

# A Greener, Cleaner, Healthier way to enjoy your Hot Tub!



Wood-fired Hot Tub Water Heaters:



## About *Sunline* Wood-fired Hot Tub Water-heaters

The *Sunline* Wood-fired Hot Tub Water-heater is a carefully and precisely engineered, superior product specially designed for maximum efficiency in outdoor Hot Tub's usage in the extremely cold, often freezing temperatures of many countries all over the world. It offers a reliable, cost-effective, environmentally-safe, and perfect alternative to hot water needs in Hot Tubs.

The *Sunline* Wood-fired Hot Tub water-heater uses the principle of the natural thermo-siphon process that requires no moving parts. The water in the Hot Tub is heated and circulated without the need for electricity or a water-circulating pump. The design of the *Sunline* Hot Tub Water-heater is such that it ensures maximum heat transfer in the shortest time span. Mechanically and in terms of the best quality and most appropriate materials used, the *Sunline* Wood-fired Hot Tub Water-heaters are amongst the most durable heaters available in the market.

The *Sunline* Wood-fired Hot Tub water-heater uses low-cost fuel like firewood, charcol, farming products, domestic and garden waste. It is advisable to use the waste, in order to produce heat and to over-ride the disposal problem.

Biomass is used as a major source of bio-energy for water heating at off-the-grid area.

You can now enjoy many winters of reliable, trouble-free, safe, and economical Hot Tub experiences with your family and friends!

## Why is *Sunline* the most preferred Wood-fired Hot Tub Water-heater?

*Sunline* Wood-fired Hot Tub Water-heater is designed with an inner body that is reinforced with copper sheet and copper pipes. Copper has a thermal efficiency of 400 w/mk, which is 21 times higher than stainless steel at 19 w/mk. The use of copper as the basic material of the heater is an innovation of *Sunline*, that makes the heater much more efficient. The large copper fire box is further surrounded by an outer cell wall filled with water (like a water jacket) running along its three sides. The heater is also fitted with an additional heat exchanger made of copper pipes on the upper part of the fire box. This helps getting the water heated quickly and continuously as it circulates around the three sides of the fire box and passes through the additional copper pipe heat exchanger.

The *Sunline* Wood-fired Hot Tub Water-heater is a very tough machine. The outer copper body of the water-heater is fortified with a one-inch thick insulation of 100 kg density and thus completely protected, and the heater is encased in a stainless steel (304 grade) outer cover. The two cylindrical dished ends are made from aluminum, making it the most durable and strong water-heater to be installed in the outdoors. The tough insulation and strong outer casing provides the *Sunline* Wood-fired Hot Tub Water-heater with the ideal protective cover while shielding the hot water circulating inside from the cold weather outside.

To match the architectural design of the home as well as the Hot Tub, *Sunline* Wood-fired Hot Tub Water-heater is available in two models – horizontal (12.28 sq feet) and vertical (12.48 sq. feet), both with a **large heat transfer area** to ensure excellent results – you get lots of hot water in a short time span! With a simple connection kit, the *Sunline* Wood-fired Water-heater can be easily connected to the Hot Tub. And it is so easy to operate too!

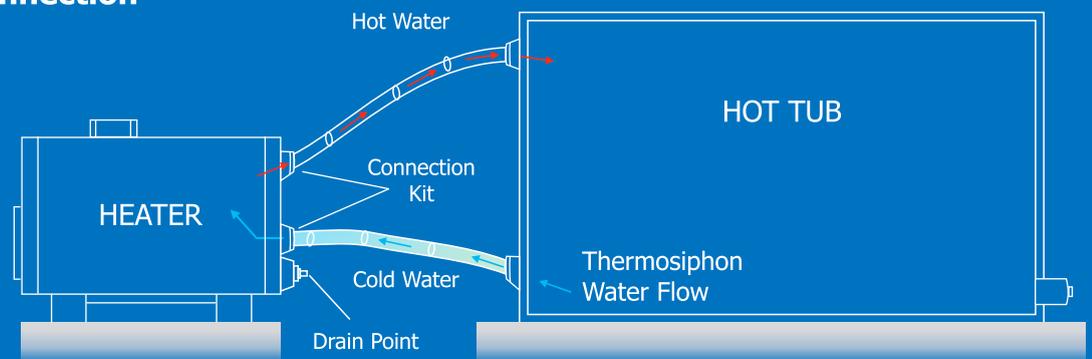
## *Sunline* Wood-fired Hot Tub Water-heater: Superior Features, Best Efficiency

1. Copper Heater Body : Ensures efficient heat transfer, longer-lasting.
2. Large Copper Fire Box (23 x 17 x 17 inches for horizontal model and 17 x 17 x 23 inches for vertical model): Ensures quick heating of large quantities of water.
3. Cast Iron Door & Grate: Durable and strong.
4. One-inch thick Insulation of Copper Heater Body: Keeps water hot for much longer time, slows down cooling. The heating process of the Heater Body ensures heating efficiency and protects it from the extreme cold outside.

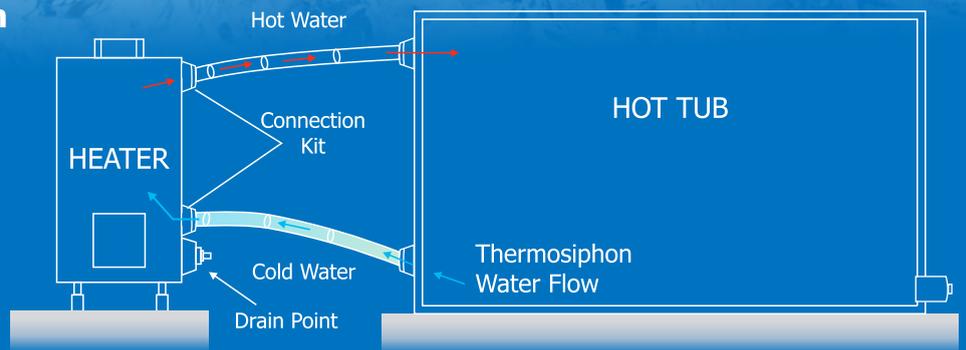
5. Stainless Steel (grade 304) Outer Casing on Insulation: Strong, effective and looks very nice.
6. Aluminum Dished Ends : Neat finish.
7. Ash Drawer: For easy collection and disposal of ash, maintains cleanliness around the heater.
8. Smoke Outlet with Copper Adaptor
9. Provision for Freeze Protection (Drain Point)

**Optional Accessories :** Hot Tub Connection Kit (2 rubber water tubes or hose pipes, 4 hose clamps, 2 CPVC pipe couplers, 2 through wall metal port.

### Heater & Hot Tub Connection



## Heater & Hot Tub Connection



## Sunline Wood-fired Hot Tub Water-heater: Heating Performance

The heating performance of the *Sunline* wood fired hot tub water heater sometime varies due to the wood quality used and frequency of the loading of the wood during the heating process. However, *Sunline* Wood-fired Hot Tub Water-heaters will, by and large, operate as per the following Heating Chart.

### Heating Performance Data

Gallons of water	Hr - Mint
100	40 min
200	1 hr 45 min
300	2 hr 40 min
400	3hr 20 min

Normally, *Sunline* wood fired hot tub water heater rise ( $\Delta T$ ) the temperature of 200 gallons water by 35° F in the time duration of 2 hours.

*Sunline* wood fired hot tub water heater's energy output is normally 45000 BTU/hour.

## Sunline Wood-fired Hot Tub Water-heater: Specifications for both Models

SPECIFICATIONS	VERTICAL MODEL NO. 101	HORIZONTAL MODEL NO. 102
Heater body	(LxWxH) 533x533x660 mm. (21x21x26 inch)	(LxWxH) 660x533x533 mm. (26x21x21) inch
Weight	96.67 Lbs (43.850 kgs)	95.43 Lbs (43.300 kgs)
<b>Heat Exchange Surface area</b>	<b>12.49 sq.ft</b>	<b>12.28 sq.ft</b>
Circulating Pipe (Inlet-Outlet)	0.D. ø 35 mm (1¼ inch)	0.D. ø 35 mm (1¼ inch)
Copper Smoke Outlet	0.D. ø 102 mm (4 inch)	0.D. ø 102 mm (4 inch)
Drain Point (½ inch)	0.D. ø 25.4 mm	0.D. ø 25.4 mm
Copper Fire Box Size	17 inch Lx 17 inch W x 23 inch H (432 L x 432 W x 584.2 H) mm	23 inch Lx 17 inch W x 17 inch H (584.2 L x 432 W x 432 H) mm
Insulation (Surrounding Heater Except Grate & Door)	1 inch thick - 100 kg m <sup>2</sup> density	1 inch thick - 100 kg m <sup>2</sup> density



Accessories



Wood-fired Hot Tub Water Heaters:



## Solar Energy Services: Leading Renewable Energy-based Water Heaters from India

Solar Energy Services is a certified ISO 9001-2008 (TUV) organization. It is one of the leading and most trusted manufacturers of Renewable Energy-based Water-heaters in India, especially Solar Water-heaters, Storage Gas-fired Water-heaters and Wood Fired Water-heater. Our state-of-the-art manufacturing plant is situated in Vadodara, Gujarat state, India, which has been very supportive of alternative sources of energy. We have a highly motivated team of professionals in design and manufacture, of our Water-heaters who are committed to excellence in their fields of expertise.



## Solar Energy Services

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NOTE: Due to continuous development in the product the company reserves the right to change the Design, Dimension and Pattern without prior notice as and when required.