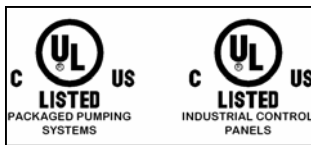


**Model #
HTS-HWB**

Heat Transfer System for Gas-fired Hot Water Boilers



U Unfired Pressure Vessels
PP Pressure Piping

TYPICAL SPECIFICATIONS	
Boiler Configuration	Package or Remote mounted (any qty.)
Hot Water Temperature	50 to 240 deg F
Standard System Flow Rate	5 to 3000 GPM
Standard Power	460 V (Other Voltages Available)
Dimensions	Based Upon Customer Requirements
Working Pressure	100 to 150 psig (6.8 to 10.2 barg)
Working Temperature	< 300 deg F (< 149 deg C)

EnviroSep HTS-HWB, Heat Transfer System for Gas-fired Hot Water Boilers is a UL-Listed, factory manufactured system used in conventional building hydronic heating which utilizes Gas-fired or Oil-fired Hot Water Boilers as the heating source. Heating Hot Water is supplied at a standard 180°F and is recirculated through the building system by use of centrifugal pumps which are sized to meet specific building requirements. The **Model HTS-HWB** provides Air-free, Hot Water at a controlled flow rate, while automatically refilling under normal system losses. Also, the **HTS-HWB** allows for system thermal expansion/compression based on the building system volume. A UL-Listed, Industrial Control Panel with single-point power connection is pre-wired to all electrical field devices and power sources. Optional **Variable Frequency Drives** may be configured on this stand-alone system for premium system control. The **Model HTS-HWB** speeds installation and start-up of building hydronic heating systems which provides significant savings to contractors, engineers, and building owners.

Standard Features:

- ASME, Hot Water Boilers, with copper fin-tube or bent tube designs
- Base-mounted, End-suction Pumps
- Variable Frequency Drives & Controller
- Differential Pressure Transmitters
- Vortex Air Separator, with Auto Air Vent
- Bladder Expansion/Compression Tank
- Triple Duty Valves & Suction Diffusers
- UL Listed NEMA 12 Industrial Control Panel
- Pilot-operated, Motor-operated, or Pneumatic-operated Control Valves
- Make-up Water Assembly, with Safety Relief Valve
- PLC-based System Controller, if required



Options:

- Internet Connectivity for Remote System Monitoring
- Interface w/ Building Management System
- NEMA 3R/4/4X Rating
- Seismic or Vibration Isolators
- Combination Air & Dirt Separator
- Split-coupled Vertical Inline Pumps
- Specific Performance Criteria (Upon Request)



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Heat Transfer System Order Form

Specify the following parameters:

- I. System Heat Load = _____ BTU/hr
- II. System Differential Pressure Required = _____ psid
- III. System Flow Rate = _____ GPM
- IV. Fuel Type = _____
- V. Return Temperature = 160 °F
- VI. Supply Temperature = 180 °F
- VII. System Electrical = _____ V _____ Hz
- VIII. System Volume = _____ Gal.

Note: Tube-side medium assumed to be water, unless otherwise specified.

SYSTEM OPTIONS

Pneumatic-operated Boiler Supply Control Valve

- Electronic Positioner
- Pneumatic Positioner

Boiler Sequencer for Multiple Boilers

Bent Tube Hot Water Boiler

Indirect Fired Hot Water Boiler

Copper Finned-tube Boiler

Stand-by Pump

Steam Pressure Gauges

Steam Separator

Vacuum Breaker

Thermostatic Air Vent

Pump Suction Diffuser

Vertical In-line Pump

Split-coupled Vertical In-line Pump

Closed-coupled end-suction Centrifugal Pump

Auto standby pump start on lead pump failure

Auto Pump Alternation

Remote start connection

System drain valves

Flexible Connectors

Vibration Isolation

Digital Temperature Controller with PID Loop and Thermocouple

Remote Temperature Control

Control Valve Bypass and Isolation

Panel-mounted Differential Pressure Gauges

Pump Run-time Hour Meter

Outdoor-use Rating

Outdoor Cabinet

System Inlet/Outlet Isolation Valves

System Flow Switch

Differential Pressure Switch across Pump suction/discharge

Regardless of system size, temperature, pressure, fluid medium, or space requirements, *EnviroSep* can provide solutions to all specialized needs.





Furnish and install one *EnviroSep* Model HTS-HWB- [A] - [B] - [C] - [D] Heat Transfer System with the system capacity to heat _____ BTU/hr from 160 °F to 180 °F when _____ (type fuel) is available at the Boiler.

KEY:

- [A] = Model # (BTU/hr)
- [B] = # of pumps (1,2,3,etc.)
- [C] = Parallel (P) or Stand-by (S) pump designation
- [D] = Manual (M) or Automatic (A) alternation for multiple pumps

GENERAL - This package shall be factory assembled with pump(s), heat exchanger, hydronic accessories, shell and tube heat exchanger, fabricated steel frame, interconnection piping (welded per ASME Section IX certified welders), UL-listed Industrial Control Panel factory wired for single-point field connection per NEC, (and including Condensate Steam Trap).

PUMPS-Pump(s) shall be single, end-suction type with radially split, top center-line discharge, self-venting casing. Pump construction shall be cast iron, bronze fitted and shall be fitted with a long-life, product lubricated, drip tight mechanical seal, with O-ring seat retainer. Impeller shaft to be 416SS fitted with a SS shaft sleeve and be supported by two heavy duty ball bearings. The design shall allow back pull out servicing, enabling the complete rotating assembly to be removed without disturbing casing piping connections. The pump shall be mounted on a rigid, single base plate and by flexible with guard to the motor. Seal shall be rated for continuous duty at 270°F, motor shall be open drip proof, NEMA MG-1 with 1.15 service factor

VARIABLE FREQUENCY DRIVE – Variable Frequency Drive shall be variable torque AC inverter enclosed in NEMA 1 or 12 enclosure. Standard features shall include circuit breaker disconnect, Hand-Off-Auto selector switch, manual potentiometer (speed pot), door-mounted keypad, run relay contacts, fault relay contacts, and top/bottom conduit entry. Drive bypass shall be provided as standard with Drive-Off-Bypass selector switch. Class 20 overloads are included.

SYSTEM CONTROLLER – Controller shall include all controls necessary to operate the system as a stand-alone system. The PLC-based controller shall be of the same manufacturer as the Packaged Pumping System. Controller shall include Remote/Local system start capability. Acceptance of up to 16 remote 4-20 ma signals shall be provided for modulation of pump speed, and other optional control functions. Enclosure shall be NEMA 12 with thru-the-door disconnect. Operator Interface shall be a color touch screen type. Controller shall include independent PID control loop for each remote signal.

HOT WATER BOILER – The Boiler shall operate on negative stack pressure and Category I according to ANSI Standards and shall include a built-in draft hood with single exhaust (standard) or dual exhaust. The boiler shall be equipped with a slide-out Burner tray for service and maintenance. The combustion chamber shall be enclosed by high temperature refractory, not less than 2 ½” thickness. The heat exchanger shall be an integral copper finned tube, straight, 7/8” ID, 7 fins per inch. Standard controls include thermometers, High Limit controls, ON/OFF switch, 24VAC control transformer, and factory-mounted flow switch interlocked to pump operation. Standard firing-mode shall be ON/OFF. The gas train shall include manual gas valve, redundant main gas valves, pilot gas pressure regulator, and automatic pilot gas valve.

AIR REMOVAL EQUIPMENT- System shall include one tangential air separator with internal stainless steel collector tube. Connections to be flanged with a rating of 150 psig. System shall be equipped with ¾” Pressure Relief Valve, ¾” Pressure Regulating Valve, ASME Compression / Expansion Tank (sized by or provide system volume and temperature difference), and tank fitting, sight glass, and tank drain connections to tank.

TRIPLE DUTY VALVE- System shall include, on the discharge of each pump, a combination valve incorporating three functions in one body: tight shut-off, spring closure type silent non-slam check, and flow measured/throttling. Valve body shall be ductile iron with two ¼” NPT connections on each side of the valve seat. The valve disc shall be bronze plug disc type with high impact engineered resin seat to ensure tight shut-off and silent check valve operation. Valve stem shall be SS with flat surfaces provided for adjustment with open end wrench.

SUCTION DIFFUSER- System shall include, on the suction of each pump a suction diffuser with cast iron body, outlet guide vanes and removable SS strainer.

CONTROL PANEL - System shall include one (1) UL - Listed, NEMA 12, Industrial Control Panel with single-point power connection, pre-wired to all electrical components. Panel shall have thru-the-door fused disconnect; magnetic circuit breaker supplementary motor protector with fast-closing contacts, non-reversing 3-pole contactor, and variable setting, bi-metallic overload relay for each motor; 30 mm Foundry-duty switches; 30 mm Corrosion Resistant pilot lights; control transformer; Automatic Alternator (if required). Operation of each pump shall be Hand-Off-Auto with external connection to terminal blocks. When standby pump(s) are used, the standby pump(s) shall manually/ automatically (customer specified) start on primary pump failure. All internal wiring shall be placed in conduit.

PILOT-OPERATED CONTROL VALVE - The control valve shall be pilot-actuated, diaphragm-operated, and shall be single-seated, with hardened stainless steel trim and cast iron body. The pilot shall be bolted directly to the valve body and shall be removable without disturbing control connections. The temperature setting shall be adjustable and indicated on a calibrated dial. Temperature sensor shall be solid fill.

PNEUMATIC ACTUATED CONTROL VALVE - The control valve shall be pneumatically actuated with valve body constructed of cast iron and having stainless steel plug, seat, and stem. The pneumatic actuator shall be of the spring-closed design and shall have a fabric reinforced nitrile rubber diaphragm. Actuator yoke shall incorporate electro-pneumatic, intrinsically safe positioner requiring a 4-20 ma input signal, and compressed air connection for valve operation. The positioner shall compare the electrical signal from a controller with the valve position feedback to overcome varying differential pressure, stem friction, and diaphragm hysteresis.

MANUFACTURER - Shall assume system liability, and performance guarantee and warranty all equipment on system for 12 months after initial start-up.