

K Series

Steam Boilers

Atmospheric Gas Fired

The boiler shall be a Bryan Model _____ flexible water tube boiler, with a capacity of _____ BTUH input and _____ BTUH output. (_____ HP)

The boiler shall be constructed and assembled as a completely packaged unit ready for field connections to the steam supply, return connection, electrical power supply, natural (propane) gas supply, relief valve discharge, building management controls and flue-gas vent.

15 PSIG Steam Boiler – The boiler shall be manufactured in strict accordance with the ASME Low Pressure Boiler Heating Code, Section IV, and shall bear the ASME stamp for a maximum working pressure of 15 PSIG.

150 PSIG Steam Boiler – The boiler shall be manufactured in strict accordance with the ASME Power Boiler Code, Section I, and shall bear the ASME stamp for a maximum working pressure of 150 PSIG (*Also available for higher pressures up to 300 PSIG per ASME Section I*).

The boiler shall have no less than 5 square feet of heating surface per boiler horsepower.

VESSEL AND TUBE CONSTRUCTION

The boiler shall be constructed on a heavy steel frame and shall be provided with adequately sized upper and lower drums. A minimum of two downcomers shall be provided and shall be located inside the furnace chamber to maximize proper thermal internal water circulation. The boiler steam drum shall be no less than 24" O.D.. The drum shall be provided with internals designed for providing steam quality in excess of 99%. Steel water tubes are to be 1 1/2" O.D., .095 wall thickness minimum, six-pass, flexible serpentine bend design. Individual water tubes shall be easily removable and replaceable without either welding or rolling. The boiler shall have no more than two tube configurations. The boiler shall be furnished with an adequate number of tappings and inspection openings to facilitate internal boiler inspection and cleaning.

RADIANT SECTION CONSTRUCTION

The radiant section is a fully sealed and insulated flue-gas containing section. Entry into this section shall not require major disassembly of the boiler jacket or its components. Full access to this section is gained by a single sided fully removable access door(s) which will be affixed to the pressure vessel and installed with 2" mineral fiber monoblock and 1" high temperature ceramic blanket insulation. The stationary interior walls shall be installed with 1" mineral fiber monoblock and 1" ceramic blanket insulation.

The boiler flueways shall be designed to operate at a negative 0.01" w.c. at the boiler flue outlet.

15 PSI Steam Boiler - The boiler will require a "B" type metal flue.

150 PSI Steam Boiler - The boiler will require a "positive pressure" type metal flue.

JACKET CONSTRUCTION

The boiler shall be complete with a metal jacket, heavy gauge, zinc-coated rust resistant steel casing, finished with a suitable heat resisting paint and shall be constructed on a structural steel frame. Complete jacket shall be furnished with no less than 1 1/2" of fiberglass insulation and shall be easily removable and reinstalled. The boiler shall incorporate individually removable jacket door, with handles providing easy access to combustion chamber and access panels. The entire tube area shall be easily accessible for fireside cleaning.

All appropriate controls where possible, shall be mounted on boiler jacket front and will include an electrical panel containing a control circuit fuse, indicating light and on/off switch.

A tube removal and replacement shall be demonstrated at time of start-up. Demonstration time not to exceed 40 minutes.

The boiler vessel shall be warranted for 25 years against thermal shock on a non-pro-rated basis.

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BOILER TRIM AND CONTROL EQUIPMENT

The following trim and controls shall be furnished:

1. Steam pressure gauge
2. Steam pressure control operator
3. High limit safety control
4. Water gauge glass
5. Low water cutoff and feed pump control
6. Auxiliary low water cutoff – probe type M/R
7. Gauge cocks (150 PSIG units only)
8. ASME safety relief valve(s)
9. Barometric damper

GAS BURNER AND CONTROL EQUIPMENT

The gas burner assembly shall be an integral part of the boiler. Burners shall be tubular alloy steel atmospheric type for operation with natural draft, requiring no motor or blower. Gas pilot(s) are to be electrically ignited.

The following trim and controls shall be furnished:

1. Pilot cock
2. Electronic pilot ignition
3. Gas pilot safety shutoff valve
4. Honeywell Flame Safeguard RM7890A
5. Main manual gas shutoff valve
6. Motorized gas valve operator and auxiliary safety shutoff gas valve
7. High gas pressure switch
8. Pilot and main gas pressure regulators

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. UL, IRI, CSD-1, FM or other insurance requirements
6. Indirect water heating coils for domestic, pool or process hot water (15 PSIG units only)
7. Manual blowdown valves (surface or bottom)
8. Automatic boiler blowdown valves (surface or bottom)
9. Boiler feed systems
10. Boiler deaerator units

OPTIONAL BURNER CONTROLS AND ACCESSORIES

1. Two-stage high-low burner
2. Low fire start burner controls
3. Modulating burner
4. Auxiliary motorized safety shut off gas valve
5. Alarm bell(s) or horn(s)
6. Fireeye combustion safety control
7. UL, IRI, CSD-1, FM or other insurance requirements
8. Indicator lights – as specified
9. Lead lag systems for two or more boilers
10. Other controls and boiler trim, as specified