



# SteamAqua®

## Steam-Fired Instantaneous Water Heater

### MODEL SQ 2/4/6/10

#### COMPACT HIGH CAPACITY INSTANTANEOUS WATER HEATER WITH SIMPLE OPERATION

### Features

The SteamAqua instantaneous water heater quickly produces a stable supply of 95 °C water for heating and sterilization in food product, chemical and pharmaceutical manufacturing as well as sanitary use in buildings, factories and hospitals.

- Hot water at the desired temperature will be supplied in just 30 to 40 seconds<sup>1)</sup>.
- Thanks to the spiral tube heat exchanger the entire system can be packaged into a space-saving footprint of only 0.6 m<sup>2</sup> (SQ2/SQ4/SQ6) or 0.7 m<sup>2</sup> (SQ10).
- All stainless steel hot water/steam supply piping available as option for SQ4/SQ6.
- All-in-one package simplifies installation.
- A built-in PowerTrap (steam trap/mechanical pump) enables easy condensate recovery and prevents water hammer.
- Indirect heating with steam allows clean potable water to be heated and supplied as is, without contamination.
- Simple and reliable operation with touch panel for temperature setting and system control.
- Buffer water recirculation (option for SQ10) and shutoff functions prevent overheating.
- Outside of pressure vessel regulations<sup>2)</sup>, so no paperwork or periodic inspections.
- Operation start-up/shutdown time can be set with the schedule function (daily and weekly timers) to reduce excess power consumption.
- Outdoor specifications also available for SQ2/SQ4/SQ6 as option.

1) May vary depending on actual operating conditions

2) Based on Japanese regulations, classification may differ depending on local regulations



Patented (SQ2/SQ4/SQ6)

### Specifications

Model		SQ2	SQ4	SQ6	SQ10
Thermal Capability Class		200 kW	400 kW	600 kW	1000 kW
Temperature Setting Range		30 to 95 °C			
Steam Control Valve Actuator Type		Pneumatic or Electric <sup>1)</sup>			Pneumatic
Required Utilities	Power	100 V AC (50/60 Hz) single phase			
	Steam <sup>2)</sup>	0.6 MPaG or lower			0.4 MPaG or lower
	Cold Water (inflow)	0.1 to 1.0 MPaG Temp.: 5 to 95 °C			
	Air for Steam Control Valve <sup>3)</sup>	0.4 to 0.6 MPaG Oil-free Air filtered to 5 µm			
	Motive Steam for PowerTrap	0.15 to 0.6 MPaG Use supply steam			0.15 to 0.4 MPaG Use supply steam
Connection (mm)	Cold Water Inlet	25 JIS10KFF	50 JIS10KFF	65 JIS10KFF	65 JIS10KFF
	Hot Water Outlet	25 JIS10KFF	50 JIS10KFF	65 JIS10KFF	65 JIS10KFF
	Steam Inlet	25 JIS10KFF	40 JIS10KFF	50 JIS10KFF	65 JIS10KFF
	Condensate Outlet		25 JIS10KFF		40 JIS10KFF
	Air <sup>3)</sup> Inlet			Rc(PT) 1/4	
Heating Method		Spiral Tube Heat Exchanger			
Applicable Hot Water Supply Piping		Single pass <sup>4) 5)</sup> / Recirculating <sup>6)</sup>			
Abnormal Temperature Rise Preventing Function		<ul style="list-style-type: none"> <li>Built-in internal cooling circulation unit<sup>7)</sup> detects minute changes in hot water flow or abnormalities in temperature and shuts off the steam supply</li> <li>Circulates cold water from a buffer to decrease temperature</li> </ul>			
Alarm Functions		High-Temp/Low-Temp Warning, Alarm History Review			
Standard External Input/Output Functions		<ul style="list-style-type: none"> <li>External Input for Startup/Shutdown: Sets ON/OFF via external voltage-free contact input</li> <li>External Input for Emergency Shutdown: Via external voltage-free contact</li> <li>In Operation: Sends output during operation via voltage-free contact</li> <li>External Input for Temperature Set Value: Changes set value via external analog signal (4 to 20 mA input/output)</li> <li>Current Temperature Value Output: Outputs current temperature via analog signal (4 to 20 mA input/output)</li> <li>Alarm Output: Sends output via voltage-free contact when there is an abnormality in temperature</li> </ul>			
Installation Location		Indoors (Outdoor specifications available as an option for SQ2/SQ4/SQ6)			Indoors
Applicable Fluids		Heating: Steam, Heated: Water			

<sup>1)</sup> When an electric control valve is used for steam control, a recirculating system is recommended. For single pass method, consult TLV. 1 MPa = 10.197 kg/cm<sup>2</sup>

<sup>2)</sup> When steam supply pressure to the unit is set by using a pressure reducing valve with a primary pressure exceeding 0.6 MPaG (SQ2/SQ4/SQ6) or 0.4 MPaG (SQ10), make sure to install a safety valve on the secondary side of the pressure reducing valve.

<sup>3)</sup> Necessary when a pneumatic control valve is used for steam control.

<sup>4)</sup> When single pass method is used, if used for baths, handwashing or anywhere people may come in contact with hot water, install a thermostat-equipped hot/cold water mixing device. Additionally, when used in applications that may fall below the minimum required flow rate, a hot water recirculation system is required. Contact TLV for more information.

<sup>5)</sup> When single pass method is used for the SQ10, an internal cooling circulation unit (option for SQ10) must be installed to prevent temperatures from rising abnormally.

<sup>6)</sup> For closed circulation systems, make sure to install an expansion tank and safety relief valve on the hot water circulation line to protect the equipment.

<sup>7)</sup> Option for SQ10

PRESSURE SHELL DESIGN CONDITIONS (NOT OPERATING CONDITIONS):

Maximum Allowable Pressure (MPaG) PMA: 1.0 (steam piping and water piping)

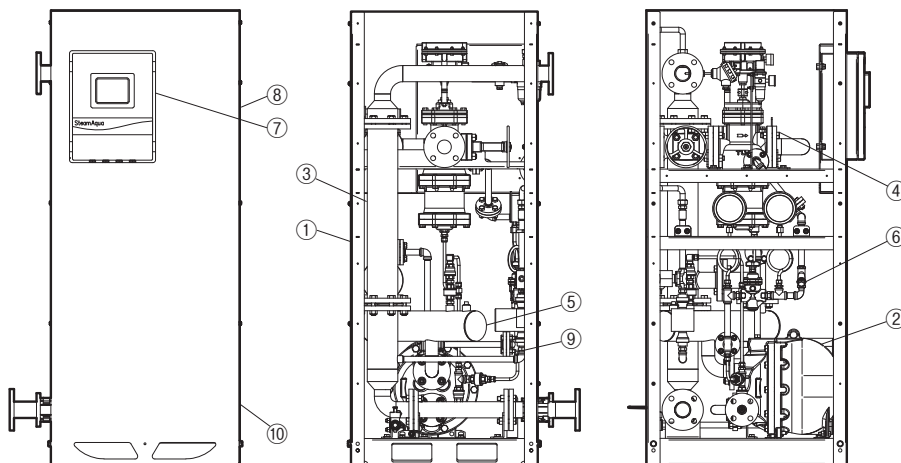
Maximum Allowable Temperature (°C) TMA: 185 (steam piping), 95 (feed water piping), 110 (hot water piping)



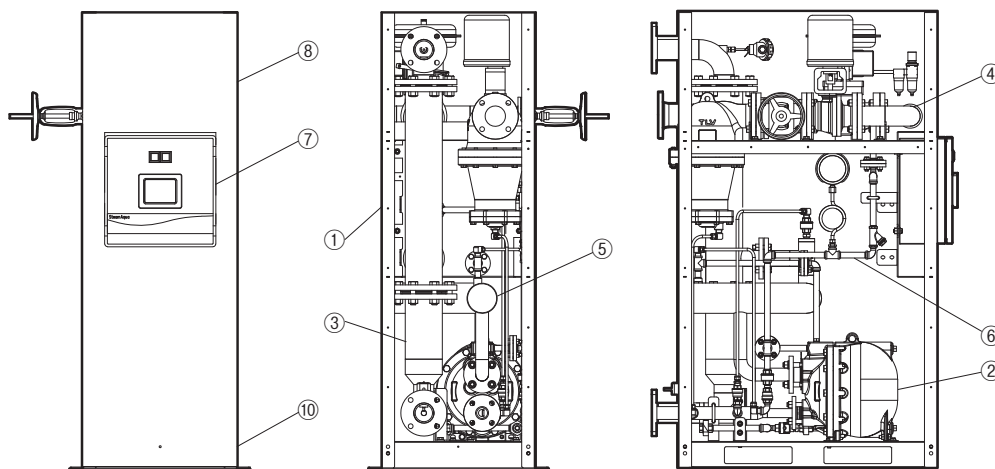
To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

**Configuration**

• SQ2/4/6



• SQ10



No.	Description	Material	JIS	ASTM/AISI <sup>1)</sup>
①	Base & Frame Unit	Stainless Steel	SUS304	AISI304
②	Condensate Discharge Unit (PowerTrap)	Cast Iron <sup>2)</sup>	FC250	A126 Cl.B
③	Heat Exchanger Unit	Stainless Steel	—	—
④	Steam Supply Unit	Cast Iron <sup>2)</sup>	—	—
⑤	Header Unit	Stainless Steel	—	—
⑥	PowerTrap Steam Supply Unit	Stainless Steel	—	—
⑦	Control Panel	—	—	—
⑧	3-sided Cover (Front, Right, Left)	Stainless Steel	SUS304	AISI304
⑨	Internal Cooling Circulation Unit <sup>3)</sup>	Stainless Steel	—	—
⑩	Nameplate	Tetron (Polyester)	—	—

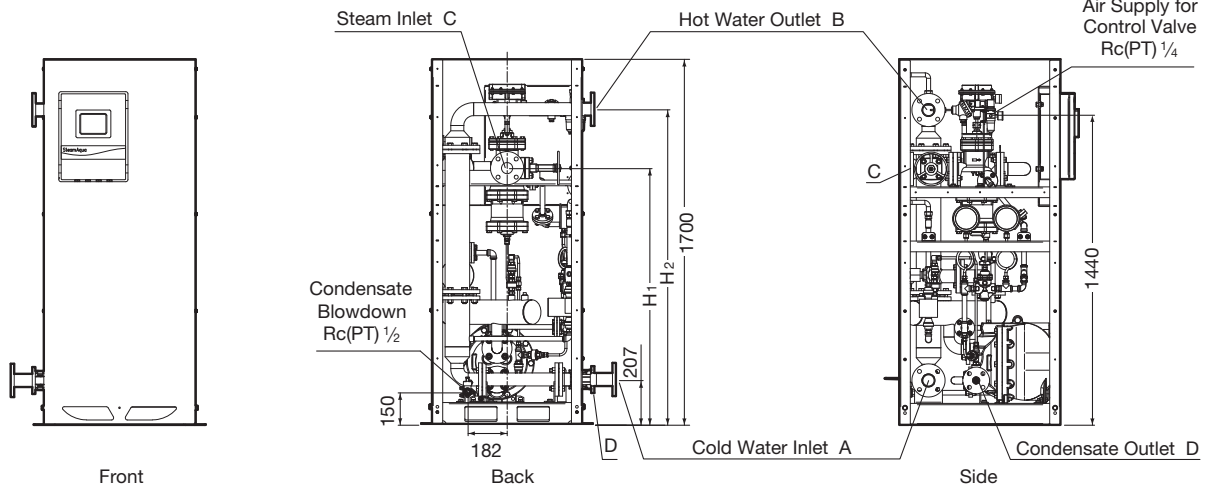
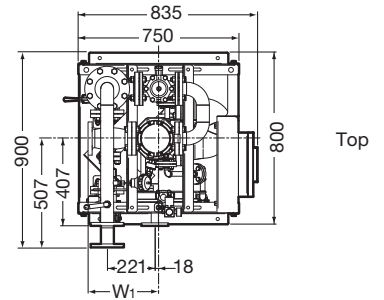
<sup>1)</sup> Equivalent <sup>2)</sup> Stainless steel available as option <sup>3)</sup> Option for SQ10

**Dimensions**

● **SQ2/4/6 Flanged\***

Model	Piping Connection Locations			Piping Connection Sizes				Approx. Weight (kg)
	H <sub>1</sub>	H <sub>2</sub>	W <sub>1</sub>	Cold Water Inlet A	Hot Water Outlet B	Steam Inlet C	Condensate Outlet D	
	SQ2	1223	1417	202	25	25	25	
SQ4	1202	1459	280	50	50	40		
SQ6	1192	1467	328			50		

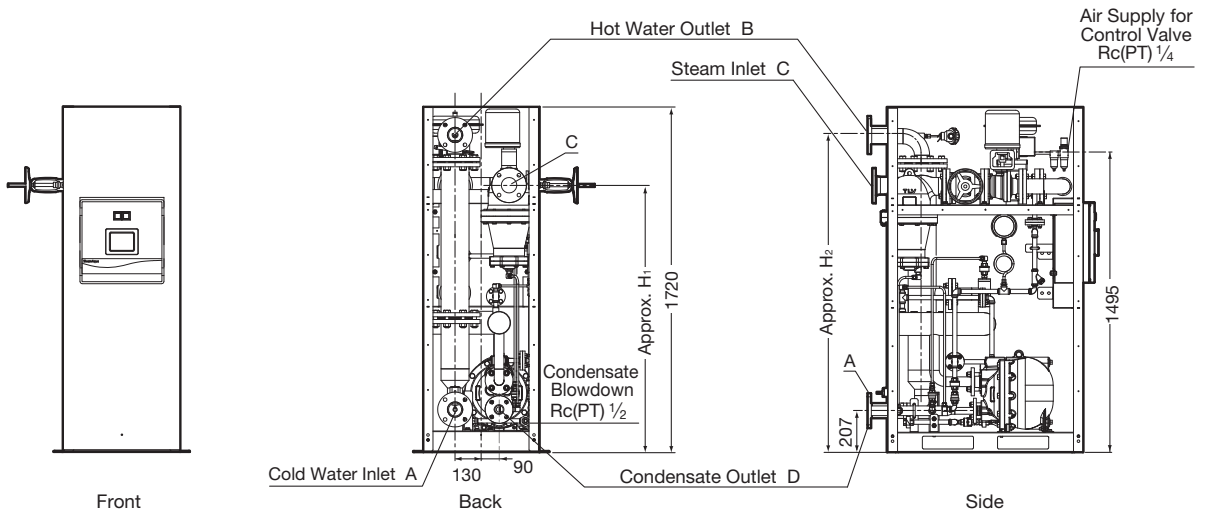
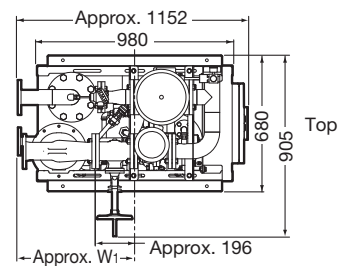
\* JIS10KFF. ASME 150RF is available for connections A - D.  
( ) When filled with water



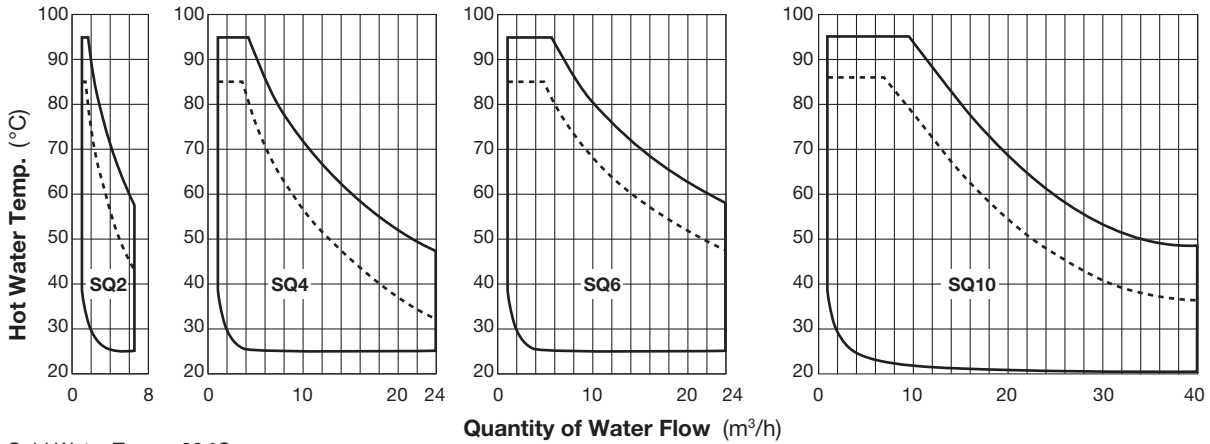
● **SQ10 Flanged\***

Model	Piping Connection Locations			Piping Connection Sizes				Approx. Weight (kg)
	H <sub>1</sub>	H <sub>2</sub>	W <sub>1</sub>	Cold Water Inlet A	Hot Water Outlet B	Steam Inlet C	Condensate Outlet D	
	SQ10	1330	1580	587	65	65	65	

\* JIS10KFF. ASME 150RF is available for connections A - D.  
( ) When filled with water



## Thermal Capability



Cold Water Temp.: 20 °C

Supply Steam Pressure: SQ2/SQ4/SQ6: ----- 0.3 MPaG    SQ10: ----- 0.2 MPaG  
 SQ2/SQ4/SQ6: ——— 0.6 MPaG    SQ10: ——— 0.4 MPaG

NOTE: The thermal capability charts shown here are for reference only.  
 Thermal capability will vary with steam pressure and feed water temperature.  
 Consult TLV about actual selection as well as thermal capability.

## Options

Back Cover	With back cover equipped (Standard model is equipped with only front, left and right sided cover) Material: SUS304	
Circulation Pump Control Board	Includes a control/power supply board for operating a recirculation pump in conjunction with SteamAqua when recirculating hot water piping is used. <sup>1)</sup>	
SQ2/SQ4/SQ6 Outdoor Specifications	All four sides and top are covered. Material: SUS304 (including base and frame unit)	
	Control panel: protection class rated at IP44	
	Equipped with internal electrical equipment (such as cables) for outdoor use	
SQ4/SQ6 Condensate Preheater <sup>2)</sup>	Small heat exchanger installed on the inlet side of the main heat exchanger utilizes heat from condensate to preheat water <sup>3)</sup> Heating method: Spiral tube heat exchanger	
SQ4/SQ6 Hot water and steam supply piping materials	Wetted portions of hot water and steam supply piping are of all stainless steel construction.	
SQ10	Separator for Steam Supply Unit	N/A (Applicable only when a separator is already installed on the steam supply line)
	Abnormal Temperature Rise Preventing Function	Internal cooling circulation unit (buffer water recirculation) detects minute changes in hot water flow or abnormalities in temperature and shuts off the steam supply

<sup>1)</sup> Pump must be operable under 100 V AC (50/60 Hz) single phase power at 0.4 kW or less.

<sup>2)</sup> Cold water supply is limited to 10 m<sup>3</sup>/h or less.

<sup>3)</sup> May vary depending on actual operating conditions

Manufacturer  
**TLV** CO., LTD.  
 Kakogawa, Japan  
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001  
 ISO 14001

