

**RECOMMENDED SPECIFICATIONS FOR PARKER STEAM BOILERS
PREMIX LOW NO_x FIRED BURNER SYSTEM, PARKER "L" MODELS**

A. STEAM BOILER

1. **GENERAL:** The steam boiler shall be a Parker _____ L _____ H.P. Steam Boiler of the sectional bent water tube design as manufactured by Parker Boiler Co. The boiler shall be rated for _____ lbs. of steam per hour. Boiler shall be fired with _____ fuel(s). Input rating shall be BTUH and it shall be furnished complete and assembled, factory fired and tested with controls and trim mounted and wired.
2. **CODES & STANDARDS:** The boiler shall be manufactured in accordance with the A.S.M.E. Power and Heating Boiler Codes, Sections I & IV and registered with the National Board of Boiler and Pressure Vessel Inspectors. MAWP, Safety Valve & Trim shall be furnished for _____ PSI Pressure*. Minimum heating surface _____ square feet.

All controls and trim shall be in compliance with UL Standards. Power Gas, Oil and Combination Gas/Oil Fired Boilers are furnished with a UL Listed Burner. The standard atmospheric natural gas fired steam boiler shall be furnished as an Underwriters' Laboratories, Inc. Listed Gas Fired Boiler Assembly and displays this symbol on the nameplate. Canadian, Propane, Outdoor and Low NO_x models shall be C-ETL or ETL Listed Industrial and Commercial Gas Fired Packaged Boilers certified to Can1-3.1 and UL795.

3. **LOW NO_x BURNER SYSTEM:** The boiler shall incorporate a fan assisted combustion system with a burner bed of multiple Metal Fiber Burners. These burners shall be linked to a single fan through a gas air premix manifold. The premix burners shall provide a high degree of NO_x level repeatability once system is adjusted. No filters shall be required.

The burners shall be capable of generating Low NO_x without generating significant CO emissions. NO_x emissions are guaranteed less than 30 PPM at 3% O₂ with CO emissions guaranteed less than 125 PPM @ 3% O₂.

The burners shall consist of a sintered Metal Fiber hot face made from a iron chromium alloy with a bonding Yttrium Element. The Metal Fiber shall be backed by a layer of 430 stainless steel and an additional perforated plate. The Metal Fiber Burners shall provide a high degree of resistance to mechanical and thermal shock, fast cool down and corrosion resistance. Maximum pressure drop through burner at normal firing rates shall be 1.25" W.C.

On boilers equipped with modulation or two stage firing and units over 970,000 BTUH, a blower mixer which distributes a ratio controlled gas air mixture to the burners shall be utilized. Blower construction shall be non-sparking with totally enclosed motor. The gas air ratio shall be controlled through the throttling range by a characterizable fuel valve supplied as part of the blower mixer.

On boilers 970,000 BTUH input and below which are on/off fired provide single inlet blower with permanent split capacitor motor. Housing shall be die cast aluminum with forward curve wheel. Gas shall be injected downstream of the blower.

4. **CONSTRUCTION:** The boiler shall be of the sectional bent water tube design, using natural thermal water circulation. The boiler shall be mounted on a heavy steel frame and enclosed in a heavy steel insulated cabinet with controls mounted. Each boiler to be factory fire tested and approved by the Manufacturer before shipment.

The steam drum shall be seamless steel with easy-to-remove inspection openings. Drum to have downcomer legs for recirculation and a mud trap at the bottom for blowdown and cleanout. The tubes shall be of the bent design to permit free expansion and contraction, furnished in sections, each replaceable by disconnecting unions. Tubes shall be Grade SA-53 steel, minimum 1-5/16" O.D. and wall thickness .133" welded to top and bottom headers with high tensile weld metal. Headers to have easy-to-remove tube inspection plugs with high temperature seal type gaskets. Tubing shall be staggered to provide a minimum 8-pass self-baffled heating surface.

The boiler cabinet shall consist of an inner and an outer liner of minimum 16-gauge steel insulated with a high temperature thermal fiber insulation minimum 1-1/2" thick. A minimum of two inspection doors shall be provided on the cabinet to provide accessibility to the drum, tubes, headers and burner. The cabinet shall be finished with attractive baked enamel, which has a heat resistant finish for long-life protection.

5. **CONTROLS & TRIM:** The boiler shall be furnished complete with controls and trim to provide safe, efficient operation. Standard Trim items furnished with the boiler shall include electronic flame safety with electric ignition, draft hood or barometric damper, safety valve(s), sight glass with drain, pressure gauge, column drain valve try cock, main blowoff valve(s) (and header blowoff valves on boilers 70 HP and larger).

All boilers over 15 HP and all power burners to be furnished with Fireye M Series or Honeywell RM7890 Electronic Flame Safeguard as a minimum. Programming Flame Safeguards where required, shall be Fireye E110 or Honeywell RM7895 Series Flame Monitor Controls. Furnish Pump Motor Starting Relay, operating pressure control, high limit pressure control with manual reset, water level control, primary low water cutoff and separate secondary low water cutoff with manual reset and built-in time delays for pump on/off and low water. The boiler shall be furnished with an enclosed boiler control panel with hinged door, door interlock switch (not on power fired), boiler controls switch, main burner switch and a circuit breaker for over-current protection. The Parker-Lite Sequence Indicator System with indicator lights shall be provided above 25 HP and on all power burners. Primary electrical service shall be _____ Volts, 60 Hertz, _____ Phase, with all boiler controls for 115 Volt operation.

* On high pressure steam boilers the maximum operating pressure should be at least 10% (and 7 PSI Minimum) below safety valve setting. On 15 PSI low pressure boilers the maximum operating pressure should not exceed 11 PSI.

CONTROLS & TRIM OPTIONS:

- A. California Code Trim
 - B. Factory Mutual Trim (FM)
 - C. Penberthy Water Gauge 1RM6 Rated 350 PSI.
 - D. Slow Opening Blow-Off Valve.
 - E. Low Pressure (15 PSI) Trim and Controls. (Maximum Operating Pressure 11 PSI.)
 - F. All limit alarm 4" Edwards Bell.
 - G. All limit alarm terminals (dry contacts).
 - H. Anchor clips, 4 mounted and drilled.
 - I. Outdoor trim (ETL Listed).
 - J. Low pressure night control.
 - K. Propane firing (ETL Listed).
 - L. Parker-Lite Indicator System (STD30-150 HP).
6. **START UP INSTRUCTION:** Provide Manufacturers Representative start-up, adjustment, calibration of equipment and instruction of operating personnel.