SunMaxx™

Information Guide: Solar Storage Tanks




P: 877.SUNMAXX / 888.SOLAR.11
www.siliconsolar.com / www.sunmaxxsolar.com

Silicon Solar Inc
Innovative Solar Solutions

SunMaxx™

Information Guide: Solar Storage Tanks

Purchasing a storage tank specifically designed for a solar hot water system is the best way to ensure you system reaches its full potential in efficiency. The internal heat exchanger located within a solar storage tank is the single most efficient way to transfer heat from the collector to your building's heating or hot water system.

SunMaxx solar hot water storage tanks incorporate strong insulation, durable exterior construction and efficient internal copper coil heat exchangers. These features make SunMaxx solar hot water storage tanks a great value to add to any new solar hot water system.

SunMaxx carries two general product lines of solar hot water storage tanks:

- Residential storage tanks
- Commercial storage tanks

Each type of tank is designed to increase the efficiency of your SunMaxx solar thermal system and improve its overall performance and cost-effectiveness.

Residential solar hot water storage tanks are designed for use in any sized domestic solar hot water system. Large commercial solar hot water systems can be used for non-potable applications such as radiant / space heating systems and process heating.

Residential solar hot water storage tanks are available in three different storage capacities

- 40 gallons
- 50 gallons
- 80 gallons

The 80 gallon residential model is sufficient to fully replace the storage tank of most existing hot water systems.

The smaller 40 and 50 gallon residential tanks are designed to act as supplementary storage tanks to existing systems.

Commercial solar hot water storage tanks from SunMaxx are available in sizes ranging from 160 to 2500 gallons.

Every SunMaxx tank is made our of durable steel and is designed specially to provide plug 'n' play installation with SunMaxx solar collectors and solar hot water systems.

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Residential Solar Hot Water Storage Tanks

Specifications, Features & Available Models

SunMaxx residential storage tanks are available in three capacities:

- 40 gallons
- 50 gallons
- 80 gallons

Our residential storage tanks are available with a stainless steel outer finish or a painted (white) steel outer finish. Designed to be highly efficient and cost-effective. SunMaxx solar hot water storage tanks feature:

- 2” polyurethane foam insulation (r-value of 22)
- Temperature sensor port
- Port for electrical backup heater (3/4”, threaded)
- Pressure relief valve
- Pre-fabricated ports, flanges and connections
- Stainless or painted steel outer body
- Aluminum frame for lightweight durability
- Internal copper coil heat exchangers (1 or 2)
- 3/4” threaded connections for plug ‘n’ play installation
- 3-year limited manufacturer’s warranty

Solar Storage Tanks			
Model	**Capacity**	**Outer Finish**	**Heat Exchangers**
40SS1HX	40G	Stainless	1
40PS1HX	40G	Painted	1
50SS1HX	50G	Stainless	1
50SS2HX	50G	Painted	2
80SS1HX	80G	Stainless	1
80SS2HX	80G	Stainless	2
80PS1HX	80G	Painted	1
80PS2HX	80G	Stainless	2

SunMaxx residential solar hot water storage tanks are designed specifically for operation with SunMaxx solar collectors and solar hot water systems. However, because of their versatile, industry-standard design, SunMaxx solar storage tanks can be integrated into any existing, or new, solar hot water system, or even a traditional hot water system that can benefit from a storage tank with internal heat exchangers that allows for external input, such as boilers or electric wand-style backup heaters.

Choosing the Correct Solar Storage Tank

Choosing the right size solar hot water storage tank is critical in ensuring that your SunMaxx solar hot water system is as efficient and cost-effective as possible.

There are a couple of factors that go into determining which SunMaxx solar hot water storage tank you need for your new solar hot water system. These factors are:

- Storage tank capacity
- Number of internal heat exchangers

Storage tank capacity is incredibly important. To ensure that you have all of the hot water on demand that is needed by your home’s residents, you will need to have enough storage on hand to meet your hot water needs. Typically, the average person uses 20 - 30 gallons of hot water each day (between showers, grooming, laundry, dishes, etc) so your solar hot water storage tank is crucial.

SunMaxx recommends 15 - 20 gallons of storage per person in the home in order to meet your hot water needs throughout the day. In other words, a home of 4 people should have at least an 80 gallon solar hot Water storage tank. It is possible to undersize your solar hot water storage tank because hot water will be heated to replenish the hot water that is used throughout the day, though a larger storage capacity will increase the overall efficiency of your SunMaxx solar hot water system.

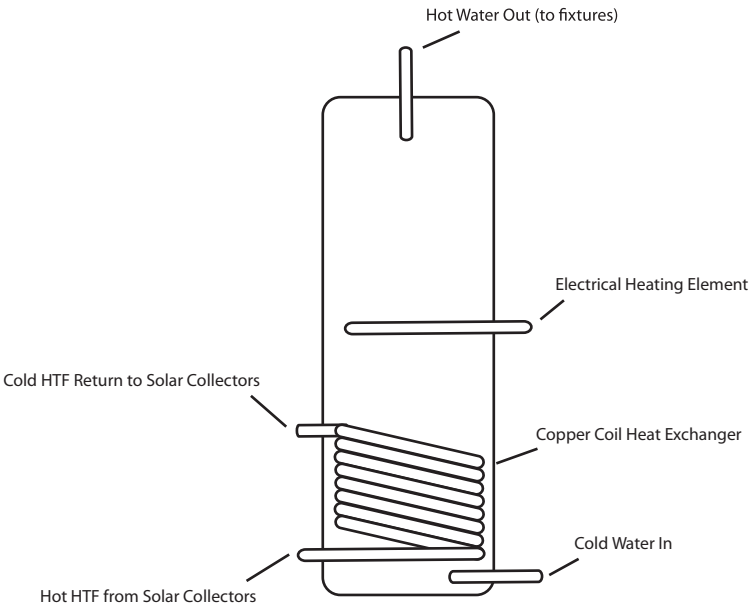
The number of internal heat exchangers is also important. Systems which will use only a the SunMaxx solar collectors and a backup electric heating element can use a solar hot water storage tank with a single heat exchanger (used for the solar collector input). However, if a secondary heat source, such as a boiler, is used, it is necessary to use a solar hot water storage tank with 2 internal heat exchangers, such as our 50 or 80 gallon storage tanks.

Because of the expense of copper coil heat exchangers, your solar hot water storage tank should contain only the heat exchangers you require for your system, or will reasonably require in the foreseeable future, in order to keep your initial investment as low as possible and ensure as short a payback period for your SunMaxx solar hot water system as possible.

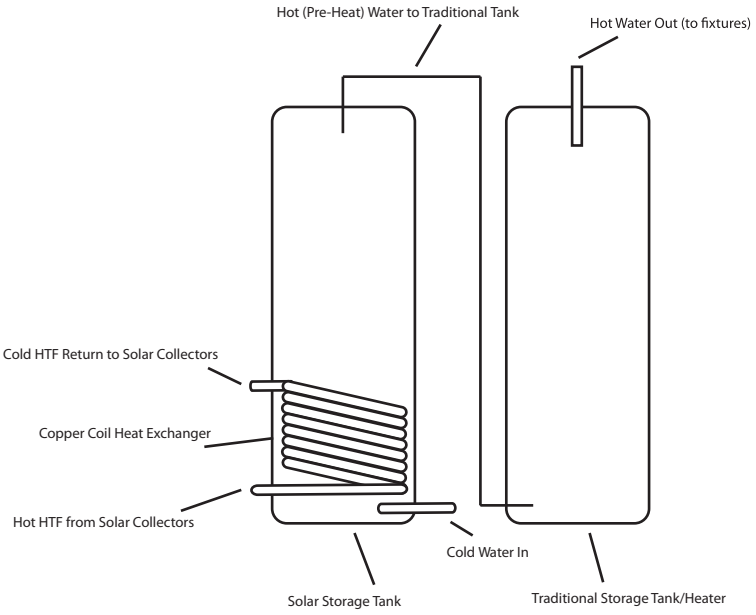
Connection Options & Diagrams

SunMaxx solar hot water storage tanks are extremely versatile in their application. There are a number of ways to design the connection of your SunMaxx solar hot water storage tank(s).

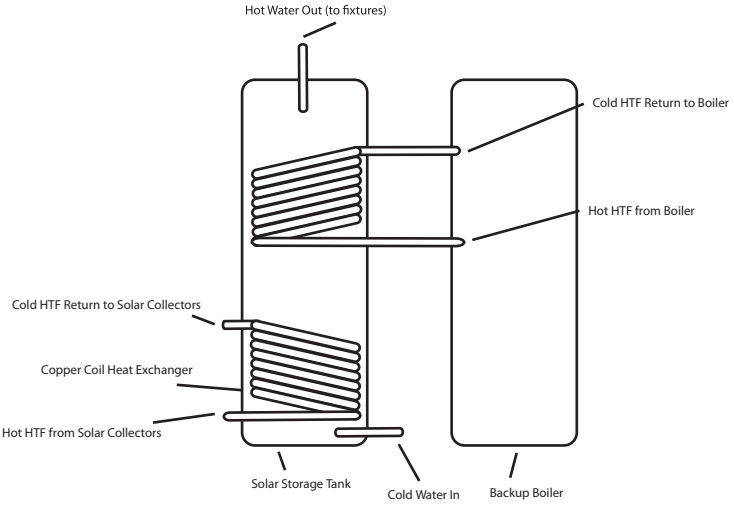
Single tank, with electrical backup



Solar pre-heat tank, with traditional tank/heater



Solar storage tank with boiler backup, 2 heat exchangers



Our solar hot water storage tanks can be connected in a variety of system sizes and configurations, including in series and parallel. For additional connection options and diagrams, please see the SunMaxx Technical Manual.

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Commercial Solar Hot Water Storage Tanks

Specifications, Features & Available Models

SunMaxx commercial solar hot water storage tanks are incredibly versatile, available in a number of different storage capacities, and with customized numbers (and types) of internal heat exchangers. Each tank is engineered and designed to meet the specifications of your application and solar hot water system or heating system.

SunMaxx commercial solar hot water storage tanks feature:

- Stainless steel body with removable lid
- 2" foam insulation on sides & top
- Collapsible - ships flat, assembles on site
- Capacities from 160G to 2500G
- Connect multiple tanks in series or parallel for larger systems
- Customized for your application - number/type of internal heat exchangers, ports, flanges and pass-throughs
- Perfect for radiant/space heating applications as well as domestic hot water tie-in heating

Model Number	Capactity (G)
H184	184 G
H228	228 G
H275	275 G
H328	328 G
H354	354 G
H415	415 G
H422	422 G
H512	512 G
H533	533 G
H620	620 G
H659	659 G
H738	738 G
H798	798 G
H806	806 G
H822	822 G
H949	949 G
H957	957 G
H975	975 G
H1160	1160 G
H1205	1205 G

Model Number	Capacity (G)
H1504	1504 G
H1550	1550 G
H1900	1900 G
H2000	2000 G
H2500	2500 G

A SunMaxx Representative, Dealer or Installer can assist you in determining the correct size commercial solar hot water storage tank to meet the needs of your application. You can also get assistance in choosing the correct internal heat exchanger(s) for your storage tank. The available heat exchangers are listed below:

Model Number	Length(s) (FT)	Material(s)
426	90 ft	Copper
425	120 ft	Copper
427	180 ft	Copper
423	60/60 ft	Copper/Copper
422	90/90 ft	Copper/Copper
421	60/120 ft	Copper/Copper
424	90/120 ft	Copper/Copper
CUP420	160/40 ft	Copper/PEX

Stacked heat exchangers allow for multiple (2) functions per heat exchanger. In other words, a 90/90 heat exchanger will offers 1 heat exchanger loop for the solar input, and a second heat exchanger loop that can be used to heat HTF that is used to travel through a radiant heating zone.

The typical application for SunMaxx commercial solar hot water storage tanks is for radiant/space heating systems. Typically, these systems will utilize 1, or more, heat exchangers for the solar loop input. Another heat exchanger, or more, will be used to heat the HTF in the radiant zone loops, and an additional heat exchanger may be added and used to pre-heat your domestic hot water before passing it to your traditional storage tank/heater.

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