

# prestige

## Fully Condensing Water Boiler



# Suggested Specifications Prestige SOLO 110

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## General Requirements

- A. Furnish and install \_\_\_\_\_ (qty) completely assembled, modulating, sealed combustion, high efficiency, gas-fired boiler(s) with a stainless steel, fire tube heat exchanger.
- B. Installation of the boiler(s) shall be according to manufacturer's installation instructions and all work shall be completed in a neat and workmanship like manner.
- C. The boiler(s) shall be a Triangle Tube Prestige SOLO 110 having a modulating input rating of 110,000 BTUH, an output of 99,000 on Natural Gas or an input rating of 97,000 BTUH, an output of 87,000 on Propane.
- D. The boiler(s) shall operate at a minimum Annual Fuel Utilization Efficiency of 95% and shall comply with the energy efficiency requirements of ASHRAE 90.1, latest edition and the minimum efficiency requirements of ASHRAE 103, latest edition.
- E. The boiler(s) AFUE efficiency shall be verified through a third party testing agency under the guidance of the Hydronics Institute Division of AHRI and listed in the AHRI Certification Directory.
- F. The boiler(s) shall be capable of full modulation, with a turn down of 4 to 1
- G. The heat exchanger shall contain a water volume of 2.5 gallons and have a pressure loss of 6.5ft at a volume flow rate of 9 gpm.
- H. The boiler(s) shall be manufactured by an ISO 9001 registered company and shall bear the ASME "H" stamp according to Section IV of the ASME Boiler and Pressure Vessel Code.

1. The stainless steel heat exchanger of the boiler(s) is to be hydrostatically pressure tested at the factory in accordance with ASME requirements.
  2. The maximum allowable working pressure is 30 psig water as listed on the rating plate.
  3. The heat exchanger shall be registered with the National Board and contain a registry number on the rating plate.
- I. The boiler(s) shall meet the following regulatory requirements:
1. The boiler(s) shall be ITS / ETL certified and listed to ANSI Z21.13/CSA 4.9 test standards for US and Canada.
  2. Boiler(s) shall meet or exceed the SCAQMD (South Coast Air Quality Management District of California) Low NOx emission requirement of 14 NG/J.
  3. The boiler(s) shall meet Department of Energy guidelines for Energy Star energy efficiency.

## Product Specifications

### A. Boiler Construction

1. Stainless steel, fire tube heat exchanger
2. The grade of stainless must be of 439 providing resistance to corrosion at elevated temperatures.
3. The heat exchanger shall be of welded construction and shall not contain any banding materials, bolts, gaskets or O-rings in the construction.
4. The boiler combustion chamber shall be sealed and located at the top of the heat exchanger which should be of a counterflow design and

vertical to assure that sediment and any potential lime that may form will fall to the bottom away from the tube sheet.

5. The boiler(s) flue ways shall be of a vertical design that allows condensate to “wash down” the flue surface preventing potential combustion residue from adhering to the flue ways.
6. The boiler(s) shall be supplied with a gas valve designed with negative pressure regulation.
7. The gas valve on the boiler(s) shall operate with an inlet gas pressure of a minimum 5” w.c to a maximum of 13” w.c and shall be independent of the type of gas (natural or propane). If the inlet gas pressure exceeds the maximum allowable 13” w.c. a 100% lock-up type gas pressure regulator, properly sized, must be installed in the gas supply piping and adjust as to prevent an inlet gas pressure in excess of 13” w.c.
8. The burner shall be a premix combustion type system, made with a burner head constructed of stainless material and able to provide a wide range of modulating firing rates.
9. The boiler(s) shall be equipped with a variable speed blower system to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency.
10. The boiler(s) shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides.
11. The individual boiler control shall have an electronic display for boiler set-up, boiler status and boiler diagnostics.

#### B. Boiler Controls and Trim

1. All electrical components shall be of the highest quality manufacture and bear a UL or UL recognized label.
2. Supply voltage shall be 120 volt / 60 hertz / single phase

3. The boiler(s) shall be furnished with controls and boiler trim that provides:

- a) High limit temperature control of 200°F
- b) Operating temperature limit of 60°F to 194°F
- c) Pressure gauge dial that is clearly marked and easy to read.
- d) ASME certified pressure relief valve, set to relieve at 30 psig.
- e) Flue gas, outlet water temperature and return water temperature sensors
- f) Low water protection
- g) Built-in freeze protection
- h) Grundfoss 15-58 flanged circulator, 3 speed adjustment with toggle control
- i) Outdoor sensor to provide Outdoor Reset Control
- j) Domestic priority with ability to reset the boiler operating temperature
- k) Allows a 0-10 VDC input signal to allow external BMS control

#### C. Venting and Combustion Air

1. The boiler shall be installed and vented with a (select one):
  - a) **Direct Vent Sidewall** system with a horizontal sidewall termination of both the vent and combustion air. The vent pipe shall be PVC, CPVC, PPs Polypropylene or AL29-4C® Stainless Steel. A separate pipe shall supply combustion air directly to the boiler from the outside and may be PVC, CPVC, Galvanized, or Stainless Steel sealed pipe. The boiler’s total equivalent venting length shall not exceed 60 feet when using 3 inch pipe or 100 feet

when using 4 inch pipe. The combustion air inlet piping total equivalent length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. The vent and combustion air piping do not have to terminate on the same wall to the outside. ***PVC or CPVC of Foam Core construction is not an approved material for vent piping.***

- b) **Direct Vent Vertical** system with a vertical roof top termination of both the vent and combustion air. The vent pipe shall be PVC, CPVC, PPs Polypropylene or AL29-4C® Stainless Steel. A separate pipe shall supply combustion air directly to the boiler from the outside and may be PVC, CPVC, Galvanized, or Stainless Steel sealed pipe. The boiler's total equivalent venting length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. The combustion air inlet piping total equivalent length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. ***PVC or CPVC of Foam Core construction is not an approved material for vent piping.***
- c) **Direct Vent Vertical with Sidewall Air** system with a vertical roof top termination of the vent and with combustion air being drawn horizontally from a sidewall. The vent pipe shall be PVC, CPVC, PPs Polypropylene or AL29-4C® Stainless Steel. A separate pipe shall supply combustion air directly to the boiler from the outside and may be PVC, CPVC, Galvanized, or Stainless Steel sealed pipe. The boiler's total equivalent venting length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. The combustion air inlet piping total equivalent length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. ***PVC or CPVC of Foam Core construction is not an approved material for vent piping.***

- d) **Sidewall Vent with Room Air** system with a horizontal sidewall termination of the vent and the combustion air is drawn from the surrounding area in which the boiler is installed. The vent pipe shall be PVC, CPVC, PPs Polypropylene or AL29-4C® Stainless Steel. The boiler's total equivalent venting length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. If the room in which the boiler is installed in is less than 85 cubic feet in volume per boiler, combustion air must be supplied into the room per the National Fuel Gas Code NFPA 54, latest edition. ***PVC or CPVC of Foam Core construction is not an approved material for vent piping.***
- e) **Vertical Vent with Room Air** system with a vertical roof top termination of the vent and the combustion air is drawn from the surrounding area in which the boiler is installed in. The vent pipe shall be PVC, CPVC, PPs Polypropylene or AL29-4C® Stainless Steel. The boiler's total equivalent venting length shall not exceed 60 feet when using 3 inch pipe or 100 feet when using 4 inch pipe. If the room in which the boiler is installed in is less than 85 cubic feet in volume per boiler, combustion air must be supplied into the room per the National Fuel Gas Code NFPA 54, latest edition. ***PVC or CPVC of Foam Core construction is not an approved material for vent piping.***

#### D. Boiler Manuals

- 1. The boiler(s) shall be provided with complete instruction manuals, including:
  - a) Boiler Operational and Maintenance Manual
  - b) PVC / CPVC Vent Supplement
  - c) User's Guide

**Warranty**

- A. The boiler heat exchanger shall carry a ten (10) year limited warranty.
- B. The parts used in the assembly of the boiler shall carry a one (1) year warranty.

**Performance Specifications**

Boiler Model	Fuel	Input Modulation MBH	AFUE	DOE Heating Capacity MBH	Net I=B=R MBH	Water Volume Gal.
SOLO 110	Natural Gas	30 to 110	95%	99	86	2.5
SOLO 110LP	Propane	25 to 97	95%	87	76	2.5

**Connections / Dimensions / Data**

Boiler Model	Supply / Return Connections	Gas Connection	Air Vent Diameter	Dimensions	Weight (Empty)
SOLO 110	1"	1/2"	3"	16" x 20" x 35 1/2"	106 Lbs