

# SUGGESTED SPECIFICATIONS



PO BOX 447  
NEW BERLINVILLE, PA 19545-0477

## Series LC/LCE Gas, Oil, Combination Gas/Oil Boiler-Burner Units

### I. GENERAL REQUIREMENTS

- A. The boiler(s) shall be of a low pressure, cast iron, wet base forced draft design and shall be tested and rated in accordance with the current edition of The Hydronics Institute Division of GAMA "Testing and Rating Standard for Heating Boilers".
- B. The boiler(s) shall be listed in the I=B=R Ratings Directory and shall be capable of developing full I=B=R listed output at 100 percent firing rate, and shall bear the I=B=R Emblem.
- C. The boiler(s) will be Peerless Model \_\_\_\_\_ for (oil) (gas) (combination gas/oil) firing with an I=B=R Gross Output of \_\_\_\_\_ MBH and a Net I=B=R (Water) (Steam) Rating of \_\_\_\_\_ MBH.
- D. The boiler(s) shall be constructed in accordance with the provisions of Section IV of the ASME Boiler and Pressure Vessel Code and shall be stamped with the required ASME symbol. Each boiler section shall be hydrostatically pressure tested for a maximum allowable working pressure of (50) (80) PSIG for water and 15 PSIG for steam.
- E. The boiler(s) shall be field assembled and hydrostatically tested in accordance with the manufacturer's installation instructions. All work shall be completed in a neat and workmanlike manner.
- F. *Optional Factory Assembled Sections:*  
The boiler(s) shall be provided with factory assembled sections. The sections shall be assembled with individual draw rods and flow port gaskets. High temperature sealing rope shall be used to provide a permanent gas-tight seal between the sections. The boiler(s) shall be hydrostatically tested in accordance with Section IV of the ASME Boiler and Pressure Vessel Code for a maximum allowable working pressure of (50) (80) PSIG for water and 15 PSIG for steam.
- G. *Optional Factory Packaged Boilers:*  
The boiler(s) shall be factory packaged with jacket, burner, trim and controls mounted and wired. The sections shall be assembled with individual draw rods and flow port gaskets. High temperature sealing rope shall be used to provide a permanent gas-tight seal between the sections. The boiler(s) shall be hydrostatically tested in accordance with Section IV of the ASME Boiler and Pressure Vessel Code for a maximum allowable working pressure of (50) (80) PSIG for water and 15 PSIG for steam. The boiler(s) shall be fire-tested (*optional*) for a functional check of all components prior to shipment.

### II. BOILER CONSTRUCTION FEATURES

- A. The boiler sections shall be assembled using individual draw rods between each section for ease of assembly and to evenly distribute tension between the sections.
- B. Each section shall be evenly spaced with spacing pads and high temperature sealing rope shall be used to provide a permanent gas-tight seal between the sections.
- C. Flow port gaskets shall be used at each port opening to provide a permanent water-tight seal between the sections.
- D. The boiler(s) sections shall be of a wet base design to provide a complete water backed heating surface around the combustion chamber area for maximum heat transfer and low floor temperatures.

## II. BOILER CONSTRUCTION FEATURES, CONT'D

- E. The boiler(s) shall be furnished with top and front cleanout plates for ease of inspection and cleaning of the flueways. The cleanout plates shall be sealed to the boiler with high temperature gaskets and high temperature sealing rope.
- F. The boiler(s) shall be furnished with an integral cast iron flue collector and a cast iron (rear) (top) flue outlet. (*LC has a rear flue outlet, LCE has a top flue outlet.*)
- G. The boiler(s) shall be provided with an adjustable damper which is capable of being securely locked in position to pressurize the boiler for forced draft operation.
- H. The boiler(s) shall be provided with a fibrous ceramic refractory chamber liner and target wall to protect the base of the firebox and the back section.
- I. The boiler(s) shall be provided with an insulated burner mounting plate with the necessary tappings for mounting the burner(s).
- J. The boiler(s) shall be provided with pyrex glass front and rear flame observation ports to permit visual inspection of the burner flame.
- K. The boiler(s) shall be provided with an insulated steel flush jacket with a painted finish. The jacket shall be designed to permit installation after the supply and return piping is connected.
- L. The boiler(s) shall be furnished with steel channel rails to provide a level and smooth surface for ease of assembly.

## III. BOILER FOUNDATION

- A. A concrete housekeeping pad shall be provided as recommended by the boiler manufacturer if the boiler room floor is not level or if additional structural support is needed.

## IV. INSPECTION TAPPINGS (Optional)

- A. The front, back and intermediate sections shall be provided with 1-1/2" NPT inspection tappings located on the right side at the bottom and above the crown sheet. The tappings shall be plugged with (brass plugs) (nipples and caps).

## V. TANKLESS WATER HEATERS (Optional)

- A. The boiler(s) shall be provided with (an) internal tankless water heater(s) rated at \_\_\_\_\_ GPM at a 40° F to 140° F temperature rise.
- B. The boiler(s) shall be provided with a low limit temperature control set to maintain a 200° F boiler water temperature.

## VI. BOILER TRIM AND CONTROLS

### *For Water Boilers:*

- A. The boiler(s) shall be provided with a safety relief valve set to relieve at (30) (50) (80) PSIG. The valve shall conform to Section IV of the ASME Boiler and Pressure Vessel Code.
- B. The boiler(s) shall be provided with a combination pressure-temperature gauge to indicate boiler pressure and temperature.
- C. The boiler(s) shall be provided with an operating temperature control and a manual reset high limit temperature control.
- D. The boiler(s) shall be provided with a (float type) (probe type) low water cut-off.

### *For Steam Boilers:*

- A. The boiler(s) shall be provided with a safety valve set to relieve at 15 PSIG. The valve shall conform to Section IV of the ASME Boiler and Pressure Vessel Code.
- B. The boiler(s) shall be provided with a compound steam gauge to indicate boiler pressure.
- C. The boiler(s) shall be provided with a water gauge and gauge cocks.
- D. The boiler(s) shall be provided with an operating pressure control and a manual reset high limit pressure control.
- E. The boiler(s) shall be provided with a (float type) (probe type) low water cut-off.

## VII. BAROMETRIC DRAFT DAMPER (Required when excessive negative chimney draft exists)

- A. A barometric draft damper, of the double acting type, shall be installed for each boiler. The barometric damper shall be sized and installed in accordance with the boiler manufacturer's recommendations. Gas and combination gas/oil fired boilers shall have a thermal spill switch installed on each damper.

## VIII. BURNER REQUIREMENTS

### For #2 Oil Burners:

- A. The oil burner(s) shall be U.L. certified and of the flame retention, forced draft type capable of firing \_\_\_\_\_ GPH of No. 2 fuel oil.
- B. The burner motor electrical characteristics shall be \_\_\_\_\_ volts, 60 Hz, \_\_\_\_\_ phase.
- C. The control circuit electrical characteristics shall be 120 volts, 60 Hz, 1 phase.
- D. The burner(s) shall be (*specify manufacturer*) Model \_\_\_\_\_.

### For Gas Burners:

- A. The gas burner(s) shall be U.L. certified and of the flame retention, forced draft type capable of firing \_\_\_\_\_ MBH of (natural) (LP) gas. The inlet gas pressure to the gas control train shall be \_\_\_\_\_" W.C. under full flow conditions.
- B. The burner motor electrical characteristics shall be \_\_\_\_\_ volts, 60 Hz, \_\_\_\_\_ phase.
- C. The control circuit electrical characteristics shall be 120 volts, 60 Hz, 1 phase. A step-down control circuit transformer shall be provided if the supply voltage is other than 120 volts, 60 Hz, 1 phase.
- D. The burner(s) shall be (*specify manufacturer*) Model \_\_\_\_\_.

### For Combination Gas/#2 Oil Burners:

- A. The combination gas/oil burner(s) shall be U.L. certified and of the flame retention, forced draft type capable of firing \_\_\_\_\_ GPH of No. 2 fuel oil and \_\_\_\_\_ MBH of (natural) (LP) gas. The inlet gas pressure to the gas control train shall be \_\_\_\_\_" W.C. under full flow conditions.
- B. The burner motor electrical characteristics shall be \_\_\_\_\_ volts, 60 Hz, \_\_\_\_\_ phase.
- C. The control circuit electrical characteristics shall be 120 volts, 60 Hz, 1 phase. A step-down control circuit transformer shall be provided if the supply voltage is other than 120 volts, 60 Hz, 1 phase.
- D. The burner(s) shall be (*specify manufacturer*) Model \_\_\_\_\_.

## IX. BURNER OPERATING CHARACTERISTICS (Standard)

### For #2 Oil Burners:

#### **LC-04 thru 05R:**

- A. The oil burner(s) shall be arranged for on-off operation with one-position air control and shall include a cadmium sulfide combustion control and flame detector, a two-stage fuel unit and an oil solenoid valve.
- B. The oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> and 0 to a trace of smoke.

#### **LC-05 thru LCE-15:**

- A. The oil burner(s) shall be arranged for low-high-off operation with low fire start, high fire run and two-position air control. The burner(s) shall include a pre-purge timer, a cadmium sulfide combustion control and flame detector, a two-stage fuel unit and an oil solenoid valve.
- B. The oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> and 0 to a trace of smoke.

#### **LCE-16 thru 24:**

- A. The oil burner(s) shall be arranged for low-high-off operation with low fire start, high fire run and two-position air control. The burner(s) shall include an electronic combustion control with pre-purge timing and photocell or ultraviolet flame detector, an air flow safety switch, a two-stage fuel unit and an oil solenoid valve.

## IX. BURNER OPERATING CHARACTERISTICS (Standard), CONT'D

- B. The oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> and 0 to a trace of smoke.

### For Gas Burners:

#### **LC-04 thru 08:**

- A. The gas burner(s) shall be arranged for on-off operation with one-position air control. The burner(s) shall be provided with a prewired control panel incorporating an electronic combustion control with pre-purge timing and an ultraviolet flame detector. The burner(s) shall include dual gas valves, proven gas pilot and an air flow safety switch.
- B. The gas burner(s) shall be designed to operate at rated input with 9.5% CO<sub>2</sub> when firing natural gas.

#### **LC-09 thru LCE-24:**

- A. The gas burner(s) shall be arranged for low-high-off operation with low fire start, high fire run and two-position air control. The burner(s) shall be furnished with a prewired control panel incorporating an electronic combustion control with pre-purge timing and an ultraviolet flame detector. The burner(s) shall include dual gas valves, proven gas pilot and an air flow safety switch.
- B. The gas burner(s) shall be designed to operate at rated input with 9.5% CO<sub>2</sub> when firing natural gas.

### For Combination Gas/#2 Oil Burners:

#### **LC-04 thru 08:**

- A. The combination gas/oil burner(s) shall be arranged for on-off operation with one-position air control. The burner(s) shall be provided with a prewired control panel incorporating an electronic combustion control with pre-purge timing, an ultraviolet flame detector and a manual fuel changeover switch. The burner(s) shall include dual gas valves, proven gas pilot for both fuels, an air flow safety switch, a two-stage fuel unit and an oil solenoid valve.
- B. The combination gas/oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> and 0 to a trace of smoke when firing #2 oil and 9.5% CO<sub>2</sub> when firing natural gas.

#### **LC-09 thru LCE-20:**

- A. The combination gas/oil burner(s) shall be arranged for low-high-off operation with low fire start, high fire run and two-position air control. The burner(s) shall be provided with a prewired control panel incorporating an electronic combustion control with pre-purge timing, an ultraviolet flame detector and a manual fuel changeover switch. The burner(s) shall include dual gas valves, proven gas pilot for both fuels, an air flow safety switch, a two-stage fuel unit and an oil solenoid valve.
- B. The combination gas/oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> with 0 to a trace of smoke when firing #2 oil and 9.5% CO<sub>2</sub> when firing natural gas.

#### **LCE-21 thru LCE-24:**

- A. The combination gas/oil burner(s) shall be arranged for low-high-off operation with low fire start, high fire run and two-position air control. The burner(s) shall be provided with a prewired control panel incorporating an electronic combustion control with pre and post-purge timing, an ultraviolet flame detector and a manual fuel changeover switch. The burner(s) shall include dual gas valves, proven gas pilot for both fuels, an air flow safety switch, a two-stage fuel unit and an oil solenoid valve.
- B. The combination gas/oil burner(s) shall be designed to operate at rated input with a 12.0 to 12.5% CO<sub>2</sub> with 0 to a trace of smoke when firing #2 oil and 9.5% CO<sub>2</sub> when firing natural gas.

## X. OPTIONAL BOILER CONTROLS (Specify as required)

- A. The boiler control system(s) shall comply with the requirements of \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

*Specify the name of any code(s) to be complied with (FM, IRI, CSD-1, etc.). Refer to Burner Spec & Data Sheets and current Trade Price List for availability of optional controls.*