

# **STIEBEL ELTRON**

## **Simply the Best**

### SOLAR WATER HEATING SOLUTIONS



### **Components & SOLKits** FOR SOLAR THERMAL WATER HEATING



**ISO 9001**  
CERTIFIED



Stiebel Eltron has been designing solar thermal systems for 40 years. Because every installation is different, we have a full line of SOLKits, mounting hardware, and the individual components necessary for solar thermal installations. We are committed to making and supplying the best solar thermal components available. We've been at the forefront of water heating technology for almost 90 years. As a leader in the field we have no intention of standing still.

**800.582.8423**

[www.stiebel-eltron-usa.com](http://www.stiebel-eltron-usa.com)

Why solar thermal?

The cost to make hot water is the largest utility expense for a household. The average is about 20% of household energy for just domestic hot water (cooking, cleaning, bathing). This jumps to about 50% if hot water is also used for heating. It makes sense to save as much as possible on hot water, which is exactly what solar thermal can do.

Solar thermal has been used to capture the power of the sun and turn it into hot water for decades before solar photovoltaic (PV) became a possibility. Solar thermal is 3 to 5 times as effective in capturing the sun’s power as PV. Solar thermal can save up to 75% off water heating bills. It reduces carbon footprint and increases the property value of a home.

Federal tax credits are in place for 30% of the installed cost of a solar thermal system. State rebates and incentives, as well as local utility incentives, exist in many parts of the country.

How a solar thermal system works.

Collectors absorb the sun’s heat energy and transfer it to a heat transfer fluid in the system. A pump moves the hot fluid to a domestic water tank where the heat is transferred to the water through a heat exchanger. The now cool heat transfer fluid circulates back to the collector to gather more heat.

Stiebel Eltron has been designing and manufacturing solar thermal components for 40 years. Like all of Stiebel Eltron’s products, our solar components are carefully engineered. They are designed to work both individually and system-wide to bring you the best in performance and reliability.



Ultra-High Performance Components



**SOLKit Water Heating Packages** | Stiebel Eltron SOLKits highlight our 40 years of solar thermal experience by combining the best solar components into complete packages. SOLKits come in 1, 2, or 3 panel sizes. Selection of the correct kit depends on family size, domestic hot water needs, and space heating needs if required. Our expert service representatives are available by phone or email for assistance and recommendations. Kits come complete with recommended pump station, controller, and tank. A Rack Kit, and the line set for a particular installation, completes the package, supplying every component needed. Our components are designed for maximum compatibility, ease of installation, and reliability.

Stiebel Eltron SOLKit 2 and SOLKit 3 are SRCC OG-300 Certified, and qualify for Federal Tax Credits of 30% of total installed cost. State and local utility rebates can offer even more savings and incentives.

**Tanks** | Stiebel Eltron SBB indirect tanks are made in our factory in Germany. They come in sizes from 50 gallon (200 l) to 160 gallon (600 l) and can serve as a dedicated high-capacity solar storage tank in both residential and commercial installations.

Stiebel Eltron tanks and heat exchangers are made of heavy gauge steel. All surfaces in contact with domestic hot water receive a thick porcelain enamel coating after shot-peening to clean the steel surface. In addition, vessel exteriors receive a light porcelain coating. Three inches of urethane foam insulation ensures that hot water stays hot, and standby heat loss is minimized. Stiebel Eltron SBB tanks are equipped with large sacrificial anodes with wear indicator and an extra-large clean-out port for ease of maintenance.

SBB tank are available with either single coil or double coil large-bore heat exchangers, designed to maximize heat transfer. Single heat exchanger models can be used for solar applications in conjunction with an external

SBB 300 S Single Coil Tank



SBB 600 Plus Double Coil Tank

**Collectors** | Stiebel Eltron SOL 27 Premium is a highly efficient solar thermal collector, among the top 10 collectors measured for output by the SRCC. The net absorber surface of over 25 square feet results in a maximum output of 31,300 btu/day per panel (SRCC clear day rating). The SOL 27 Premium features a highly selective absorber coating, low-iron, tempered solar glazing, and very effective insulation around the absorber plate. The internal fluid tubes are copper and the absorber plate is aluminum. The low 3” profile of the SOL 27 makes it visually less obtrusive and able to accommodate a variety of architectural and engineering needs.

SOL 27 Premium collectors are available in both Standard (Vertical) and Wide (Horizontal) configurations. Manufacturing in the US for our collectors and racking systems also means we can custom-anodize collector frames and racks to meet specific architectural color requirements.

SOL 27 Premium Collectors



**Mounting Systems** | Stiebel Eltron mounting systems are made in the U.S. from extruded aluminum. Racks are available in three different configurations: the Fixed 45° Rack Kit; the Adjustable Rack Kit, a highly adaptable rack capable of three different angle installations, 30°, 45°, & 60°; and the Flush Mount Kit. All Rack Kits are available in versions for both Standard (Vertical) or Wide (Horizontal) collectors.

The Flush Mount Kit is used for installations where the roof structure itself is at the proper angle to mount the collectors. The Fixed and Adjustable Rack Kit are designed for flat roof installations or for other installations where the existing roof angle is not optimal by itself.

Fixed Rack Installation on a residential pitched roof



Flush Mount Installation on a residential roof



**Pump Station** | Stiebel Eltron Pump Stations are specially designed for closed loop solar systems. The 3-speed Wilo circulator pump is designed to perfectly integrate with our SOM 6 controller. Pump station piping is high grade brass. Pump stations come preassembled with a steel wall mounting bracket and feature 2 drain valves, brass check valves to prevent thermo-siphoning, integrated flow meter, and include fittings for tank mount as well as NPT adapters. The pump station can be completely isolated from the system, so no draining is necessary during servicing.



Flowstar Pump Station



**SOM 6 Controller**  
Stiebel Eltron controller for all standard solar installations features 4 temperature sensors and variable speed pump control

**Stiebel Eltron Controller** | The SOM 6 controller is used for all Stiebel Eltron standard solar thermal systems. The controller is equipped with an illuminated system-monitoring display. Adjustment and control of the solar system can be easily carried out through the user-friendly pictograph display. The SOM 6 features 4 temperature sensors, a solar operating hours counter, variable pump speed control, vacation mode, and an industry-standard RESOL vBus®.

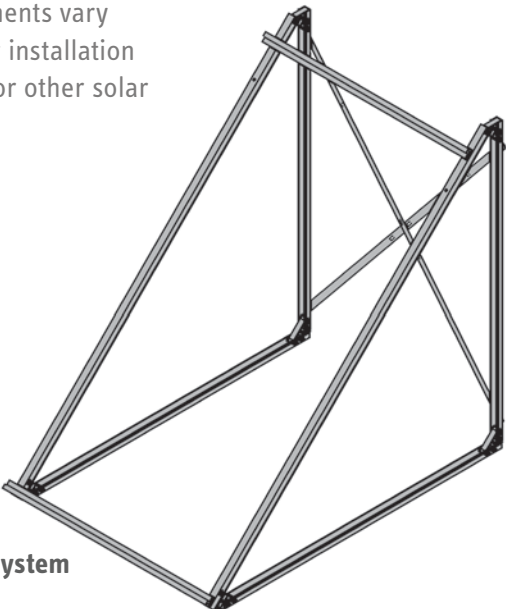
Other Stiebel Eltron controllers are available for larger residential and commercial systems, including complicated commercial systems.

**SOM 10 Controller**  
Multi-system controller for complicated solar systems has 15 sensor inputs and 9 power outputs



The simple, strong u-channel design of our racks can withstand high wind and heavy snow. Stiebel Eltron mounting systems can be assembled using only two different socket sizes. Additional mounting components, such as hardware, in addition to flush mount and fixed angle racks, is available.

Racks are not included in our SOLKits as installation requirements vary from site to site. The correct mounting system for a particular installation can be conveniently specified in conjunction with any SOLKit or other solar thermal order.



Fixed 45° Rack System



# Systems to meet any needs

Solar thermal systems can be tailored to meet just about any need or existing mechanical situation. The diagrams show three common solar thermal installations. Many components of a solar thermal system are universal to all systems.

## Solar Thermal Collectors

Absorbs energy from the sun, converting it into heat.

## Heat Transfer Fluid

A propylene glycol food- and pharmaceutical-grade fluid that holds and transfers heat from the collectors to the tank. The heat transfer fluid is freeze-proof for cold nights.

## Pump Station

Moves the heat transfer fluid around the system.

## DHW Solar Storage Tank

The internal heat exchanger transfers the heat from the heat transfer fluid to the domestic hot water the tank holds.

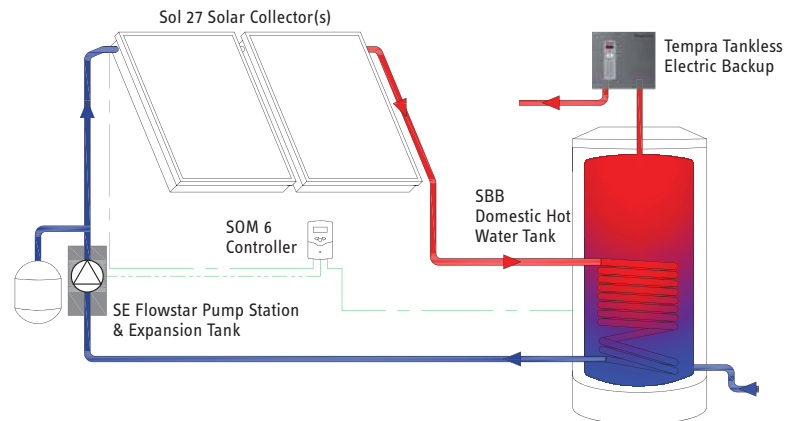
## Controller

An electronic device that controls the operation of the pump and the safety of the system.

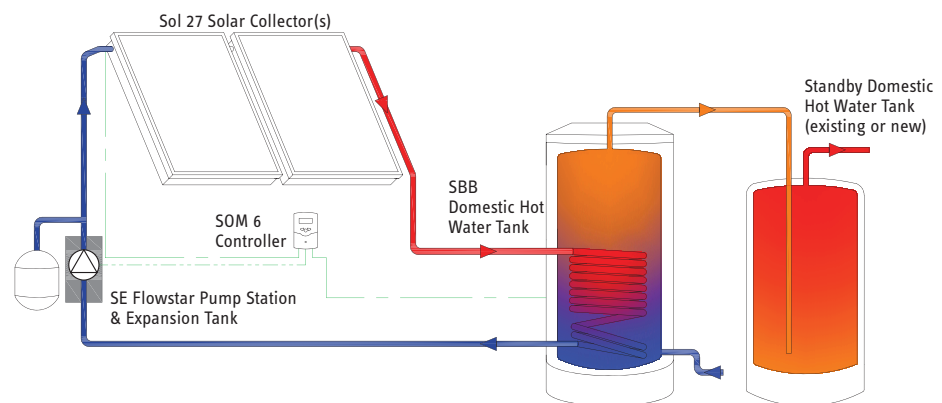
## Tankless Water Heater

A backup system is used to add additional heat to the household hot water if necessary. This situation can happen, for instance, on a very cloudy day if the solar system can not make enough hot water to satisfy the demand or make it hot enough. A Stiebel Eltron Temptra® tankless electric water heater is an ideal backup for a solar thermal system.

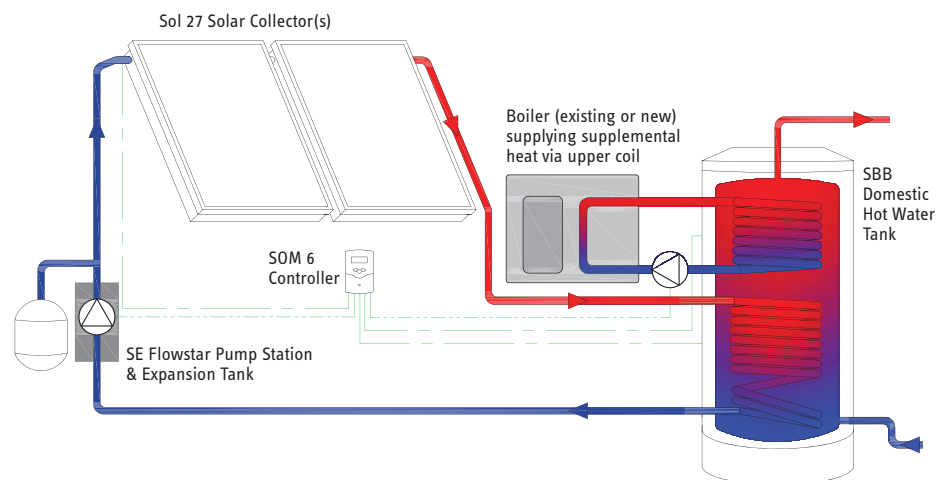
**Solar Thermal System with Tankless Electric Backup**



**Solar Thermal Preheat System with Standby Tank**



**Solar Thermal Preheat System with Boiler Backup via Upper Coil**



# Solar Thermal Water Heating Packages & Components

## Technical Data



ISO 9001  
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SOLKits	SOLKit 1 <sup>1</sup>	SOLKit 2 <sup>1</sup>	SOLKit 3 <sup>1</sup>
Part number	Solkit1	Solkit2	Solkit3
Collector: SOL 27 Plus	1	2	3
Tank	SBB 300 S (80 gal)	SBB 300 Plus (80 gal)	SBB 400 Plus (108 gal)
Pump Station <sup>2</sup>	SE Flowstar Kit	SE Flowstar Kit	SE Flowstar Kit
Controller	SOM 6 Plus	SOM 6 Plus	SOM 6 Plus

<sup>1</sup> SOLKits include inlet/outlet connector, collector sweat fittings, glycol.

<sup>2</sup> Pump Station Kit includes circulator, 2 boiler drains, expansion tank, pressure relief valve, check valve, pressure gauge, return line thermometer, air vent.

Sol 27 Premium Collector	Standard / Vertical	Wide / Horizontal
Part number	230016	230017
Height	85.5" / 2171 mm	46.1" / 1171 mm
Width	46.1" / 1171 mm	85.5" / 2171 mm
Depth	3.8" / 96 mm	3.8" / 96 mm
Weight	88.2 lb / 40 kg	89.3 lb / 40.5 kg
Casing material	Aluminum, corrosion resistant	
Thermal insulation thickness	2" / 50 mm	
Thermal insulation material	Mineral wool, low outgassing, WLG 040	
Collector connection	22 mm plug-in connector	
Max. idle temperature	<410°F / <210°C	
Absorption level	95%, ±2%	
Emission level	5%, ±1%	
Collector yield	>525 / kWh/(m <sup>2</sup> p.a.)	

Please check our website or literature for additional information on these collectors.

Solar Tanks	SBB 300 S	SBB 400 S	SBB 300 Plus	SBB 400 Plus	SBB 600 Plus
Part number	221219	221222	187873	187874	187875
# of coils	1	1	2	2	2
Storage capacity	80.6 gal / 305 l	108.6 gal / 411 l	80.6 gal / 305 l	108.6 gal / 411 l	162.9 gal / 617 l
Weight empty	226 lb / 102.5 kg	371 lb / 169 kg	339 lb / 154 kg	412 lb / 187 kg	544 lb / 247 kg
Weight full	658 lb / 298.4 kg	1304 lb / 591 kg	1051 lb / 477 kg	1362 lb / 618 kg	1955 lb / 887 kg
Insulation thickness	3" / 75 mm	3.0" / 75 mm	3" / 75 mm	3" / 75 mm	3.35" / 85 mm <sup>1</sup>
Height with insulation	66.1" / 1679 mm	72.7" / 1848 mm	66.1" / 1679 mm	72.7" / 1848 mm	68.3" / 1735 mm
Width with insulation	27.55" / 700 mm	29.6" / 750 mm	27.55" / 700 mm	29.52" / 750 mm	36.22" / 920 mm <sup>1</sup>
Standby losses in 24 hrs	6500 BTU / 1.9 kWh	7500 BTU / 2.2 kWh	7500 BTU / 2.2 kWh	7500 BTU / 2.2 kWh	10000 BTU / 2.2 kWh
Water connections	1" male BST, supplied with sweat adaptor to 3/4" copper pipe				

SOLKits do not include installation. Racks, mounting hardware, and the pipe and insulation to connect panels to tank (line set) are not included in SOLKits. These components vary based on site requirements. Please check our website or literature, or call to discuss your needs for any installation. The appropriate components can be included with a SOLKit order.

Distributed by:



Pump Station	SE Flowstar Kit
Part number	221339
Pump	3-speed Wilo
Pressure gauge	0-87 psi
Temp gauge	32-320°F
Drain valves	2
Internal piping size	3/4"
Max. collector area	540 sq. ft.

Please check our website or literature for additional information on this pump station, or for information on other pump stations.

Controller	SOM 6 Plus
Part number	230141
Dimensions	6.77" x 4.33" x 1.92" 172 mm x 110 mm x 49 mm
Inputs	4 Pt1000 temp. sensors
Outputs	1 semi-conductor relay for pump speed control
Bus	RESOLVBus®
Power supply	100-240 V
Power consumption	< 1 W (standby)

Please check our website or literature for additional information on this controller, or for information on other controllers.

## STIEBEL ELTRON

17 West Street  
West Hatfield, MA 01088

TOLL FREE 800.582.8423

PHONE 413.247.3380

FAX 412.247.3369

info@stiebel-eltron-usa.com

www.stiebel-eltron-usa.com