

# HECLM Series

## Water Boilers

### Forced Draft Gas, Oil, Gas/Oil Fired

The boiler shall be a Bryan Model \_\_\_\_\_ flexible water tube boiler, with a capacity of \_\_\_\_\_ BTUH input and \_\_\_\_\_ BTUH output. (\_\_\_\_\_ HP)

The water boiler shall be manufactured in strict accordance with the ASME Heating Boiler Code, Section IV, and shall bear the ASME stamp "H" for a maximum working pressure of 160 PSIG at 250 deg F temperature.

The boiler shall also be built to withstand 150 degree delta "T".

*(Also available for higher pressures up to 250 PSIG and temperatures to 300°F per ASME Section I).*

#### VESSEL AND TUBE CONSTRUCTION

The boiler shall be constructed on a heavy steel frame. The boiler pressure vessel shall be provided with adequately sized upper drum, water legs and tube header. A minimum of two downcomers shall be provided and shall be located inside the furnace chamber to maximize proper thermal internal water circulation. No external water circulation source shall be required. Steel water tubes are to be 1" O.D., .095 wall thickness, six-pass, flexible serpentine bend design. Individual water tubes shall be easily removable and replaceable without either welding or rolling. The boiler shall have no more than one tube configuration. All joints of the flue-gas containing section shall be fully sealed with pressure tight gaskets. The boiler shall be furnished with an adequate number of tapings and inspection openings to facilitate internal boiler inspection and cleaning.

The boiler shall have no less than 7 sq. feet of heating surface per boiler horsepower and shall be built with an integrated extended surface heat extractor and be guaranteed for 85% combustion efficiency. The boiler shall be constructed and assembled as a completely packaged unit. All appropriate controls where possible, shall be mounted on boiler front.

#### FURNACE/COMBUSTION CHAMBER CONSTRUCTION

Access to the furnace chamber is gained by an access door(s) to allow for inspection of the interior chamber. All panels shall be individually removable. All access panels shall be affixed to the pressure vessel frame and insulated with 1" high temperature ceramic blanket insulation.

The furnace chamber shall be one sided with removable panels. The stationary interior wall shall be lined with 1" mineral fiber board and 1" high temperature ceramic blanket insulation. The boiler furnace chamber and flueways shall be designed to operate at a neutral 0.00" at the boiler flue outlet. The boiler will require a "positive pressure" type metal flue.

The combustion chamber shall be refractory type design and constructed of high temperature insulating firebrick with front and rear observation parts.

#### JACKET CONSTRUCTION

The boiler shall be complete with a metal jacket, heavy gauge, zinc-coated rust resistant steel casing, finished with a suitable heat resisting paint and shall be constructed on a structural steel frame and properly insulated with no less than 1½" fiberglass insulation. Complete jacket and insulation shall be easily removable and reinstalled. The boiler shall incorporate individually removable jacket doors, with handles providing easy access to furnace chamber and access panels. The entire tube area shall be easily accessible for fireside cleaning.

A tube removal and replacement shall be demonstrated at time of start-up. Demonstration time not to exceed 40 minutes.

The boiler vessel shall be warranted for 25 years against thermal shock on a non-pro-rated basis.

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#### BOILER TRIM AND CONTROL EQUIPMENT

The following trim and controls shall be furnished:

1. Combination thermometer and pressure gauge
2. Water temperature control operator
3. High limit safety control
4. Low water cutoff
5. ASME safety relief valve(s)

#### GAS BURNER AND CONTROL EQUIPMENT

Boiler shall be furnished with a UL listed forced draft flame retention gas burner. Burner shall be complete with integral motor and blower for supplying sufficient combustion air with normal vent conditions.

The following trim and controls shall be furnished:

1. Main manual gas shutoff valves
2. Electric gas valve operator and auxiliary safety shutoff gas valve (HECLM90 to HECLM210)
3. Motorized gas valve operator and auxiliary safety shutoff gas valve (HECLM240 to HECLM300)
4. High and low gas pressure switches (HECLM270 and HECLM300)
5. Gas pilot shutoff and solenoid valves
6. Gas pilot ignition assembly with ignition transformer
7. Pilot and main gas pressure regulators
8. Burner mounted control panel containing:
  - Two indicator lights – power and fuel
  - Air safety switch
  - Fused on / off switch
  - Honeywell combustion safety control

#### OPTIONAL BOILER TRIM AND CONTROLS

1. Manual reset type low water cutoff
2. Manual reset type high limit
3. Auxiliary low water cutoff(s)
4. UL, CUL, IRI, CSD-1, FM, or other insurance requirements
5. Low water cutoff feeder (in addition to, or in place of standard low water cutoff)
6. Barometric damper
7. Other controls and boiler trim as specified

#### OPTIONAL BURNER CONTROLS AND ACCESSORIES

1. Two-stage high-low burner with low fire start.
2. Modulating burner
3. Auxiliary motorized safety gas shutoff valve
4. Fireeye combustion safety control
5. UL, CUL, IRI, CSD-1, FM, or other insurance requirements
6. Low water cutoff feeder (in addition to, or in place of standard low water cutoff)
7. Indicator lights – as specified
8. Remote burner control panel
9. Lead lag systems for two or more boilers
10. Barometric damper
11. Other controls and boiler trim as specified
12. For additional and optional controls and systems, see separate engineering sheets.