

**Model #**  
**HTS-E**

## Standard Heat Transfer System

Electric Resistance Heater

Shell and Tube



### TYPICAL SPECIFICATIONS

System Pressure	2 to 300 psig
Hot Water Temperature	50 to 240 deg F
Standard System Flow Rate	5 to 100 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-E*, Heat Transfer System with Shell & Tube Electric Resistance Heater is a UL-Listed, factory manufactured and tested system used in conventional building hydronic heating systems which utilizes Electric Power as the heating source. An immersed electric resistance heating bundle is utilized for applications where economics dictate that electric heat generation is most feasible. 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-E* provides Air-free, Hot Water at a controlled flow rate, while automatically refilling under normal system losses. Also, the *HTS-E* 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. The *Model HTS* speeds installation and start-up of building hydronic heating systems which provides significant savings to contractors, engineers, and building owners.

### Standard Features:

- ASME, Shell & Tube Electric Resistance Heater, with *U-stamp*
- Base-mounted, End-suction Pumps
- Vortex Air Separator, with *Auto Air Vent*
- Bladder Expansion/Compression Tank
- Triple Duty Valves & Suction Diffusers
- UL Listed NEMA 12 Industrial Control Panel
- Supply/Return Thermometers
- Safety Relief Valve
- Make-up Water Assembly
- Pump Differential Pressure Gauges
- ASME Section IX Welding



### Options:

- PLC System Controller w/ Touch Screen
- NEMA 7/9 Explosion-proof Rating
- Flexible Pump Connectors
- Seismic or Vibration Isolators
- Plate & Frame Heat Exchangers
- Vertical Inline Centrifugal Pumps
- Combination Air & Dirt Separator
- Specific Performance Criteria (Upon Request)



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**Specify the following parameters:**

- I. System Heat Load = \_\_\_\_\_ BTU/hr
- II. System Differential Pressure Required = \_\_\_\_\_ psid
- III. System Flow Rate = \_\_\_\_\_ GPM

- IV. Return Temperature = 160 °F
- V. Supply Temperature = 180 °F
- VI. System Electrical = \_\_\_\_\_ V \_\_\_\_\_ Hz
- VII. System Volume = \_\_\_\_\_ Gal.

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

**SYSTEM OPTIONS**

- Stand-by Pump
- Steam Pressure Gauges
- Pump Suction Diffuser
- Vertical In-line Pump
- Split-coupled Vertical In-line Pump
- Vacuum Breaker
- Closed-coupled end-suction Centrifugal Pump
- Auto standby pump start on lead pump failure
- Auto Pump Alternation
- Remote start connection
- Condensate Isolation and Check Valves
- Condensate Y- Strainer
- 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
- System drain valves
- Flexible Connectors
- Vibration Isolation

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-E- [A] - [B] - [C] - [D] Heat Transfer System with the system capacity to heat \_\_\_\_\_ BTU/hr from 160 °F to 180 °F when \_\_\_\_\_ Volt Power is furnished.

**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 radically 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

**ELECTRIC RESISTANCE HEATER** - Flanged Immersion Heater shall be ANSI 150/300 with Copper Element Sheath at 55 watts per inch. Heater Bundle shall include Thermocouple for high temperature detection and automatic disabling of heater. General Purpose NEMA 1, Terminal Enclosure shall be manufactured for multiple circuits. Unit shall be shell and tube type with removable tube bundle. Shell is carbon steel. Unit is rated for 150 psig at 375 °F. Shell-side connections 4" and larger are 150 lb. ANSI flanges and all 3" and smaller are NPT connection. Unit shall carry U-1 form and have ASME stamp for 150 psig operation.

**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.

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