ASME Packaged Indirect Fired Water Heater

Utilizes Boiler Water Or HTHW To Heat Domestic Water, Semi-Instantaneous or Storage Type

Features

- **Reliable**
  - Only high grade materials used in construction to ensure long operating life
  - Hydrastone cement lining provides superior protection and tank longevity
  - Heavy duty construction withstands demanding commercial/industrial use

- **Packaged System**
  - Factory selected and sized boiler water control valve simplifies installation and ensures reliable operation

- **Versatile**
  - Full range of styles, sizes, and optional features to meet your exact heating needs

Applications

- Schools
- Office Buildings
- Sports Venues
- Hotels
- Industrial Facilities
- Nursing Homes
- Hospitals

A Heavy Duty Indirect Fired Water Heater

The Model BW is a fully packaged indirect fired water heater which utilizes boiler water or high temperature hot water (HTHW) as the energy source for heating potable water. The entire package is designed to be a reliable and long lasting source for hot water. Each component is carefully selected to ensure high performance in even the most demanding application.

Whether you are heating potable water in a commercial building or process water in an industrial application, you can select a Hubbell BW model to do the job. When you specify and install a Hubbell water heater, you will be provided with a quality product that is a long lasting and trouble free source for hot water.
Cement Lined Tanks Provide Longer Service Life

**Q?** What is the most common reason why a water heater fails?

Failure of a tank’s protective lining allows water to come into direct contact with the steel tank causing it to corrode and leak. Therefore, the type of protective lining is the single most important feature when determining the quality of any water heater. The ability of a lining to protect the steel tank is primarily based upon its thickness and complete coverage of all steel surfaces.

**Linings Available For A Steel Tank**

1. **Cement Lining**
   A specially formulated Hydrastone cement applied to a minimum of 5/8” thickness on all surfaces. The cement lining covers 100% of all interior surfaces and is 125 times thicker than glass lining. Due to the thickness and guaranteed coverage of cement lining there is no need for a sacrificial anode. An extremely durable and long lasting lining suitable for hot and cold potable water storage in a variety of commercial and industrial applications.

2. **Alternative Cement Formulations**
   To meet the specific requirements of DI Water, RO Water, extended service and/or high temperature applications, alternative formulations of cement are available. Please consult factory for assistance.

3. **Phenolic Lining**
   An epoxy coating applied in 2 coats to a total of 10-12 mils DFT. Typically used in process applications using low conductivity DI distilled or food grade water.

4. **Galvanizing**
   The steel pressure vessel is pickled and hot dipped in molten zinc to create a barrier which internally and externally protects a steel vessel for cold and hot water storage.

**Unlined TANKS**

An Unlined tank does not require a lining because the pressure vessel itself is constructed from material which is impervious to the corrosive effects of hot water. This type of tank will provide a significantly longer service life than all lined steel tanks, but is initially more costly.

1. **90/10 Copper-Nickel**
   A 90% Copper 10% Nickel alloy pressure vessel provides strength and corrosion resistance. Typically used in applications with corrosive environments (salt water) or in critical commercial and industrial applications requiring long tank life.

2. **Stainless Steel**
   Stainless steel (Specify: Type 304, 316, or 316L) is well suited for industrial and high purity applications requiring a corrosion resistant tank with minimal leaching of impurities into the water. Well suited for process, RO and DI water systems in the pharmaceutical, food and electronic industries.
**Model BW Storage Type Standard Equipment**

**Vessel Construction**
1. All welded carbon steel pressure vessel designed and built in strict accordance with the ASME Code Section VIII and stamped, certified, and registered with the National Board of Boiler and Pressure Vessel Inspectors.
2. All internal tank surfaces are lined with a minimum of 5/8" thick Hydrastone cement for superior protection and tank longevity.
3. Designed for 125 psi working pressure and hydrostatically tested.

**Heating Coil**
1. Factory sized and installed heating coil with a generously sized heating surface designed to ensure reliable operation.
2. U-Tube heating coil constructed from single wall copper tubing designed for a maximum working pressure of 150 psi.
3. Heavy duty fabricated steel head with threaded NPT inlet and outlet connections.
4. All wetted parts are non-ferrous for maximum longevity.
5. Non-Ferrous tube sheet.

**Boiler Water Operating Controls**
1. Operating controls are factory selected, sized, piped and tested to ensure reliable operation.
2. All components are factory piped and ready for boiler water in and out connections.
3. Modulating control valve (Specify: 2-way or 3-way) to regulate the flow of boiler water through the coil. Modulating control valve to be (Specify: electric or pneumatic) powered.

**General**
1. Heavy duty 3" thick fiberglass insulation for maximum operating efficiency and minimal stand-by heat loss.
2. Heavy gauge painted galvanized steel protective outer jacket.
3. Heavy duty integrally welded steel supports for floor mounting.
4. Full five (5) year Non Pro-Rated tank warranty and a one (1) year component warranty.
5. ASME rated combination T&P relief valve set at the tank working pressure and 210°F.

**Model BW Optional Equipment**

**Vessel**
- 1. Alternate protective lining: Phenolic epoxy resin, Flame spray copper, Hot dip galvanizing, other.
- 2. Alternate vessel construction: Stainless Steel Type 304 or 316L, 90/10 Copper-Nickel, other.
- 3. Alternate working pressure: Please specify.
- 4. Horizontal Construction (Specify model BWH).

**Operating Controls**
- 10. Boiler water control valve can be factory selected and sized, but shipped loose for in the field installation by others.
- 11. Single solenoid safety system closes the boiler water supply to the heating coil should the water temperature in the tank reach the hi-limit set point. Requires 120 volt 5 amp electrical service.
- 12. A double solenoid safety system dumps over heated water in the storage tank to drain in addition to closing the boiler water supply to the heating coil. Requires 120 volt 5 amp electrical service. Note: Not recommended for storage tank applications greater than 200 gallons.
- 13. Intra-tank circulation pump package continuously circulates water within the tank in order to reduce stratification.
- 14. Dial water thermometer and pressure gauge factory installed in the tank.
- 15. Anticipator control system forces incoming cold water over the control valve sensing bulb in order to begin heating water immediately.
- 16. Factory wrapped and baffled heating coil with integral pump package.
- 17. Dual energy package provides operational flexibility by utilizing an electric back-up heating element. Specify KW, voltage and phase.

**Heating Coil**
- 5. Double wall tubing with a leak detection port.
- 6. Alternate tubing material please specify: (Stainless Steel, 90/10 Copper-Nickel, Admiralty).
- 7. Fabricated head constructed from: (Stainless Steel, Copper Alloy).

**General**
- 8. Skid mounting on heavy duty all welded I Beam.
- 9. Type 304 stainless steel protective outer jacket, please specify if painted.

**NOTE:** Other optional features are available, please consult factory if required.
### Overall Dimensions, Models BW and BWH

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<th>Vertical</th>
<th>Horizontal</th>
<th>Storage Tank</th>
<th>Nominal Storage Capacity (Gallons)</th>
<th>Inlet Outlet Sizing (NPT)</th>
<th>Approx. Shipping Weight (Lbs.)</th>
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*Note: All dimensions are approximate and subject to change. Please reference the submittal drawing for actual dimensions. The tank selections above are shown for convenience. A full selection of storage capacities is available by entering the desired capacity into the model number.

* 80, 120 and 150 gallon tanks do not come equipped with a manway. Please consult factory if desired on these sizes.
Model BW (Vertical)
Convection Model Shown

- Protective Jacket
- Pressure Vessel
- Insulation
- 12" x 16" Manway
- Temperature Probe
- Boiler Water Control Valve
- Withdrawal Space
- Heating Coil
- Combination Cold Water Inlet and Drain

Side View

Model BWH (Horizontal)
Convection Model Shown

- Temperature Probe
- Boiler Water Control Valve
- Withdrawal Space
- Heating Coil
- Cold Water Inlet

Side View

Outline Dimensions

Hot Water Outlet
Lifting Lug
T&P Relief Valve

Boiler Water Exiting
Boiler Water Entering

Supports:
Standard - Saddles
Optional - Skids

Hot Water Outlet
Lifting Lug
T&P Relief Valve

Model BW (Vertical)
Convection Model Shown

Boiler Water Exiting
Boiler Water Entering

Supports:
Standard - Saddles
Optional - Skids

Hot Water Outlet
Lifting Lug
T&P Relief Valve

Model BWH (Horizontal)
Convection Model Shown

Boiler Water Exiting
Boiler Water Entering

Supports:
Standard - Saddles
Optional - Skids

Hot Water Outlet
Lifting Lug
T&P Relief Valve
Boiler Water Control Valve Selection
Hubbell Model BW indirect fired water heaters are factory furnished with a boiler water control system to regulate the flow of boiler water through the heating coil. The following is an overview of the various Boiler Water Control Systems available.

Modulating 3-Way Diverting Valve
This is the most commonly selected method for regulating the boiler water. A 3-Way control valve allows only the required amount of boiler water into the heating coil in order to satisfy the demand. Any excess boiler water is diverted back to the boiler water circulating loop. This valve type can be selected as either electric or pneumatic powered.

Modulating 2-Way Valve
This control system will allow only the required amount of boiler water into the coil to satisfy the demand. As the water temperature in the tank approaches the set point, the flow of boiler water to the coil is decreased. This control valve does not divert unused boiler water back to the circulation loop. This valve can be selected as either electric or pneumatic powered. For proper valve sizing, the boiler water pressure must be known to ensure that the valve can properly close off during operation.

Pump On/Off Control
This control system operates via a thermostat which opens or closes the control circuit to an independent boiler water circulation pump. The thermostat is wired into the control circuit of the circulation pump and will close the control circuit when heat is required (thereby turning the pump on) and will open the control circuit when the water temperature in the storage vessel reaches the thermostat set point, thereby turning the pump off.

Model Number Designation BW and BWH

Example:
BW600SL-850
A vertically installed 600 gallon storage capacity indirect fired water heater with a cement lined steel storage tank with a single wall heating coil rated to heat 850 GPH at a 100°F temperature rise.

Option Note
Any and all optional equipment for a water heater must be called out in the written specifications. A model number in and of itself does not reflect any optional equipment selected.
GENERAL
Provide a quantity of _______ packaged type indirect fired storage heater(s) Model No. _______ as manufactured by HUBBELL Electric Heater Co., Stratford, CT. The pressure vessel shall be mounted on structural supports and be suitably insulated, jacketed, painted and provided with lifting lugs. The entire unit is to be packaged ready for service connections.

PRESSURE VESSEL
The pressure vessel shall be all welded construction and ASME Code Section VIII stamped for a working pressure of 125 psi (☐Optional Specification: _______ psi) and contain a minimum of _______ gallons of storage. The storage vessel shall be carbon steel and lined with seamless Hydrastone cement to a minimum thickness of 5/8” on 100% of all interior tank surfaces (☐Optional Specifications: Phenolic lined steel tank, Hot dipped galvanized steel tank, Type 304 or 316L stainless steel tank, 90/10 Copper-nickel tank). The pressure vessel is to be insulated with 3" thick energy conservation fiberglass blanket insulation and enclosed in a heavy gauge galvanized steel metal jacket finished in gray hammertone enamel. The vessel shall be protected by an ASME approved automatic reseating combination temperature and pressure relief valve set at the tank working pressure and 210°F.

HEATING SECTION
The heating coil shall be rated to heat _______ GPH from _______ °F to _______ °F when supplied with _______ GPM of boiler water (☐Optional Specification: HTHW) from _______ °F to _______ °F. The single wall (☐Optional Specification: double wall) heating coil shall be constructed from copper tubes (☐Optional Specifications: 90/10 Copper-nickel, admiralty, stainless steel) with all non-ferrous wetted parts and designed for a maximum allowable working pressure of 150 psi at 275°F (☐Optional Specification: 400 psi at 450°F) maximum temperature. The coil head shall be fabricated steel (☐Optional Specification: Stainless steel, copper alloy).

CONTROLS
The water heater shall (shall not) be factory assembled and piped with a boiler water control valve. The boiler water control valve shall be (Specify: Electric or Pneumatic) powered modulating 3-way diverting valve that will regulate the flow of boiler water to the heating coil and will divert unused boiler water back to the loop (☐Optional Specification: ON/OFF modulating 2-way valve will regulate the flow of boiler water to the heating coil without diverting back to the boiler, factory wired thermostat to provide ON/OFF control of a (supplied, not supplied) boiler water pump.

In addition, the water heater may be supplied with the following optional features:
- ☐ Option Domestic water dial temperature and pressure gauge shall be factory installed in the tank.
- ☐ Option The water heater shall be equipped with a factory packaged intra-tank circulator to continuously circulate water within the tank to reduce stratification.
- ☐ Option The heating coil shall be wrapped and baffled and piped with an integral pump package to force circulate water over the heating coil in order to reduce the coil size.
- ☐ Option Single solenoid safety system to close the boiler water supply to the heating coil should the water temperature in the tank reach the hi-limit set point. Requires 5 Amp, 120 Volt service.
- ☐ Option Double solenoid safety system dumps over heated water in the storage tank to drain in addition to closing the boiler water supply to the control valve. Requires 5 Amp, 120 Volt service.

WARRANTY
HUBBELL shall warranty all components against defects in workmanship and material for a period of one (1) year from date of start-up and the pressure vessel for a full five (5) years Non Pro-Rated (☐Optional Specification: full ten (10) years Non Pro-Rated) from date of start-up, provided that the unit is started within three (3) months of date of shipment and installed and operated within the scope of the tank design and operating capability. Each water heater shall be shipped with a complete set of installation and operating instructions including a spare parts list and approved drawing.