Model # HW-CHW

Combined Chilled & Hot Water Packaged Pumping System

Constant Primary / Variable Secondary

c UL us LISTED PACKAGED PUMPING SYSTEMS

c UL us LISTED INDUSTRIAL CONTROL PANELS

TYPICAL SPECIFICATIONS	
System Return Temperature	38 to 68 deg CHW / 100 to 160 deg HW
Chilled Water Temperature	28 to 60 deg CHW / 120 to 200 deg HW
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	< 240 deg F (< 115 deg C)

EnviroSep HW-CHW, Combined Chilled and Hot Water, Primary / Variable Secondary, Packaged Pumping System is a UL-Listed, factory manufactured system utilized in conventional building heating and cooling systems which uses Chilled Water as the cooling medium and Hot Water as the heating medium. The ***Model HW-CHW*** combines both the chilled and hot water systems into a single, pre-packaged system which is factory-tested and ready for start-up. The Secondary Pumps are Variable Speed controlled based on the actual building system demand. Differential Pressure Transmitters (or alternate sensors) signal the Non-proprietary PLC-based, Variable Speed Controller to operate the pumps at the appropriate conditions to meet demand. The ***Model HW-CHW*** may be controlled by other system variables, such as Total System Load (BTU/hr), System Pressure, or System Temperature via a customized Controller. ***Variable Frequency Drives*** may be incorporated with Manual or Automatic Bypasses. A User-friendly, Color Touch Screen Operator Interface is utilized for simple operation. The ***Model HW-CHW*** Controller may be furnished with Interface to any Building Management System. This fully integrated turnkey system speeds installation and start-up which provides significant, initial-investment savings to contractors, engineers, and building owners.

Standard Features:

- **Base-mounted, End-suction Pumps or Split-coupled Vertical Inline 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 Variable Speed System Control Panel, *with Siemens S7-300 or Allen Bradley ControLogix PLC***
- **Make-up Water Assembly, *with Safety Relief Valve***
- **Chemical Bypass Feeder**
- **System Temperature Transmitters**
- **Chilled/Hot Water Supply Flow Meter**

U Unfired Pressure Vessels

PP Pressure Piping

UM Min. Unfired Pressure Vessels

NB® National Board

R Repairs and/or Alterations

TSSA Process Piping & Power

Options:

- **Internet Connectivity for Remote System Monitoring**
- **Interface w/ Building Management System**
- **Chiller Staging Capability**
- **NEMA 3R/4/4X Rating**
- **Seismic or Vibration Isolators**
- **Combination Air & Dirt Separator**
- **Flexible Pump Connectors**
- **Specific Performance Criteria (Upon Request)**

P. O. Box 857 Georgetown, SC 29442 ● Phone: 843-546-7400 Fax: 843-546-7407

www.envirosep.com

Model # HW-CHW

Model HW-CHW

Combined Chilled & Hot Water System Order Form

Specify the following parameters:

I. System Cooling Load = _____ BTU/hr

II. System Differential Pressure Required = _____ psid

III. System Flow Rate = _____ GPM

IV. System Inlet Pressure = _____ psig

V. Return Temperature = 54 °F

VI. Supply Temperature = 44 °F

VII. System Electrical = _____V _____ Hz

I. System Heating Load = _____ BTU/hr

II. System Differential Pressure Required = _____ psid

III. System Flow Rate = _____ GPM

IV. System Inlet Pressure = _____ psig

V. Return Temperature = 160 °F

VI. Supply Temperature = 180 °F

VII. System Electrical = _____V _____ Hz

VIII. System Volume = _____ Gal.

Note: System medium assumed to be water, unless otherwise specified.

SYSTEM OPTIONS

Stand-by Pump

System Pressure Gauges

Pump Suction Diffuser

Vertical In-line Pump

Split-coupled Vertical In-line Pump

Closed-coupled end-suction Centrifugal Pump

Variable Frequency Drives
- Manual Bypass
- Automatic Bypass

Remote System Monitoring
- Ethernet
- Dial-up Modem

Communication Protocol
- Ethernet I/P
- Modbus RTU
- Siemens FLN
- Johnson Controls N2
- BACnet (MS/TP)
- Lon Works
- Profibus
- DeviceNet

Auto standby pump start on lead pump failure

Auto Pump Alternation

Remote start connection

System drain valves

Flexible Connectors

Vibration Isolation

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.

www.envirosep.com

P. O. Box 857 Georgetown, SC 29442 ● Phone: 843-546-7400 Fax: 843-546-7407

Model #
HW-CHW

Typical Specifications for HW-CHW

Furnish and install one *EnviroSep* Model HW-CHW- [A] - [B] - [C] - [D] Combined Chilled & Hot Water Packaged Pumping System with the system capacity to cool _____ BTU/hr of _____ (fluid) from_____psig to _____psig; and, heat _____ BTU/hr of _____ (fluid) from_____psig to _____psig.

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), air separator, expansion tank, triple duty valves, hydronic accessories, 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 Variable Speed Pump Controller).

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

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.

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.

MAKE-UP WATER ASSEMBLY - Make-up Water Assembly shall be pre-piped and installed into system suction header; including, Self-contained, Cast Iron Pressure Reducing Valve, set @ 12 psig; Bronze isolation and bypass valves; Cast Iron Y-strainer; Bronze Backflow Preventer; System Pressure Relief Valve, set @ 75 psig; and Liquid Filled Pressure Gauge with Bronze Isolation Valve.

BUTTERFLY VALVES - System Butterfly Isolation Valves shall be Lug-mounted, Cast Iron with 10-position Lever Operator for 6" and below; and Gear Operated above 6" in size. Disc shall be Al-Br or Stainless Steel. Seat material shall be Buna-N or EPDM.

BALL VALVE - Isolation Ball Valves shall be Bronze 2-pc with 316L Stainless Steel Ball and RTFE seats. All Valves shall have Latch-lock lever for Lock-Out procedures.

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

www.envirosep.com

P. O. Box 857 Georgetown, SC 29442 ● Phone: 843-546-7400 Fax: 843-546-7407