



Spirax EasiHeat™ DHW ASME Domestic (Potable) and Process Water Heating System Compact Heat Transfer Solution

Domestic (potable) and process water heating system

The Spirax EasiHeat™ DHW incorporating SIMS technology is a complete, compact system using steam for accurate heating of potable hot water for domestic use or process applications. Standard systems can be sized to heat up to 110 GPM of water over a 100°F temperature rise and are supplied fully assembled and tested ready for installation.

Principal features and benefits:

- Energy usage monitoring, real time CO₂ emission calculations, multiple communication options, remote monitoring, SMS text or e-mail system alarms notification.
- Designed with integral condensate sub-cooling for maximum efficiency and zero flash steam loss.
- Precisely engineered system with matched components that provide accurate temperature control under wide and fluctuating load demands.
- Guaranteed performance
- Fully assembled and tested ready for on-site installation
- Options to suit all applications including single and double wall construction

Heat exchanger

The plate and frame heat exchanger, designed specifically for steam to hot water service, delivers high heat transfer efficiency in a compact footprint with low volume to pressure ratio. The heat exchanger can be easily dismantled for examination and cleaning of the heat transfer surfaces without disruption to any steam or water connections. Additionally the connecting pipework incorporates CIP connections as standard. The heat exchanger is ASME constructed and stamped to 150psig.

Temperature control

Temperature control is achieved by the use of a programmable logic controller (PLC) and fast response Pt100 temperature sensors, which in turn provide a modulated control signal to the fast acting steam control valve. The control valve, that can be either pneumatically or electrically actuated, regulates steam flow to accurately maintain the required temperature set points over widely fluctuating heat demands.

Metering

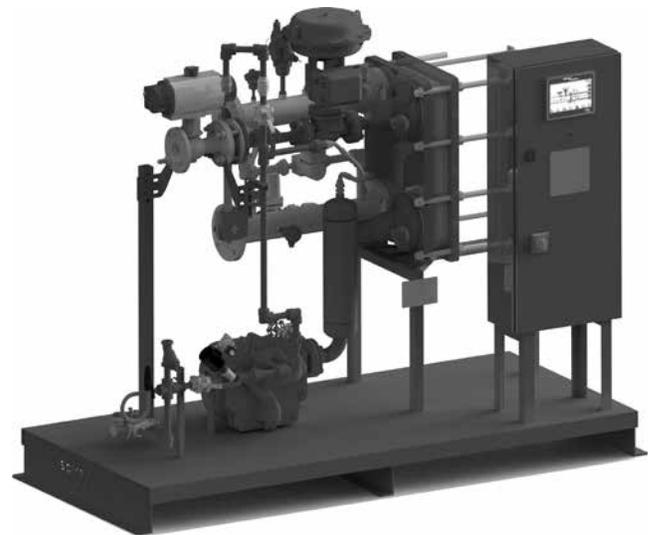
A key component guaranteeing accurate measurement of energy usage, CO₂ emissions and cost control. The TVA flowmeter (included when energy monitoring option selected), is specifically designed for large turndowns on steam applications

Condensate management

The EasiHeat incorporates a closed loop, non-vented condensate removal system comprising a pressure powered pump with integral or separate steam trap that provides the total solution to all stall conditions by removing condensate under all operating conditions.

Control panel

The Spirax EasiHeat™ DHW features innovative control processes incorporating SIMS technology delivering increased monitoring and communications. The NEMA 12 enclosures houses a PLC with color touch-screen HMI providing ease of use and clear visual access to all system parameters. The EasiHeat™ also offers logging of energy data for a maximum of 30 days, and remote access allowing various features such as alarm notification and access of all panel functions remotely.



Pressure and temperature limits

Pipework design	ASME 150
Maximum saturated steam supply pressure	130 psig
Maximum secondary pressure	150 psig
Maximum secondary temperature	210°F
Maximum gasket temperature	356°F

Materials

Steam and condensate (primary) side piping	ASTM A105 Carbon Steel	≤2" nominal bore schedule 80 >2" nominal bore schedule 40
Water (secondary) side piping	304L Stainless Steel	≤2" nominal bore schedule 80 >2" nominal bore schedule 40
Heat exchanger plates	316 Stainless Steel	
Heat Exchanger gaskets	EPDM	
Steam control valve	Cast Iron	
Condensate pump trap	Ductile or S.G. Iron	
All secondary side components (wetted parts)	Stainless Steel (except for P&T relief valves - Lead-free Brass)	

Local regulations may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only. In the interests of development and improvement of the product, we reserve the right to change the specification.

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Pipework

All pipework is correctly sized for the application and is fabricated using modern welding techniques, approved welders and weld procedures. Flanged products are used where possible for reliability and easy maintenance.

All pipework, components and fittings on the secondary side that come into contact with potable water meet and fully comply with the lead-free requirements of the Safe Drinking Water Act.

Support frame

The Spirax EasiHeat™ DHW system is delivered pre-assembled on a compact frame and baseplate ready to position at the installation location with a fork lift truck or other lifting device. The EasiHeat™ is designed to fit through a standard 36" door and can be fitted with optional wheels for easy maneuvering in tight locations.

Electrics and pneumatics

All control equipment is pre-wired and piped ready for connection to the air supply and power source.

Electrical supply	Power supply	110–240 v AC / 50–60 Hz
	Supply fuse	5 Amps (T)
Actuators	Electric	24 v AC / 50-60 Hz
	Pneumatic	60-90 psig

Communications

The Spirax EasiHeat™ offers a range of communication protocols including:

Modbus RTU	BACnet MS/TP (RS485)
Modbus TCP/IP (Client)	BACnet TCP/IP (Client)
Profinet	CANopen
Profibus (RS485)	

Safety

- The Spirax EasiHeat™ provides precise control of outgoing temperature.
- Steam supply is modulated via a pneumatic or electric actuated globe type steam control valve with smart positioner and class IV shut off.
- An integrated high limit alarm circuit actuates a steam isolating valve offering bubble tight shut off to protect against high temperature excursions by preventing steam from entering the heat exchanger. In addition, there is a temperature controlled quench valve that guards against temperature overshoots by adding cold feed water in the hot water outlet. This prevents nuisance high limit alarm activation. Both these functions automatically terminate once satisfactory outlet water temperature has been re-established.
- Optional manually operated isolation ball valve for secure steam shut off.
- A recirculating pump with connections to the secondary side inlet and outlet spools provides uniform water temperature throughout the heat exchanger and across RTD's to ensure accurate temperature measurement and control.
- Pressure and temperature safety relief valves on secondary side.
- All wetted parts on the secondary (water) side are lead-free and conform to the requirements of the Safe Drinking Water Act.
- UL® listed control panel enclosure, components and wiring.

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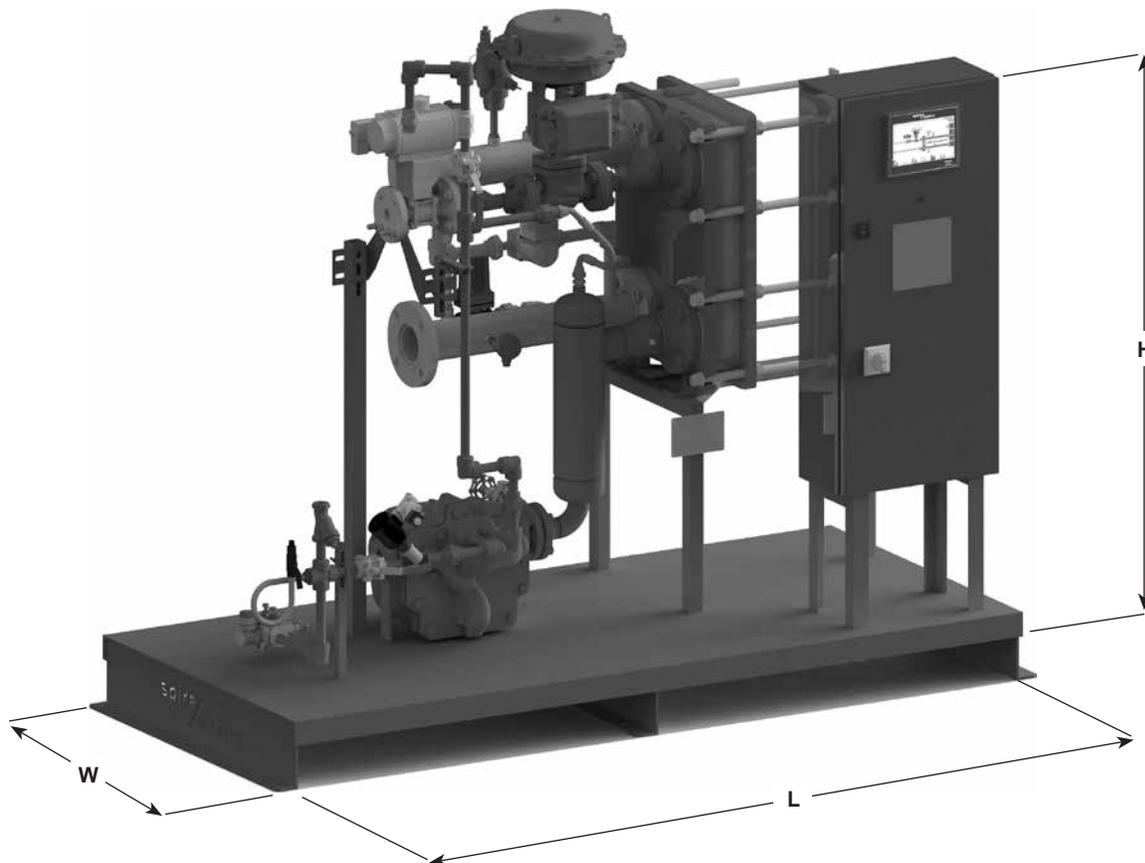
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Dimensions approximate in inches

Heat Load MMBtu/hr. (Flow: GPM)		Model	Valve Actuation	Maximum Dimensions			Piping Connections		
Minimum	Maximum			H	L	W	Steam	Condensate	
								Pump Trap	Steam Trap
0.07 (1.4)	0.41 (8.3)	EHD1	EL or PN	59.5"	76.5"	33.5"	1½" flanged	1" flanged	2" flanged
0.42 (6.6)	0.52 (10.4)	EHD2	EL or PN	59.5"	76.5"	33.5"	1½" flanged	1" flanged	2" flanged
0.53 (10.5)	1.33 (26.5)	EHD3	EL or PN	61.1"	76.5"	33.5"	2" flanged	1" flanged	2" flanged
1.33 (26.6)	1.73 (34.5)	EHD4	EL or PN	61.4"	76.5"	33.5"	2½" flanged	1½" flanged	2" flanged
1.73 (34.6)	3.13 (62.5)	EHD5	EL or PN	64.3"	76.5"	33.5"	3" flanged	1½" flanged	2" flanged
*	*	EHD6	EL or PN	64.6"	76.5"	33.5"	3" flanged	1½" flanged	2" flanged

Notes

1. The heat load has been based on a steam inlet pressure of 30 psig and a backpressure of 10 psig (4 psig pressure drop across the heat exchanger).
2. Heat loads have been based on a 40°F-140°F (100°ΔT) temperature rise.
3. Heat loads are for single wall heat exchangers.
4. The height of the system will increase by 1" if wheels are fitted.
5. Dimensions shown are for units with:- Pneumatic actuation, high limit, and without:- split range control valves, energy monitoring and isolation valve.
6. Connection sizes are for units with:- high limit, and without:- energy monitoring & isolation valve. Connections will vary for energy monitoring and isolation valve options.
7. Length (longest horizontal plane) x width (shortest horizontal plane) x height (vertical plane)
8. *EHD6 Heat loads not calculated based on sizing criteria.



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Spirax EasiHeat™ Domestic (Potable) Hot Water (DHW) Nomenclature Example:

EHD	2	L	A	EL4	PT	-	HL	B	V1	G1	W	-	T6	E	R2	C1	O1
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Spirax EasiHeat™ DHW Nomenclature

	Domestic hot water	EHD = Spirax EasiHeat™ DHW	EHD
		1 = 1" reduced trim	
		1.2 = Split range: 1" reduced trim and 1"	
		2 = 1"	
		2.2 = Split range: 1" and 1½"	
		3 = 1½"	2
		3.2 = Split range: 1½" and 2"	
		4 = 2"	
		5 = 2½"	
		6 = 3"	
Compulsory selection	Trim option	L = Low Noise	L
	Pressure vessel code	A = ASME	A
	Actuation	EL4 = Electric (SIMS) EL3 = Electric (SX90) PN = Pneumatic	EL4
	Condensate removal	PT = Pump trap PTHC = Pump trap high capacity ST = Steam trap	PT
	High limit	HL = High limit IHL = High limit	HL B
	High limit actuation EL only	B = Battery back-up	
Mechanical options	Manual isolation valve	V1 = Ball valve V2 = Gate valve	V1
	Gasket material	G1 = EPDM	G1
	Extras	W = Wheels	W
		Panel type	T6 = 110V UL SIMS touch screen P2 = 110V UL process controller
Panel options	Energy monitoring	E = with energy monitoring	E
	Remote access	R1 = Level 1 - SMS text and email R2 = Level 2 - 3G web access R3 = Level 3 - both of the above (R1+R2)	R2
		C1 = Modbus RTU C2 = BACnet MS/TP (RS485) *C3 = Modbus TCP/IP (Client) C4 = Profinet C5 = CanOPEN C6 = BACnet TCP/IP (Client) C7 = Profibus RS485	C2
Options		O1 = Selected option 1 O2 = Selected option 2 O3 = Selected option 3	O1

**Note: not available when panel options R2 or R3 selected*

Typical Specification

The packaged, skid mounted, steam fired heat transfer system for the generation and supply of potable hot water for domestic and process applications shall be a Spirax EasiHeat™ complete with plate and frame heat exchanger, interconnected pipe work, electronic data logging, PLC, pneumatic or electric actuated globe type steam control valve with smart positioner and class IV shut off, actuated high limit steam isolating valve offering bubble tight shut off, closed loop non-vented condensate removal system and all required specialties and controls as specified / required. All items shall be preassembled, hydrostatic and dry function tested prior to shipping.

Temperature control to be achieved by the use of a programmable logic controller and temperature sensors, which in turn will provide a modulated control signal to the steam control valve to accurately maintain the required temperature set points. An actuated steam shut off valve protects against excessively high temperature excursions by preventing steam from entering the heat exchanger until satisfactory outlet water temperature has been re-established. All control equipment is to be pre-wired to the integral temperature controller. All components to be factory installed, wired and ready to connect to building services. Supply voltage is 110/1/60. Control enclosure to be NEMA 12. Integral temperature controller to have a local touchscreen HMI. The heat exchanger shall be fully serviceable, including chemical and manual cleaning, without the need to disconnect any of the steam, condensate or water pipework connections.

How to Order

Using Spirax Sarco's advanced sizing suite, all systems are optimally designed for the required heat load with controls to suit the application. To ensure that all pertinent information for quotation and manufacture is accurately communicated, please contact your local Spirax Sarco engineer for sales support.

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Spirax Sarco, Inc., 1150 Northpoint Blvd, Blythewood, SC 29016

Telephone: (803) 714-2000 FAX (803) 714-2222