

MODEL TP-S TWO PASS IMMERSION FIRED STEAM BOILER
SUGGESTED SPECIFICATION

PART 1 – GENERAL

- A. Furnish and install _____ (qty) Sellers Engineering Co Model TP-_____-S steam boiler(s).
- B. The boiler shall have an output of _____ PPH of dry, saturated steam from and at 212 °F at the nozzle when fired with natural (LP) gas with a minimum pressure of _____ in wc (PSI).

PART 2 – PRODUCTS

- A. Boiler shall be built to the requirements of the ASME Boiler and Pressure Vessel Code for a maximum allowable working pressure of ____ (15, 150, 200, 250 OR 300) PSI.
 - B. Electrical power available will be _____ Volts, _____ Hertz, _____ Phase
 - C. Boiler overall dimensions shall not exceed _____“ wide X _____“ long X _____“ high.
 - D. Boilers shall be factory assembled and wired to require only supply, return, drain, fuel, vent and electrical connections.
 - E. The boiler shall be of the two-pass immersion fired design. The firing tubes shall be located in the lower half of the boiler shell and the second pass of tubes shall be located above the firing tubes and shall be furnished with stainless steel ENERGY X-TRACTORS to attain high heat transfer and high efficiency. The burner assembly shall be hinged and the rear turn box door davited to provide easy access to all tubes and other heating surfaces. Ligaments between the tubes shall not be less than 1”.
 - F. A minimum of four (4) handholes shall be provided. A manhole shall be provided on low-pressure boilers – 80 HP and larger and on high-pressure boilers - 30 HP and larger.
 - G. Boiler shall be constructed without the use of refractory.
 - H. Boiler shall be mounted on a heavy, structural steel skid base, which does not extend beyond the pressure vessel to provide minimal footprint. Lifting eyes shall be welded onto the top of the boiler.
 - I. The boiler shall be insulated with 2" of fiberglass and covered with a steel jacket. A precast hardtop walkway shall be furnished to allow personnel to walk on top of the boiler without denting steel jacket. Steel ladder support rails shall be installed under the jacket.
 - J. Lifting eyes shall be provided to facilitate rigging.
- 2.2 Steam Boiler Trim
- A. Boiler trim shall include the following components:
 - 1. Combination water column, pump control and low water cutoff – M&M #157
 - 2. Second low water cutoff with manual reset – M&M #150M
 - 3. Pressure gauge

4. Operating pressure controls
5. High limit pressure control with manual reset
6. Pressure relief valve sized in accordance with the ASME Code.

2.3 Burner

A. The burner assembly shall be a forced draft, Premix type with an individual burner nozzle firing into each firing tube. The burner assembly shall include the following:

1. Forced draft combustion air blower.
2. Air gas mixer.
3. One burner nozzle for each fire tube.
4. Pilot burner assembly.
5. Control panel including:
6. Honeywell R4140 flame safeguard, motor starter, control switches, transformer and six (6) indicator lights.
7. Main and pilot gas valves and regulators.
8. Ignition transformer with electrodes.
9. Flame monitoring flame rod.
10. Air pressure proving switch.
11. High-low gas pressure switches on 60 HP and larger.
12. Flame observation ports.
13. The burner and controls shall conform to the requirements of UL (FM) (IRI) and CSD-1.

2.4 Efficiency Guarantee

A. The boiler shall be guaranteed to operate at a minimum fuel-to-steam efficiency of 80%.

2.6 Warranty

- A. The pressure vessel shall carry a 5-year warranty against thermal shock damage. Warranty shall cover 100 % of labor and material required to repair damage such as loosened tubes, cracked ligaments or welds.
- B. All boiler and burner components shall carry a 5-year non-prorated warranty against defects.
- C. All refractory used in the construction of the boiler shall be warranted for twenty (20) years from the date of startup. Warranty shall cover 100% of the cost of repair or replacement.

PART 3 – EXECUTION

3.1 Shop Tests

A. The boiler shall be completely assembled, wired and tested at the factory. A factory fire and efficiency test report shall be provided to the owner. Owner, engineer or purchaser shall be allowed to witness test, if desired.

3.2 Startup Service

A. Furnish the services of a factory-authorized technician to perform initial startup and adjustment of the boiler, burner and controls.

- B. Provide a minimum of four (4) hours of operator training. Operators shall receive instruction in the operation and maintenance of the boiler, burner and all controls.
- C. Complete the manufacturer's approved startup report and submit one copy each to the owner's representative and the boiler manufacturer.