welded heating surface pipes and other pressure pipe fittings are subject to the argon welding as the backing welding and 100% qualified in the non-destructive testing which guarantees the welding quality, the manufacturer is allowed not to carry out the hydraulic test individually. The hydraulic test pressure of parts shall not be lower than the pressure of the corresponding boiler proper.

13. Revisions to Article 6.1.4(2)

For steam boilers with the rated working pressure 0.1MPa, the direct-loaded safety valves or water-sealed safety devices may be adopted; when hot-water boilers are provided with the water-sealed safety devices, the safety valves may not be installed; the inside diameter of the sealing water pipes of water-sealed safety devices shall be determined according to the rated evaporating capacity (rated thermal power) and the rated working pressure of boilers and shall not be less than 25mm, the safety valves shall not be installed and the anti-freezing measures shall be provided with.

14. Revisions to Article 6.6.1(1)

For steam boilers, the high/ low water level alarm devices (the high and low water level alarm signals shall be distinguishable) and the low water level interlock protective devices shall be installed. The protective devices shall operate at the lowest safe water level at the latest.

15. Add Article 8.1.15

8.1.15 Periodical self-examination of boilers

The user shall conduct inspection for the boilers in service at least once a month, and record the inspection. The monthly inspection shall check whether the boiler pressure parts, safety accessories and instruments and interlock protective devices are in good condition, whether the safety service and energy-saving management system of boilers is effectively implemented, whether the certificates of operation personnel are still valid, whether the periodical inspection is carried out according to the regulations, whether the chemical analysis is carried out for the water (medium) quality regularly, whether the blowdown of boilers is adjusted with the change of water/steam quality, whether the sealing water pipe is blocked and whether there are other abnormal situations etc.

16. Revisions to Article 11.4.5.1(1)

For liquid phase heat transfer system and liquid-phase forced-circulation throttling pressure-reducing evaporation gas phase system, at least two motor-driven circulating pumps and condensate supply pumps shall be installed, when one of them stops operation, the total flow of the rest circulating pump or supply pump shall be able to meet the operation requirements of the system under maximum capability; for electric heating liquid phase organic heat transfer material boilers with the thermal power less than or equal to 0.3MW, if the heat transfer system is equipped with an effective temperature interlock protective device, it's permitted to install only one motor-driven circulating pump.

17. Revisions to Article 12.1

12.1 Allowable applicable scope

Hot-water boilers with the rated outlet temperature less than 120°C and the rated working pressure not exceed 0.7MPa.

18. Revisions to Article 12.3.2.3

12.3.2.3 Burst testing pressure

For hot-water boilers, when the rated water-delivery pressure is less than or equal to 0.4MPa, the burst pressure shall be greater than $4p+0.2\text{MPa}$; otherwise the burst pressure shall be greater than $5.25p$.

19. Revisions to the second paragraph of Article 12.3.3

The test pressure of overall verification hydraulic test shall be $2p$ and not be less than 0.6MPa.

20. Revisions to Table 12-1 of Article 12.4.4

Table 12-1 Test pressure and pressure holding time

Name	Test pressure (MPa)	Pressure holding time under the test pressure (min)
Pressure castings	$2p$ and not less than 0.4	2
Integrated boilers	$1.5p$ and not less than 0.4	20

21. Revisions to Article 13.1(1) (2)

(1) For hot-water boilers, aluminum, copper alloy and stainless steel can be used for the pressure components (parts) and welded pipes can be used for the pipes, the selection of materials shall conform to the requirements of relevant standards; other materials for boilers shall conform to the requirements of Chapter 2 of this Regulation.

(2) For hot-water boilers, the drum (shell), furnace and the connected head, tube plate can use the T-type plug-in full penetration welding connection structure.

Article 13.1(5) is revised as: The alteration of boilers is forbidden.

Article 13.1(6) is deleted.

22. Article 13.2 (2) is revised as: For hot-water boilers and steam boilers with the rated working pressure equal to 0.1MPa, the non-destructive testing is not required when the weld quality is guaranteed by the boiler manufacturers.

Article 13.2 (3) is revised as: The boiler manufacturers shall set the safety warning sign on a conspicuous position of boilers.

23. Article 13.3.2 and 13.3.3 are deleted.

24. Revisions to Article 13.3.4

13.3.2 Connection between blowdown pipes and blowdown valves

The blowdown pipes and blowdown valves of boilers can use the threaded connection.

25. Revisions to Article 13.4(1) (2)

(1) It's not mandatory to build an independent boiler house for boilers; and the installation position of steam boilers shall be effectively isolated with the non-operation personnel.

(2) Boilers require neither the installation notice nor the installation supervisory inspection.

26. Revisions to Article 13.5

13.5 Periodical inspection

The users shall conduct the self-examination for the safety situation of boilers periodically.

27. Article 13.6 (1) is revised as: Service registration is not required for boilers.

Article 13.6 (4) is revised as: It is not required for the operation personnel of boilers to obtain the *Special Equipment Operator Certificate*, but they shall be trained according to the requirements of Article 13.4 (3) of this Regulation.