

# BE Series

## Water Boilers Electric

The boiler shall be a Bryan Model \_\_\_\_\_ electric water boiler, with a capacity of \_\_\_\_\_ KW at \_\_\_\_\_ volts. (\_\_\_\_\_ HP)

The boiler shall be constructed and assembled as a completely packaged unit factory tested and UL labeled. The boiler shall be ready for field connections to the water supply, return connection, electrical power supply, relief valve discharge, and building management controls.

The water boiler shall be manufactured in strict accordance with ASME Heating Boiler Code, Section IV, and shall bear the ASME "H" stamp for maximum working pressure of 150 PSIG and 250° F temperature.

### VESSEL AND TUBE CONSTRUCTION

The boiler shall be constructed on an elevated heavy steel-legged frame. The boiler pressure vessel shall be of all welded steel construction (3/8" thick minimum) and shall be provided with necessary flanged element openings. The boiler vessel will be insulated with 2" of fiberglass insulation held in place with wire netting. The boiler shall be furnished with an adequate number of tappings and inspection openings to facilitate internal boiler inspection and cleaning.

### POWER CONTROL EQUIPMENT

The boiler shall be provided with a power control panel. The panel shall be provided with louvered openings to facilitate natural air circulation to minimize temperature rise. The panel will be provided with a key lock and handle to prevent access by unauthorized personnel.

The main power supply to the boiler shall be \_\_\_\_\_ (208, 240, 380, 480) volts, 3 phase, (50, 60) Hertz, (3) three-wire system supplied to the main distribution lugs in the electrical panel.

All power wiring in the unit shall terminate in the box type connectors. Crimp connections in the power circuit will not be acceptable. The wiring shall be of a size not less than 8 AWG with insulation of a rating not less than 220°F (105°C).

### ELECTRICAL ELEMENTS

The boiler shall be equipped with immersion type heating elements mounted in standard 150 PSIG ANSI flange. Each element shall be mechanically mounted and field replaceable without welding or brazing. All elements shall be Incoloy sheathed composed of nickel, chrome and iron alloy which shall be resistant to oxidation and have a maximum temperature limit of 1800°F. Each element shall be rated at minimum of 5 KW for the voltage specified and have a maximum watt density of 75 watts per square inch.

### JACKET CONSTRUCTION

The boiler shall be complete with a metal jacket, 16 gauge, zinc-coated rust resistant steel casing, finished with a suitable heat resisting paint and shall be attached to a structural steel frame.

All appropriate controls where possible, shall be mounted on boiler front.

The boiler vessel shall be warranted for 12 months from date of start-up or 18 months from date of shipment, whichever comes first.

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### BOILER TRIM AND CONTROL EQUIPMENT

1. Thermometer and pressure gauge
2. 4-20 MA - Water temperature control operator
3. (2) High limit safety control
4. Low water cutoff with MR
5. ASME safety relief valve(s)

### BOILER CONTROL EQUIPMENT

The boiler control equipment shall be provided with the power panel as previously noted. The power panel will also include a stepdown transformer to reduce main power voltage to 120 volts, 1 phase, (50, 60) hertz for the operating and limit control circuit. The transformer, which is mounted on the outside of the panel, will be protected by fuses located inside the panel.

Other boiler control equipment furnished will include an on/off switch, control circuit fuse, and a boiler step controller, along with individual circuit fusing. The boiler step controller on units of three steps or more is a PLC programmed to turn steps ON/OFF using a first on-first off sequence.

### OPTIONAL BOILER TRIM AND CONTROLS

1. Manual reset type high limit
2. Manual reset type low water cutoff
3. Auxiliary low water cutoff(s)
4. Low water cutoff feeder (in addition to, or in place of standard low water cutoff)
5. Indirect water heating coils for domestic, pool or process hot water
6. Other controls and boiler trim, as specified

### OPTIONAL ELECTRICAL CONTROLS AND ACCESSORIES

1. Additional steps
2. Alarm bell(s) or horn(s)
3. 50 watt density elements
4. Main disconnect switch (shipped loose)
5. Voltmeter
6. Indicator lights – as specified
7. Manual KW load limiter
8. Power panel door electric interlock
9. Pre-heater switch
10. Lead lag systems for two or more boilers
11. Other controls, as specified