

**SUGGESTED
SPECIFICATIONS**

**PEERLESS[®]
PUREFIRE[®]**

Peerless[®] PureFire[®] High Efficiency Stainless Steel Boiler PF-399

I. GENERAL REQUIREMENTS

- A. The boiler(s) shall be of a stainless steel, direct vent, sealed combustion, premix gas design and shall be tested and design certified to the current ANSI Z21.13 standard and listed in the Intertek Directory of Listed Products.
- B. The boiler(s) shall be certified in the U.S. and Canada by Intertek Testing Services and shall bear the corresponding ETL Mark.
- C. The boiler(s) shall be listed in the AHRI Certification Directory and shall bear the AHRI Certified Logo.
- D. The boiler(s) shall be capable of developing the full gross output at 100 percent input rate.
- E. The boiler(s) are to be Peerless Purefire Model PF-399 suitable for firing (natural)(LP) gas with a DOE Heating Capacity or Gross Output of 373 MBH and a Net Water Rating of 324 MBH.
- F. The boiler(s) shall be designed, constructed and stamped in accordance with the latest addenda of Section IV or the ASME Boiler and Pressure Vessel Code. The boiler(s) shall be hydrostatically tested for a maximum allowable working pressure of 160 psi.
- G. The boiler(s) shall be certified for low NO_x certified by the South Coast Air Quality Management District (SCAQMD) in California and shall have an Thermal Efficiency Rating of 93.4% or higher.
- H. The boiler(s) shall be factory assembled, wired and fire-tested prior to shipment.

II. BOILER CONSTRUCTION FEATURES

- A. The heat exchanger(s) shall be constructed of high-grade stainless steel.
- B. The gas connection, vent piping and electrical connections shall be located on the top of the boiler.
- C. The system supply and return piping is to be on the left side of the boiler and be 1 1/2" NPT.
- D. The boiler(s) shall be suitable for mounting against a wall and/or on the floor with no connections on the boiler back panel.
- E. All controls shall be accessible from the front of the boiler for ease of service and maintenance.
- F. The boiler(s) and boiler vent pipe shall be design certified for zero clearance to combustible construction.
- G. The boiler(s) shall be design certified for closet/alcove installation and installation on combustible floors.
- H. A condensate drain connection, trap and neutralization system shall be factory piped and located inside the boiler cabinet.
- I. Each boiler shall be provided with a scratch resistant, high quality injection molded poly-plastic front cover and a powder coated steel jacket.
- J. Each boiler shall include adjustable leveling legs to assure level placement.

III. BOILER FOUNDATION

- A. The boiler(s) are to include leveling legs to assure level placement for proper draining of condensation.
- B. The boiler(s) may be supplied with an optional 26"W x 26" D x 17" to 31" H adjustable stand for wall mounting of PF-399 boilers.

IV. BOILER TRIM AND CONTROLS

- A. Each boiler shall be provided with a safety relief valve set to relieve at 30 psig. The valve shall be designed, tested and marked in accordance with Section IV of the ASME Boiler and Pressure Vessel Code.
- B. Each boiler shall be equipped with a combination pressure and temperature gauge to indicate the pressure and temperature at the boiler supply (outlet).
- C. Each boiler shall have an integral operating limit, vent temperature limit, supply and return temperature sensors, fan speed tachometer and integral manual reset high limit switch.
- D. The boiler control(s) shall be factory equipped to allow cascade operation of up to 16 boilers with the addition of two-wire connections and a system sensor.
- E. Each boiler shall be factory wired to accept a low water cut-off limit.

V. BURNER AND CONTROLS

- A. Each gas control train shall be factory assembled and shall include redundant valve seats, pneumatically modulating gas valve with integrated swirl plate.
- B. Each combustion air fan shall be of a pulse width modulated, electrically commutated, variable speed design.
- C. Each combustion system shall incorporate a cylindrical head with a woven metal mesh cover to ensure even temperature distribution to the heat exchanger.
- D. Each boiler is to be equipped with a high voltage electrode for direct spark ignition of the main flame.
- E. The main flame is to be supervised by dual sensors including a separate rectification-type flame sensor and the ignition electrode.
- F. Each combustion system shall be fully modulating with a minimum of 5:1 turndown ratio.
- G. A microprocessor controller shall control the ignition sequence, burner modulation and boiler operation including outdoor reset or setpoint temperature control for central heating, set point control for domestic hot water and a "warm hold" feature for DHW tanks.
- H. The boiler(s) shall provide 120 volt powered terminals for connection to a General Circulator, a central heating (CH) circulator and a domestic hot water (DHW) circulator.
- I. The burner control(s) shall have a 4 line x 20 character plain English display of burner operation, blocking or lockout errors.
- J. The burner control(s) shall be capable of storing fault history including up to 15 blocking errors and 15 lockout errors.
- K. Each burner shall be capable of the full rated input when supplied with a minimum of 3.5" w.c. of gas pressure measured at the tapping provided on the gas valve.
- L. Each burner shall be capable of full rated input when supplied with a 120 VAC, Single Phase, 60 Hertz power supply.
- M. Each boiler shall be equipped with a 120VAC convenience outlet.

VI. VENTING

- A. Each boiler shall be vented (horizontally) (vertically) using 4" Non-foam core PVC pipe, polypropylene exhaust vent piping, or stainless steel exhaust vent piping for the exhaust and PVC pipe for the air inlet.
- B. Exhaust and Air Intake connections shall be on top of the boiler(s).
- C. The boiler(s) shall be capable of the full rated input when using a total of 200 equivalent feet of air intake and exhaust pipe.
- D. The boiler(s) shall be provided with an air inlet Tee and exhaust terminals with screens.
- E. The boiler(s) shall be capable of attachment to concentric polypropylene exhaust/air intake system by using an optional vent adapter.

VII. CONDENSATE REMOVAL

- A. Each boiler shall include an integral condensate trap, blocked condensate switch, and condensate neutralization system that can be easily inspected and reloaded with neutralization media from the front of the boiler.
- B. The condensate trap shall include separate reservoirs for condensate collection and neutralization.
- C. The condensate system shall include a means to shut down the appliance if the system becomes clogged.