

STIEBEL ELTRON

Simply the Best

Solar Water Heating Solutions



Components & SOLkits

FOR SOLAR THERMAL
WATER HEATING



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.

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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 in up-roof configuration, and 2 or 3 panel sizes across the roof. 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.

Tanks | Stiebel Eltron SB 300 & 400 E DHW tanks are made in our factory in Slovakia. They come in both 80 gallon (300 l) and 110 gallon (400 l) sizes 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. Two 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.

SB 300 and 400 E storage tanks are equipped with a 3 kW electric heating element to back up the solar production. This heating element is sheathed in a steel cylinder inside the tank, and can be removed and replaced without needing to depressurize and drain the tank.

Auxiliary ports allow for additional installation applications,

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



including boiler backup, split heat pumps, and hydronic applications.

Stiebel Eltron also sells German-made single and dual coil storage tanks without the electric backups.

SB 300 E Tank with integral electric backup



SBB 400 Plus Dual Coil Tank



SOM 6 Plus Controller

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

Stiebel Eltron Controller | The SOM 6 Plus 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 Plus 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 complex commercial systems.

SOM 10 Controller

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



Mounting Systems | Stiebel Eltron mounting systems are made in the U.S. from extruded aluminum. Racks are available in three different configurations: the 45° Rack Kit; the 30-60° Rack Kit, an adaptable rack capable of installations at both 30° & 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 45° and 30-60° Rack Kits are designed for flat roof installations or for other installations where the existing roof

Fixed Rack Installation on a residential pitched 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 Plus 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



Solarwave DL2

Online Datalogging | Stiebel Eltron's optional Solarwave DL2 datalogger gives owners remote access via the internet to their solar thermal system. Dashboards are designed for both owners and installers, and include a diagram view for virtual inspection of the system. Installers can manage and control systems remotely and set optional email alarms for notification of performance issues. Remote access reduces on-site cost for service contracts.

angle is not optimal by itself.

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, are available.

Flush Mount Racks come standard with SOLkits, but the raised rack kits can be specified with any SOLkit order when the need arises.

Flush Mount Installation on a residential roof



Flush Mount Rail 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 Storage Tank

The internal heat exchanger transfers the heat from the heat transfer fluid to the domestic hot water the tank holds. A backup heating element keeps the tank hot when the sun isn't shining.

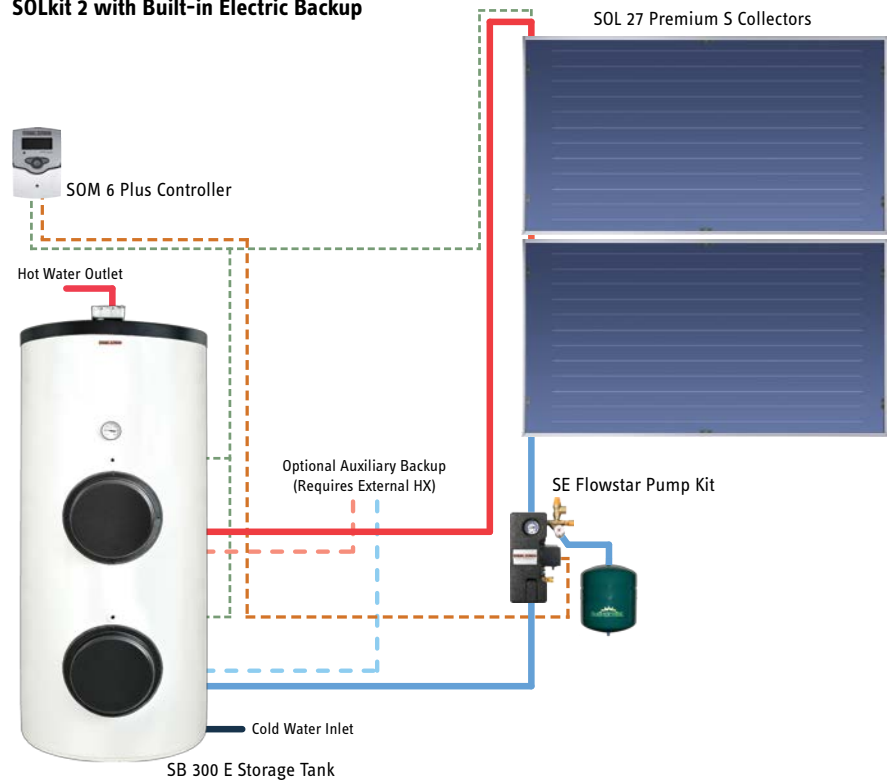
Controller

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

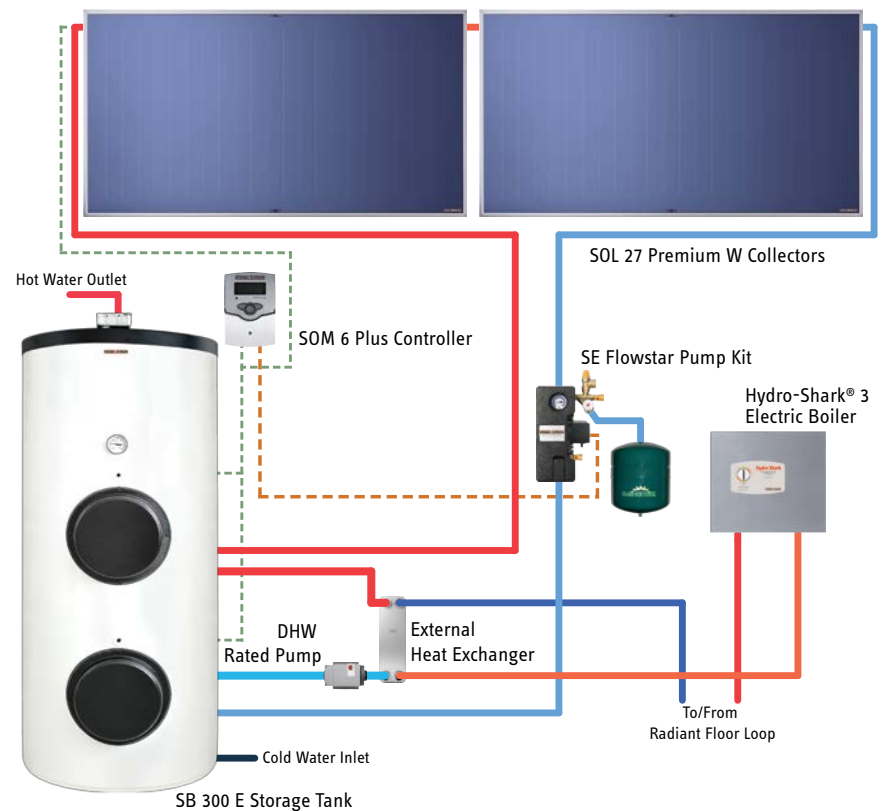
Backup Options

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. The Stiebel Eltron SB E tanks in SOLkits have integral electric backup, but other possible solutions include Stiebel Eltron Tempra® tankless electric water heaters or existing site-specific backup systems.

SOLkit 2 with Built-in Electric Backup



SOLkit 2 in Wide Configuration with Auxiliary Ports Utilized



Solar Thermal Water Heating Packages & Components

40 Years Of German Technology

Technical Data



SOLkits	SOLkit 1 ¹	SOLkit 2 ¹	SOLkit 3 ¹	SOLkit 2W ¹	SOLkit 3W ¹
Item number	612502	612502	612503	612512	612513
Collectors:	1 - SOL 27 Premium S	2 - SOL 27 Premium S	3 - SOL 27 Premium S	2 - SOL 27 Premium W	3 - SOL 27 Premium W
Tank	SB 300 E (80 gal)	SB 300 E (80 gal)	SB 400 E (105 gal)	SB 300 E (80 gal)	SB 400 E (105 gal)
Pump Station	SE Flowstar Kit ²	SE Flowstar Kit ²	SE Flowstar Kit ²	SE Flowstar Kit ²	SE Flowstar Kit ²
Controller	SOM 6 Plus	SOM 6 Plus	SOM 6 Plus	SOM 6 Plus	SOM 6 Plus
Lineset	50' dual line with fittings	50' dual line with fittings	50' dual line with fittings	50' dual line with fittings	50' dual line with fittings

¹ SOLkits include inlet/outlet connector, collector sweat fittings, glycol.

² Pump Station Kit includes circulator, 2 boiler drains, expansion tank, pressure relief valve, check valve, pressure gauge, return line thermometer, air vent, tank mounting kit.

SOL 27 Premium Collector	Standard / Vertical	Wide / Horizontal
Item 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 ² p.a.)	

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

Solar Tanks	SB 300 E	SB 400 E
Item number	234110	234111
# of coils	1	1
Storage capacity	79.3 gal / 300 l	105.6 gal / 400 l
Weight empty	313 lb / 142 kg	399 lb / 181 kg
Weight full	1,010 lb / 458 kg	1,334 lb / 605 kg
Insulation thickness	2" / 50 mm	
Height with insulation	61 ³ / ₈ in / 1552 mm	60 ¹³ / ₁₆ in / 1544 mm
Width with insulation	25 ⁹ / ₁₆ in / 650 mm	29 ¹ / ₂ in / 750 mm
Standby losses in 24 hrs	2.8 kW / 9,553 BTU	3.0 kW / 10,236 BTU
Water connections	1" male NPT	
Backup heating element	3.0 kW / 10,236 BTU	3.0 kW / 10,236 BTU

SB 300 E & SB 400 E Certified to UL Std. 174 Conform to CAN/CSA Std. 22.2 No. 110-94

SBB 300 & SBB 400 Certified to IAS U.S. requirements for indirect fired water heaters for use with external heat source. No. 1-91, Dates June 6, 1992

Controller	SOM 6 Plus
Item 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	RESOL vBus®
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.

For full warranty information on all SOLkits and individual system components, please visit our website.

Pump Station	SE Flowstar Kit
Item number	221339
Pump	80 W, 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.

SOLkits do not include installation. SOLkits do not include piping insulation as this component varies with site requirements. Please check our website or literature, or call to discuss your needs for any installation. The appropriate components can be included with any order.

Distributed by:

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