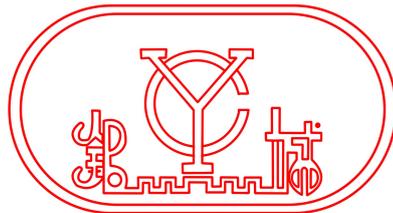


Horizontal Electric Heating Steam Boiler

DESIGN SPECIFICATION



yincheng

Product model: WDR1-1.25

Product part number: TGQ1.01303-0-0

File code: TGQ1.01303-CSS

1. Product Introduction

This product is designed in strict compliance with the provisions of TSG 11-2020 Boiler Safety Technical Code and JB/T10393-2002 Technical Conditions for Electric Heating Boilers.

The boiler model WDR1-1.25 is a horizontal electric heating steam boiler. The cylinder is equipped with electric heating tubes inside. The structure is simple and easy to maintain and repair.

The boiler is mainly used for heating, food processing, textile and clothing, planting and breeding, medical and health care and other industries.

II. Main Specifications and Design Parameters of the Boiler

1. Rated evaporation capacity: 1 t/h
2. Rated steam pressure: 1.25 MPa
3. The rated steam temperature is 194°C.
4. Water supply temperature: 20°C
5. Design efficiency 99%
6. Input power: 750KW
7. Full water weight of boiler: 6385.23kg
8. The total weight of the boiler body is 1446.37 kg.
9. Weight of large cargo: 2978.6 kg
10. Dimensions of large boiler transport: 3700mm×1600mm×1900mm

III. Product Structure Overview

This horizontal electrically heated steam boiler consists of front and rear heads ($\Phi 1200 \times 14$ mm, Q345R), a cylinder ($\Phi 1200 \times 10$ mm, Q345R), and electric heating tubes.

The electric heating tube heats the inside of the boiler drum and works according to the principle of heat transfer of water.

2. Performance Features

- 1) Simple structure, easy installation and operation, and small footprint.
- 2) Fully automated operation with silent operation and zero environmental

pollution.

3) The steam production is rapid and the thermal efficiency is high.

4) The boiler is equipped with a pressure protection device. When the steam pressure reaches the preset upper limit, power supply is cut off to stop heating. When the steam pressure drops to the preset lower limit, the boiler automatically resumes power supply for heating.

5) The boiler is equipped with a safety valve. When steam overpressure occurs, the safety valve automatically opens to discharge steam, ensuring boiler safety. Once the pressure drops to the specified value, the safety valve automatically closes to prevent further pressure reduction.

IV. Safety Valve, Auxiliary Equipment and Control Instructions

This boiler features high and low water level alarms, along with safety accessories including a safety valve, water level indicator, and pressure gauge. To ensure effective pressure and temperature control, it is equipped with an automatic interlock system that provides overpressure and overtemperature protection. When the boiler's pressure or temperature exceeds the set limits, the system automatically cuts off the power supply to the heating elements, triggers an alarm, and can be manually reset for restart.

V. Electrical Safety Instructions

1. The configuration of detection and control instruments and devices for electric heating boilers shall comply with the requirements of the "Safety Technical Regulations for Steam Boilers".

2. The boiler shall be equipped with pressure, water level, temperature and other safety operation parameters indicating instruments as required.

3. Electric heating boilers shall be equipped with voltmeters and ammeters, and preferably with active energy meters or time-of-use active energy meters.

4. Steam boilers shall be equipped with automatic feedwater control devices.

5. The boiler shall be equipped with an automatic control device for the group operation and group shutdown of its electric heating elements.

6. The boiler shall be equipped with an automatic load regulation device. When the steam pressure of a steam boiler exceeds or falls below the set value, or the outlet water temperature of a hot water boiler exceeds or falls below the set value, the control device shall automatically reduce or increase the boilers input power.

7. Boilers with steam-water interface in the pot shall be equipped with a low-water protection device. When the boiler water level drops below the low-water protection level, the power supply to the electric heating element shall be cut off, an alarm signal shall be issued, and the boiler shall not be restarted until manual reset is performed.

8. This boiler features reliable electrical insulation, with insulation resistance between energized circuits and between energized circuits and ground (including conductors and cabinet bodies, as well as heating elements and enclosures) not less than 1 M Ω .

9. The metal enclosures of boilers and their power/control cabinets, as well as any potentially live metal components, must maintain reliable electrical connections to the grounding terminal, with the connection resistance not exceeding 0.1 Ω . The grounding terminal shall be sufficiently sized to withstand the maximum possible grounding current. Both boilers and their power/control cabinets must bear clearly marked grounding symbols on their main grounding terminals.

10. The boiler must have adequate electrical withstand voltage capability, capable of withstanding cold-state voltage at 2000V and hot-state voltage at 1000V for 1-minute withstand voltage test at 50Hz, without any breakdown or flashover phenomena.

11. The boiler is equipped with current protection, short-circuit protection, leakage current protection, overvoltage protection, and phase loss protection.

VI. The technical specifications for the electrical control cabinet of the boiler shall comply with the following standards:

1) GB50169-1993 "Code for Construction and Acceptance of Grounding Systems in Electrical Installation Projects";

2) GB50056-1993 "Code for Design of Electrical Equipment and Power Installations";

3) GB50254-1996 "Code for Installation of Electrical Equipment-Construction and Acceptance of Low-voltage Electrical Appliances";

4) GBJ 149-1990 "Code for Installation of Electrical Equipment: Construction and Acceptance of Busbar Systems".



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