

# RediHeat Instantaneous Water Heater

## *Reliable, durable, and simple to operate*

### Designed for performance

The Spirax Sarco RediHeat is a steam to water heater that incorporates a unique feed-forward temperature control system to instantly produce hot water within  $\pm 4^{\circ}\text{F}$  of the set temperature under widely varying demands. This outstanding performance makes the RediHeat the ideal solution for hot water applications where tight temperature control and instant response to changes in demand are required.

### Engineered for reliability

The RediHeat is quick to install, easy to use, simple to maintain and resistant to the harsh service of varying demand loads.

- **Simple Mechanical Design:** Water temperature is controlled by a mechanical blending valve that operates based on demand. A manual adjustment compensates for seasonal changes in cold water supply temperature. The unit requires no extraneous power sources, controls or temperature sensors making installation a snap!
- **Energy Efficient:** The RediHeat only consumes energy when responding to demand. This mode of operation can save as much as 40% in energy costs when compared to a hot water tank system.
- **Security:** The blending valve has a fail-safe design – vital for domestic hot water applications. Potential failure or damage to the unit will produce only cold water. Consumers can never be exposed to hot water at temperatures above set point. Optional double-wall tubes are available to eliminate the risk of cross contamination between steam and water.
- **Heavy Duty:** The RediHeat features a spiral tubed helical heat exchanger for efficient heat transfer in a compact space. The rugged casing and bourdon tube configuration allows the entire assembly to expand and contract without localized stressing, ideal for intermittent cycling common with domestic hot water applications.
- **Self-Descaling:** When the coil expands with changing temperature, any scale that has hardened on the inside of the tubes is broken up by the changing shape of the coil.
- **Anti-Bacterial:** The perfect environment for the growth of legionella bacteria is stagnant water between  $68^{\circ}\text{F}$  and  $122^{\circ}\text{F}$ . The presence of scale and sediment only expedites colonization. With the RediHeat feed-forward design, water is over-heated to  $160^{\circ}\text{F}$  -  $200^{\circ}\text{F}$  in the heat exchanger



before being blended (in response to demand) with incoming cold water to the desired output temperature. In this way the presence of stagnant water at bacteria-friendly temperatures is eliminated.

- **Compact:** With a footprint of only 6.5 square feet and a height of 33.5" for the largest unit, the RediHeat is the most compact instantaneous water heater available – important when space is at a premium.
- **Easy Maintenance:** When maintenance on the helical heat exchanger is required, the coiled tube bundle can be either cleaned in place or removed for cleaning. Due to the helical design removal is easy and does not require the withdraw space typical with other shell and tube designs.

### How it works

1. The water to be heated is piped to the water heater inlet where it is divided and directed to the cold port of the blending valve and the heat exchanger.
2. The heat exchanger heats the water before sending it to the hot port of the blending valve for mixing with cold water to be the required temperature.
3. The blending valve has a proportional valve plug that is regulated by movement of the diaphragm, which is induced by pressure differentials in the sensing head.
4. A sensing line "loads" the top portion of the diaphragm with supply line cold water pressure while blended water outlet pressure is being sensed below.
5. Flow demand imparts a pressure imbalance above (positive) and below (negative) the diaphragm resulting in movement of the diaphragm and proportioning plug.

6. The movement aligns ports in the plug with supply ports in the valve body, introducing the correct proportion of hot and cold water.
7. This action automatically generates blended hot water through all rated flow capacities at the chosen preset temperature (+/- 4°F).
8. The integral fail-safe system permits stem travel in the event of plug restriction or parts failure, opening an auxiliary cold water port. Cold water flooding yields cooler water or, in the case of parts failure, zero flow.
9. Temperature is easily adjusted by side-to-side movement of the control rod on the valve body. Stabilization adjustments are made during the initial startup by rotation of the control rod.

RediHeat Model	RH-30		RH-60		RH-90		RH-120	
<b>Performance</b>								
Nominal maximum output (gpm)	30		60		90		120	
Capacity	Heat 40 °F water up to 140 °F. Outlet temperature adjustable.							
Steam inlet pressure	10 to 15 psig standard 20 to 250 psig requires pressure regulator (H package)							
Steam flow	Approximately 50 lbs/hr per 1 gpm of water heated.							
Water inlet pressure	30 to 150 psig (must be at least 15 psi above steam pressure for correct operation)							
<b>Connections (NPT)</b>								
Potable Water: In – Out 2½"	1½"	2"	2"		2½"		2½"	
Steam In - Condensate Out	3"	1¼"	3"	2"	4" ANSI	2"	4" ANSI	2½"
<b>Materials of Construction</b>								
Steam side piping	Steel							
Potable water side piping	Brass							
Heat Exchanger (standard)	Cast iron shell, copper tubes							
Heat Exchanger (options)	Cast steel shell Tubes: admiralty, 70/30 Cu Ni, 316SS & Double Wall (copper only)							
Blending Valve	Bronze body, Hastalloy valve plug, Neoprene diaphragm							
<b>Design</b>								
Blending Valve	Instantaneous: responds to pressure differential Fail-safe (cold) Integral pressure relief valve							
Piping	Quick disconnect Victaulic fittings							
Pressure	Potable water side: 150 psi Steam side: 50 psi (RH-90 & RH-120), 75 psi (RH-30 & RH-60)							
Certification	ASME Section VIII							
<b>Accessories</b>								
Included with RediHeat	Steel frame, steam inlet pressure gauge, water outlet temperature gauge							
Standard	Steel frame, condensate traps & strainers (main & drip), steam inlet pressure gauge, water outlet temperature gauge							
Optional	"H" (pressure reducing) package, angle iron stand, water recirculation package, solenoid controlled hot water shut-off system, thermal insulation blanket, OSHA cover, acid pump cleaning system							
<b>Nominal Dimensions (inches)</b>								
Height	21		22½		33		33½	
Width	22½		25		23½		24½	
Length	31½		31½		31½		39	

### The Spirax RediHeat Advantage

- All RediHeat are designed to and stamped ASME Section VIII.
- Every blending valve is operationally (wet) tested prior to shipment.

For more information contact your local Spirax Sarco representative.



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