Spirax EasiHeat™ HTG (Steam Side Control) EN Heating System Compact Heat Transfer Solution

Steam Side Control Heating System

The Spirax EasiHeat™ HTG Steam Side Control Heating System incorporating SIMS technology, is a complete, compact and ready-to-use steam to water heat transfer solution. Delivering superior energy efficient performance, and can be utilized for applications with stable load conditions such as closed circuit heating applications. Spirax EasiHeat™ HTG can help you lower costs, minimize waste and mitigate your environmental impact by reducing your CO2 emissions and carbon footprint, making a positive change towards a more sustainable future.

Principal features and benefits:

- Compact heat transfer solution incorporating SIMS technology.
- Energy usage monitoring, real time CO_2 emission, Multiple Communications, Remote monitoring, and, SMS or E-mail system alarms notification.
- Produces hot water for heating and process.
- Designed for sub-cooling condensate to provide high efficiency and zero flash steam loss.
- Maintains a stable temperature.
- Guaranteed performance.
- Fully assembled and tested ready to install.
- Options to suit all applications.

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

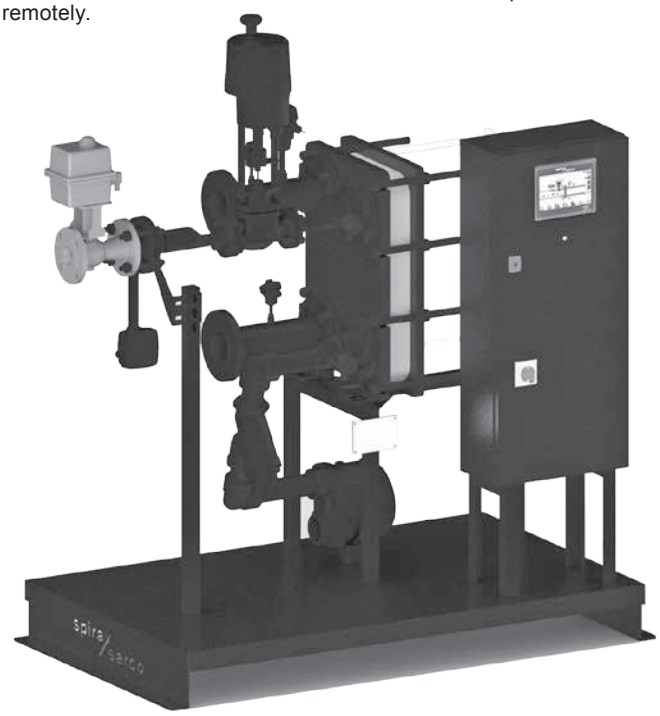
A key component guaranteeing accurate measurement of energy usage, CO2 emissions and cost control. The TVA flowmeter (included when energy monitoring option selected), is specifically designed for large turndowns on steam applications.

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™ HTG features innovative control processes incorporating SIMS technology delivering increased monitoring and communications. The NEMA 4 enclosures houses a PLC with color touch-screen HMI providing ease of use and clear visual access to all system parameters. The EasiHeat TM 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.



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)	

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Pressure and temperature limits

Pipework design	ASME 150
Maximum saturated steam supply pressure	130 psig
Maximum secondary pressure	130 psig
Maximum secondary temperature	221°F
Maximum gasket temperature	356°F

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.

Spirax Sarco, Inc., 1150 Northpoint Blvd, Blythewood, SC 29016 Telephone: (803) 714-2000 FAX (803) 714-2222

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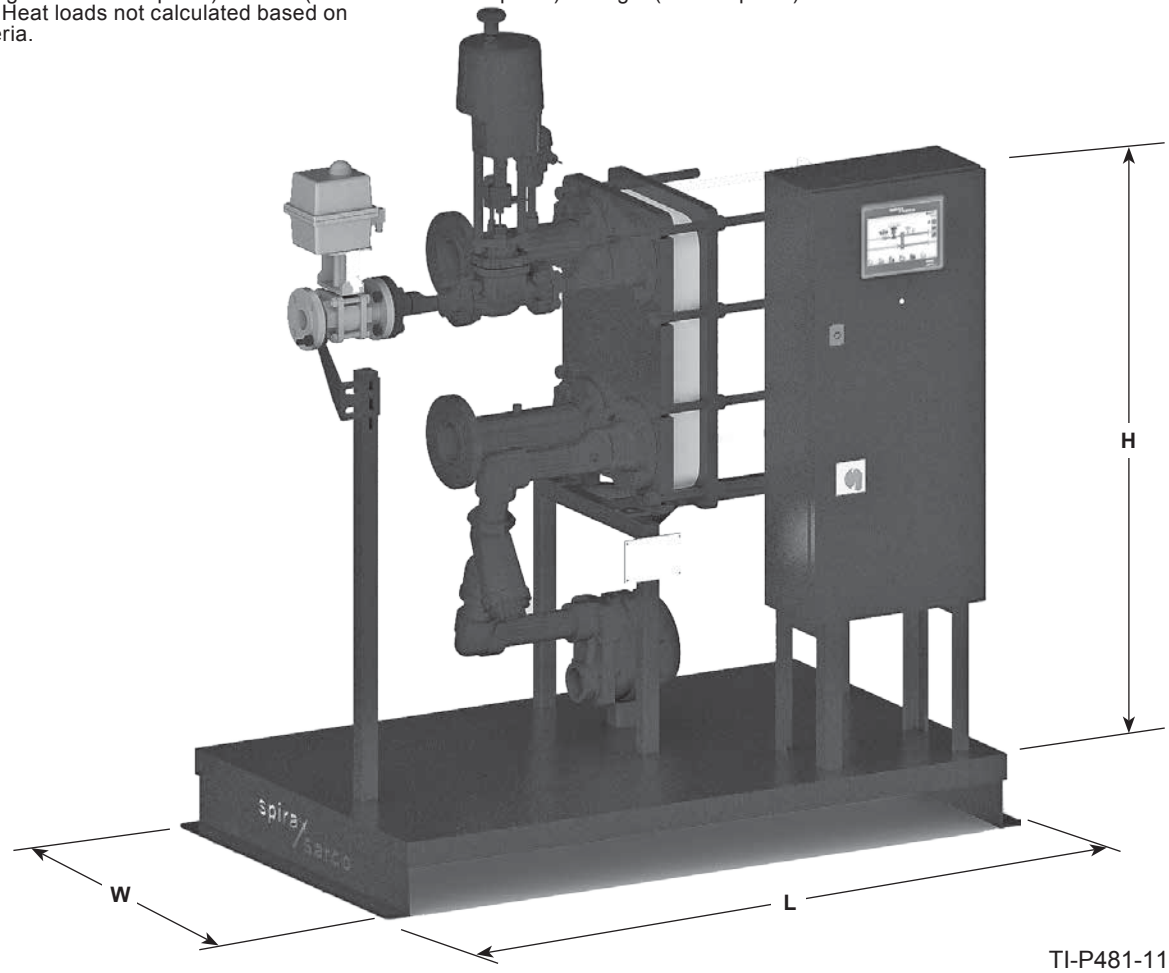
Dimensions in inches

Heat Load MMbtu/hr (Flow - gpm)		Type	Valve actuation	Maximum Dimensions			Piping connections		
							Steam	Condensate	
Min	Max			H	L	W		Pump trap	Steam trap
6.83 (6.9)	4.18 (41.8)	**EHHSC1**	EL or PN	59.5"	76.5"	33.5"	1½" flanged	1" flanged	2" flanged
4.19 (41.9)	5.23 (52.3)	**EHHSC2**	EL or PN	59.5"	76.5"	33.5"	1½" flanged	1" flanged	2" flanged
5.24 (52.4)	13.29 (132.8)	**EHHSC3**	EL or PN	61.1"	76.5"	33.5"	2" flanged	1" flanged	2" flanged
13.31 (132.9)	17.28 (172.6)	**EHHSC4**	EL or PN	61.4"	76.5"	33.5"	2.5" flanged	1.5" flanged	2" flanged
17.29 (172.7)	25.07 (250.4)	**EHHSC5**	EL or PN	64.3"	76.5"	33.5"	3" flanged	1.5" flanged	2" flanged
*	*	**EHHSC6**	EL or PN	64.6"	76.5"	33.5"	3" flanged	1.5" flanged	2" flanged

Notes:
1. The heat load has been based on a steam inlet pressure of 30 psig and a backpressure of 0 psig (7 psig pressure drop across the heat exchanger).
2. Capacities have been based on a 160°F-180°F (20°ΔT) temperature rise.
3. Capacities are for single wall heat exchangers.
4. The height of the system will increse 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 & 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. *EHHSC6 Heat loads not calculated based on sizing criteria.



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Spirax EasiHeatTM HTG nomenclature example:

EHHSC	2	L	A	EL4	PT	-	HL	B	V1	G1	W	-	T6	E	R2	C1	O1

Spirax EasiHeat™ Heating Steam Side Control nomenclature

Compulsory selection	Building heating unit	EHHSC	=	Spirax EasiHeat™ Heating Steam Side Control	**EHHSC**
	Control valve size	1	=	1" reduced trim	
		1.2	=	Split range: 1" reduced trim & 1"	
		2	=	1"	
		2.2	=	Split range: 1" & 1½"	
		3	=	1½"	**2**
		3.2	=	Split range: 1½" & 2"	
		4	=	2"	
		5	=	2½"	
		6	=	3"	
	Trim option	L	=	Low Noise	**L**
	Pressure vessel code	A	=	ASME	**A**
	Actuation	EL4	=	Electric (SIMS)	
		EL3	=	Electric (SX90)	**EL4**
		PN	=	Pneumatic	
	Condensate removal	PT	=	Pump trap	
		PTHC	=	Pump trap high capicity	**PT**
		ST	=	Steam trap	
	High limit	HL	=	High limit (SIMS)	
		IHL	=	High limit (SX90)	**HL**
Mechanical options	High limit actuation EL only	B	=	Battery back-up	**B**
	Manual isolation valve	V1	=	Ball valve	**V1**
		V2	=	Gate valve	
	Gasket material	G1	=	EPDM	**G1**
	Extras	W	=	Wheels	**W**
Panel options	Panel type	T6	=	110V UL SIMS TOUCH SCREEN	
		P2	=	110V UL PROCESS CONTROLLER	**T6**
	Energy monitoring	E	=	With energy monitoring	**E**
	Remote access	R1	=	Level 1 - SMS Text and E-mail	
		R2	=	Level 2 - 3G web access	**R2**
		R3	=	Level 3 - Both of the above (R1+R2)	
Communication options		C1	=	Modbus RTU	
		C2	=	BACnet MS/TP (RS485)	
		*C3	=	Modbus TCP/IP (Client)	
		C4	=	Profinet	**C2**
		C5	=	CanOPEN	
		*C6	=	BACnet TCP/IP (Client)	
		C7	=	Profibus RS485	
Options		O1	=	Selected option 1	
		O2	=	Selected option 2	**O1**
		O3	=	Selected option 3	

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

Typical specification

The building heating unit shall be a Spirax EasiHeat™ HTG compact heat transfer system complete with PLC functionality and SIMS technology to provide energy monitoring and remote access. The system will be pre-assembled and mounted on a compact frame with either pneumatic or electric control option.

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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