Pamphlet M2600-1

TLV®

Steam-Fired Instantaneous Water Heater

SteamAqua®

SQ Series
SQ2/SQ4/SQ6/SQ10

Simple Operation to Quickly Produce Plentiful Hot Water

SQ2/SQ4/SQ6　　SQ10

Up To 95℃ Hot Water

Plentiful Hot Water Ready in Moments

Broad Capacity Range

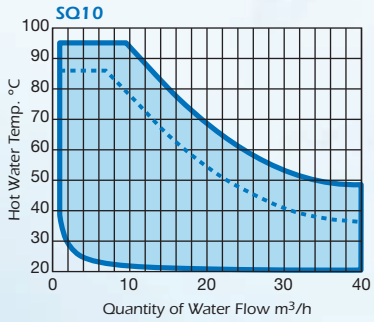
A high performance stainless steel tube with spiral groove machining is employed as the heating tube of the heat exchanger. Furthermore, thanks to a new design, it covers a wide range of flow rates without compromising heat exchange efficiency even at times of low flow.

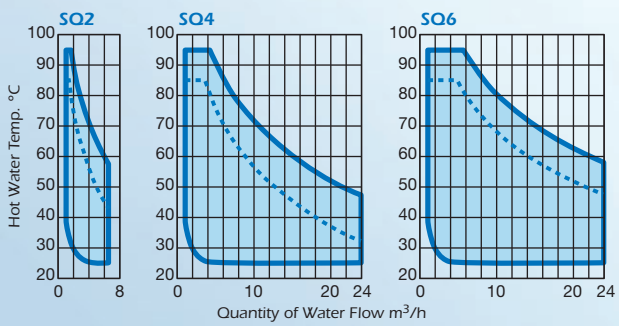
Spiral Tube

■ Thermal Capability

■ SQ10
Cold Water Temp.: 20 °C
Supply Steam Pressure: ▪▪▪ 0.2 MPaG
— 0.4 MPaG

■ SQ2/4/6
Cold Water Temp.: 20 °C
Supply Steam Pressure: ▪▪▪ 0.3 MPaG
— 0.6 MPaG

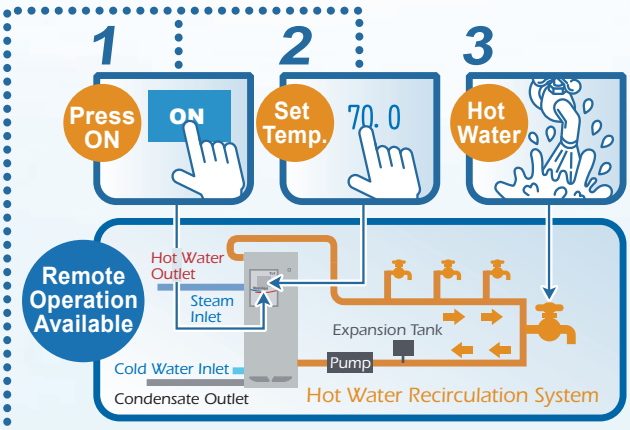




Note: Thermal capability will vary with steam pressure and feed water temperature. Consult TLV about model selection as well as thermal capability.

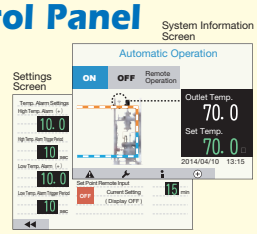
Simple Speedy Supply

With a short warm-up period, flip a switch and hot water at the desired temperature will be supplied in just 30 to 40 seconds. The hot water temperature will be maintained even if there are fluctuations in load during operation. Remote operation is also available.



User Friendly Control Panel

Current operation details are shown on the touch panel. The panel features a full range of functions including set temperature adjustment, abnormal temperature alarms, and alarm history review.



Schedule Function

Operation start-up/shutdown time can be set with the daily and weekly timers to reduce excess power consumption.

Safe & Worry Free

**Clean hot water, effortlessly.
Extensive safety features.**

Clean/Potable Hot Water

JET 水道法基準適合

Thanks to the indirect heating method, steam and water never mix, and since stainless steel is used for the cover, frame, base, and all wetted parts, the hot water supply remains free of rust and foreign material. Clean potable water can be heated and supplied as is, without contamination. SteamAqua is certified to conform to the Water Supply Law in Japan.

Prevent Overheating

Rapid and stable temperature control is carried out by the control valve. In low load conditions, when minimal hot water flow is detected, an emergency steam shutoff/water injection type cooling system provides a high level of safety. Additionally, continuous circulation of buffer water* prevents overheating due to residual steam.

* Buffer water recirculation function available as an option for SQ10

Stable Operation

Steam Trap w/ Built-in Pump

For stable condensate discharge from the heat exchanger, a steam trap with a built-in pumping feature is employed preventing condensate backup, rust and water hammer.

Easy to Install

A big advantage for design, construction, and facilities managers.

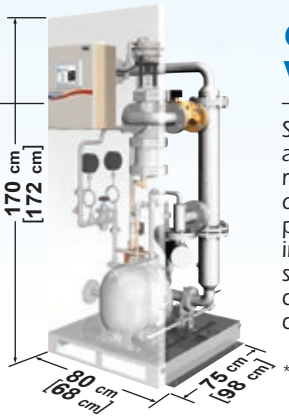
Compact yet High Capacity

The entire system is packaged into a space-saving footprint of only 0.6 m² (0.7 m² for SQ10). Because it does not use fire or emit any exhaust gases, installation locations can be chosen freely.

System Footprint
SQ2/SQ4/SQ6: **0.6 m²**
(SQ10: 0.7 m²)

Supply Capacity
SQ10: **1000 kW class**
Max. Thermal Capability: 1,020 kW
0.4 MPaG Steam Supply

* Temperature rise from 17 to 60 °C



Ensure a minimum of 50 cm of maintenance space is left clear on the front and sides of the unit. ([ ]: SQ10)

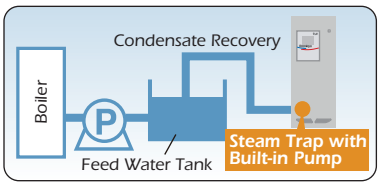
Outside of Pressure Vessel Regulations*

Since none of the components qualify as a pressure vessel, the legal requirements governing such vessels do not apply, making installation paperwork and mandated periodic inspections unnecessary. Installation is simple as the unit is instantly connectable, therefore no complicated construction is required.

* Based on Japanese regulations, classification may differ depending on local regulations.

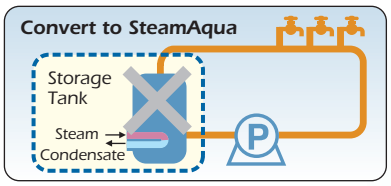
Built-in Condensate Recovery Pump

The incorporated steam trap with built-in pump allows easy condensate recovery by just connecting the piping.



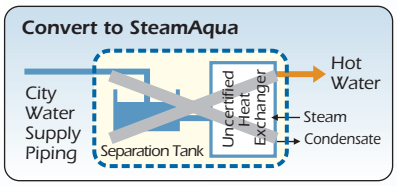
Storage Tank can be Eliminated

Depending on supply requirements, utilizing the re-circulation piping as a cushion tank makes elimination of a pre-existing storage tank possible.



Peripherals for Receiving City Water are Unnecessary

Peripheral equipment, such as a separation tank normally needed for receiving city water, is unnecessary.



●Option for SQ4/SQ6

Maximum of 12% energy savings* with condensate preheater type

Small heat exchanger utilizes heat from condensate to preheat water enabling energy savings.

* May vary depending on actual operating conditions

Reliable Engineering Support

Support for everything from simple product questions to detailed engineering consultation. We offer help with water recirculation systems for buildings, hospitals, factories, etc. Feel free to contact us anytime.

■ Just in case...

Emergency shipment of replacement heat exchangers may be possible.*

* Dependent on stock status

TEL Contact your local TLV representative

Case Studies

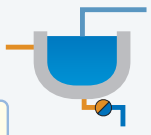
Examples of how SteamAqua can resolve long-held concerns and fulfill needs.

CASE 1 — Food Plant

Hot water is added to raw materials and mixed to form the product

Before There were two waiting periods, one for supplying water and one for heating

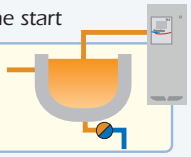
Supplying Water + Heating



- **Preparations take time**

After Hot water is supplied from the start

- **Batch time was reduced by 30%, increasing productivity**

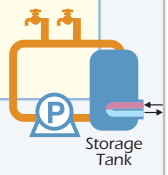


CASE 2 — Chemical Plant

Hot water is circulated through the plant and mixed with cold water for handwashing, cleaning, etc.

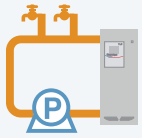
Before Because the storage tank is a pressure vessel

- **Cost/man-hours consumed by maintenance**
- **Startup takes 1-2 hours requiring operators to come in early**



After Since SteamAqua is outside of pressure vessel regulations

- **Maintenance cost/man-hours reduced**
- **Startup complete in 5 minutes Operators need not come in early**



Applications

Hot Water Generation

- Heating, sterilization and manufacture of food products
- Process heating for chemical and pharmaceutical manufacturing
- Heating and hot water for buildings, factories and hospitals
- Cleaning, handwashing, etc.

Specifications

Model			SQ2	SQ4	SQ6	SQ10
Thermal Capability Class[1]			200 kW Class	400 kW Class	600 kW Class	1000 kW Class
Temperature Setting Range			30 to 95 °C			
Steam Control Valve Actuator Type			Pneumatic or Electric[2]			Pneumatic
Required Utilities	Steam[3]		0.6 MPaG or lower			0.4 MPaG or lower
	Cold Water (inflow)		0.1 to 1.0 MPaG Temp.: 5 to 70 °C			
	Air for Control Valve[4]		0.4 to 0.6 MPaG Clean Air filtered to 5 µm			
Power Supply Voltage			100 V AC 50/60 Hz single phase[5]			
Materials	Wetted Parts		Stainless Steel (SUS304, SUS316L, others)			
	3-Sided Cover, Base, Frame		Stainless Steel (SUS304)			Carbon Steel (SPCC)
	Others		Carbon Steel for Pressure Piping (STPG370), Cast Iron (FC250), others			
Abnormal Temperature Rise Preventing Function		Steam Supply Shut-off	Detects minute changes in hot water flow or abnormalities in temperature and shuts off the steam supply			
		Buffer Water Circulation	Built-in internal cooling circulation unit detects minute changes in hot water flow or abnormalities in temperature and circulates buffer water for cooling			Option
Schedule Function			Operation start-up/shutdown time can be set with daily and weekly timers			
Installation Location			Indoors			

[1] See inside of pamphlet for thermal capability graph. [2] When an electric control valve is used for steam control, a recirculating system is recommended. For single pass systems consult TLV. [3] 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. [4] Necessary when a pneumatic control valve is used for steam control.

Note: 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. 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. 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.

Options

Model	SQ2	SQ4	SQ6	SQ10
Back Cover	● (Stainless Steel SUS304)			● (Depends on 3-sided cover material)
3-sided Cover (front, left, right) Material	● (Carbon Steel SPCC)			● (Stainless Steel SUS304)
Circulation Pump Control Board	Includes a control/power supply board for operating a recirculation pump in conjuction with SteamAqua when recirculating hot water piping is used.[1]			
Outdoor Specifications	Stainless steel sides, top, base and frame unit for outdoor installation			—
Condensate Preheater[2]	—	Small heat exchanger installed on the inlet side of the main heat exchanger utilizes heat from condensate to preheat water		—
Hot water and steam supply piping materials	—	Wetted portions of hot water and steam supply piping are of all stainless steel construction.		—
Separator for Steam Supply Unit	—			N/A (Applicable only when a separator is already installed on the steam supply line)
Pressure Reducing Unit for Steam Supply Pressure	—			Pressure reducing valve (with built-in separator and trap) and safety valve set
Abnormal Temperature Rise Preventing Function	—			Internal cooling circulation unit (buffer water recirculation)
Power Supply Voltage	—			200 V AC (50/60 Hz) Three phase

[1] Pump must be operable only under following conditions: SQ2/SQ4/SQ6: 100 V AC (50/60 Hz) single phase power at 0.4 kW or less SQ10: Power at 0.4 kW or less (However the power specification is limited to the power supply voltage of the unit) [2] May vary depending on actual operating conditions

Outdoor specifications (Only for SQ2/SQ4/SQ6)

⚠ CAUTION To avoid abnormal operation, accident 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.

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TLV CO., LTD.

Kakogawa, Japan

is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001
ISO 14001

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Specifications subject to change without notice.