

Sample Specification Text

Model: _____ HP: _____
Design Pressure: _____ Fuel: _____
Operating Pressure: _____
Built to ASME Section: _____
Burner Make: _____
Burner Model: _____
Voltage: _____ / _____ / _____
Gas Supply Pressure: _____
No. _____ Fuel Oil at _____ psig



Section 1. General Description

Contractor shall furnish and install a _____ HP vertical tube type steam pressured boiler. The vertical tube type boiler shall be a Series _____ type and manufactured by Williams & Davis Boilers.

Each unit shall consist of a vertical steam boiler complete with fully matched burner and automatic controls. The boiler shall have no less than 3 sq. ft. of heating surface per boiler horsepower. The boiler (with all piping and wiring) shall be completely factory assembled as a functioning unit ready for commissioning prior to shipment from the factory.

Each boiler shall be neatly finished, thoroughly tested and properly packaged for transport to site. The burner and all interconnecting piping and wiring to the control system complete.

The boiler shall be designed to ASME Section I or Section IV Pressure Vessel Code and compliant with CSD-1/UL standard. The boiler shall have the following key design features:

- Painted steel cladding or stainless steel jacket
- 2 1/2" high density insulation on pressure vessel
- The flue is top mounted
- ASME stamping in an accessible location
- Boiler supported by structural skid

Section 2. Boiler Size and Ratings

The capacity of each unit at nominal rating shall be to produce _____ lb/hr of steam based at 0 psig from 212F feed water or equivalent output rating of _____ HP. The flue gas temperature exiting the boiler shall not exceed _____ F when the boiler is operated at maximum continuous rating of _____ psig. The boiler will have a minimum combustion efficiency of _____% at high fire and _____ operating pressure.

Section 3. Boiler Design

The boiler shall be a vertical down-fired multiple pass water-back type with a vertical furnace tube.

The Boiler shall have a stainless steel liner inside for the containment of flue gasses. Stainless steel liner shall be securely fastened to all the handhole boxes and the base. The Unit shall be insulated with a minimum of 2.5" of Insulation. An outside jacket consisting of 24 gauge stainless steel shall cover the boiler's entire circumference.

There shall be four (4) 3" x 4" handholes in the boiler for proper clean-out and routine inspection: three (3) located on the base and one (1) at the waterline.

These handhole openings shall be surrounded by a 3/8" steel oval structure. The unit shall be equipped with lifing lugs 1/2" thick welded to the top of the unit.

Section 4. Boiler Trim

A. Safety valves will be fitted in accordance of the requirement of the ASME code.

B. High and low water cutoff water level controls shall be via an internal set of probes in a standpipe configuration.

C. Feed water pump controls will be via a Pressure Differential Level Transmitter, controller or probes in an external column on the boiler shell. A sight glass will be fitted to each boiler.

D. Steam pressure gauge shall be a minimum of 3" diameter and located in sight when standing at the front of vessel.

E. Feed water stop and check valve shall be supplied with the boiler. The feed water to enter the boiler via a removable feed water disperser/baffle.

F. Additional standard trim shall include a fast and slow opening blowdown valves, water column, and blowdown valves.

Section 5. Burner

The burner shall be _____ forced draft flame retention model _____. Each burner shall be capable of burning _____ CFH of _____ BTU/Cu. Ft. (natural) (propane) (other) _____ gas, with a specific gravity of _____. Gas pressure applied to the burner gas train supply connection shall be a minimum of _____ (in. w.c.) (PSIG) at full high rate and a maximum of _____ (in. w.c.) (PSIG) at static conditions. Each burner shall be capable of burning _____ GPH of (No. 1, 2 fuel oil) (kerosene) (diesel) or _____ fuels with a rating of _____ BTU/GAL.

The burner shall fire down through the unit to a solid refractory base.

The burner shall be fully matched to the furnace to ensure complete combustion of fuel in the furnace. The burner shall be a modulating type and have digital microprocessor controls.

Burner controls are to be included. PID Type Operating pressure control for automatic start and stop of the burner. High pressure switch with manual reset. Two (2) low water cut off probes to cause shutdown of the burner when water drops to a minimum safe level.

The second low level to require a manual reset. An air safety switch to prevent burner operation until sufficient combustion air is assured shall be installed. A combustion supervision control. The burner motor shall be complete with thermal overload protection.

Section 6. Ignition System

1. The burner ignition system, which will light either the main gas or oil flame, shall utilize (natural) (propane) gas as the fuel source. The gas pilot system components shall include spark ignited pilot assembly, 6000 Volt ignition transformer, pilot solenoid valve, pilot gas pressure regulator and manual gas shutoff cock. The flame proving system shall incorporate an Ultra-Violet flame detector, which will monitor both the pilot and main flames. The pilot assembly shall fit within the confines of the blast tube - avoiding special burner front plate pilot cut outs.

Section 7. Tests

Each boiler shall be hydrostatically tested to a minimum of 1.5 times the maximum design pressure in accordance with ASME Code.

Section 8. Manuals

Instruction for the installation, operation and maintenance of the boiler, operating and maintenance manuals for each sub component shall be contained within a single manual provided by the boiler manufacturer. A wiring diagram shall be affixed to the inside of the control panel cover.

Section 9. Warranty

The boiler pressure vessel shall have a standard One year warranty.



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