

# **C SERIES FORCED DRAFT PACKAGED FIRETUBE GENERATOR SUGGESTED SPECIFICATION**

Specifier Note: to use as a project specification;

- A. Insert, in the blank spaces provided, the applicable model number, capacity, fuel and electrical data.
- B. Delete the items in parentheses or marked "\*" which are not applicable to the project requirements.
- C. Insert, where applicable, optional non-standard features desired.

## **SPECIFICATION**

### **Boilers:**

Furnish and install \_\_\_\_\_ forced draft firetube boiler(s) for (#2 oil)(natural gas)(combination #2 oil/natural gas) complete with fuel burning equipment, safety and operating controls, and appurtenances as herein specified. The boiler(s) shall be fully assembled and wired at the manufacturer's factory, requiring only connection to power, fuel supply and system piping to be ready for operation.

1. Boiler unit(s) shall be Burnham C Series \_\_\_\_\_ as manufactured by Burnham Commercial for (15 PSIG steam)(30 PSIG water) service and shall have a gross output of (\_\_\_\_\_ lbs/hr)(\_\_\_\_\_ MBH).
  2. Boiler pressure vessel shall be constructed, tested and marked in accordance with Section IV of the ASME code for low pressure heating boilers and shall be registered with the National Board of Pressure Vessel Inspectors.
  3. Units shall fit through a 36" x 80" doorway with trim and controls removed.
  4. Units shall be of modified Scotch design with two passes of horizontal firetubes and cylindrical horizontal furnace tube. Unit(s) shall be sealed for pressurized firing and shall have a welded on structural steel base with extension beyond boiler front for protection of the burner. Units(s) shall have a gas tight seal welded front flue door with insulated lining keyed in place, and gas tight bolted-on rear smokebox with top outlet. Connections shall be provided for trim and controls, supply and return, 2" washouts and bottom drain.
  5. Hot gas rear reversing chamber shall be watercooled side walls and light weight target wall; use of cast refractory will not be permitted. Reversing chamber cover shall have a Pyrex glass observation port. Removal and reinstallation of the rear cover door shall be easily accomplished by one person using ordinary hand tools. Removing the rear access door and rear smokebox shall provide full access to the tube sheets without disconnecting any fuel lines or electrical wiring.
  6. Unit(s) shall be provided with factory-installed enamel finish jacket and not less than 1" thick fiberglass insulation.
- \*7a. Trim and controls for steam units shall consist of steam pressure gauge, water gauge set, ASME safety valve, combination low water cutoff and pump control with alarm contacts and quick opening blowoff valve, probe type manual reset auxiliary low water cutoff operating pressure control, high limit pressure control, firing rate control when firing with low-high-low or modulating sequences.
- \*7b. Trim and controls for water units shall consist of pressure-altitude gauge and thermometer, ASME relief valve, manual reset low water cutoff, operating temperature control, high limit temperature control, firing rate control when firing with low-high-low or modulating sequences. The use of external circulating pumps shall not be allowed.

\*8. Unit(s) shall be equipped with a Model \_\_\_\_\_ built-in tankless heater coil installed in the water space at the front of the boiler, with the capacity to heat \_\_\_\_\_ GPH of domestic water from 40F to 140F with boiler water at \_\_\_\_F.

**Fuel Burning Equipment:**

The burner(s) shall incorporate all necessary devices and controls to make a complete fuel burning system for the type of fuel specified herein, and bear the listing label of UL evidencing compliance with requirements of UL-296 for oil burners, and/or UL-795 for gas burners.

\*9a. Oil burners for #2 oil shall be of the forced-draft pressure atomizing type, complete with integral motor driven blower, oil pump, oil nozzle(s) oil solenoid valve(s), ignition assembly, combustion safeguard, motor starters, and all necessary controls for safe and efficient operation in accordance with UL requirements (and FM requirements)(and IRI requirements).

Note: Insert additional details such as desired combustion safeguard, firing sequence, and/or other features to meet project specifications.

\*9b. Gas burners shall be of the forced draft multi-jet type suitable for burning \_\_\_\_\_ gas with heat content of \_\_\_\_\_ BTU per cubic foot and specific gravity of \_\_\_\_\_ delivered to the gas train inlet at a pressure of ( \_\_\_\_\_ inches w.c)( \_\_\_\_\_ psig). Burner shall be complete with integral motor driven blower, ignition assembly, combustion flame safeguard, motor starter, complete gas train, including gas pressure regulator and dual gas valves, and all necessary controls for safe and efficient operation in accordance with UL requirements (and FM requirements)(and IRI requirements).

Note: Insert additional details such as desired combustion safeguard, firing sequence, and/or other features to meet project specifications.

\*9c. Combination gas/oil burner shall consist of an integral assembly of a forced-draft pressure atomizing oil burner suitable for burning #2 oil and a forced draft multi-jet type gas burner suitable for burning \_\_\_\_\_ gas with a heat content of \_\_\_\_\_ btu per cubic foot and specific gravity of \_\_\_\_\_ delivered to the gas train inlet at a pressure of ( \_\_\_\_\_ inches w.c)( \_\_\_\_\_ psig). Burner shall be complete with integral motor driven blower, ignition assembly, combustion flame safeguard, motor starter, complete gas train, including gas pressure regulator and dual gas valves, oil pump, oil nozzle(s) oil solenoid valve(s), ignition assembly, combustion safeguard, motor starters, and all necessary controls for safe and efficient operation in accordance with UL requirements (and FM requirements)(and IRI requirements). Changeover to either fuel shall be by means of manual selector switch which shall energize only those circuits necessary to provide the appropriate timing and sequence of events for the fuel selected, except that the oil pump may continue to operate when firing gas. No burner adjustments or re-positioning of control linkage shall be required when changing from one fuel to an alternate fuel.

Note: Insert additional details such as desired combustion safeguard, firing sequence, and/or other features to meet project specifications.

10. Electrical supply to the boiler(s) will be \_\_\_\_\_ volts \_\_\_\_\_ hz \_\_\_\_\_ phase. All control circuits shall be 120 volts, 60 hz, 1 phase with all switches in the ungrounded leg. Fuse protection for the control circuit shall be provided.

**Burnham Commercial**

Lancaster, PA

11/04