

"Made in Germany" systems for
domestic hot water and heating with solar energy



Solar thermal systems
for warm water
generation and central
heating support

Rising every day for free: solar energy for



And just as important, it's about working with our customers to deliver exactly what they require and delight them with our products.

By incorporating the most modern technology, Vaillant's unique Total Solar System Solution intelligently blends solar and conventional energy supplies to optimise domestic heating efficiency.

Find our latest solar thermal range on the following pages:

- Solar collectors,
- Solar storages,
- Solar controls,
- Accessories for solar systems,

from Vaillant for you.

Global temperatures are continuously rising whilst traditional energy resources are declining - therefore it is no wonder that domestic energy conservation remains of universally high priority. The development of innovative and effective renewable energy solutions is critical to future efficiency and environmental wellbeing.

**Your choice for your family as well as our nature:
VAILLANT**

The principles of solar heating are fairly basic but in practice, designing a system that efficiently captures the sun's energy and turns it into hot water requires advanced technology.

We are well placed to offer solar heating technology, with over 135 years experience of developing products that have shaped the heating industry. As Europe's leading boiler manufacturer, Vaillant sets the standards for performance, efficiency, quality and reliability. With the focus on new technologies we continue our path in this segment .

your domestic comfort



Vaillant's range of highly efficient flat plate collectors have been designed to give maximum energy absorption. Easy to install they are suitable for different application areas. As the panels absorb diffused light as well as direct sunlight, they will gain solar energy even on cloudy days. Multiple panels can easily be fitted together when required for larger systems.

The auroTHERM plus flat plate collector has a special anti-reflex coating on its glass to ensure maximum solar transmission. Using a range of mounting brackets the collector can be fitted to a pitched roof, flat roof or even be integrated into the roof for improved aesthetics.

The sun's energy heats solar fluid in the solar collector. The solar fluid is then pumped by the solar pump unit to a coil designed to heat water in a dedicated stainless steel storage cylinder, our auroSTOR.

A second coil in the storage can be connected to a conventional heating source, such as for example a gas boiler. Therefore additional heating can be provided even when there is insufficient solar energy available.

Managed by our solar control auroMATIC the system is able to automatically switch between solar and the auxiliary heat source. It ensures that there is always hot water and / or heating on demand, regardless of the solar irradiation or a cloudy sky at that moment.

Solar collectors

auroTHERM

The Vaillant solar domestic hot water system is a sealed pressurised solar system with unique features built-in to every component. It's totally consistent with our commitment to providing maximum efficiency, high performance and total reliability.

auroTHERM flat plate collectors

The auroTHERM flat plate collector VFK 900 is of high quality build. It has a toughened 4mm thick solar glass cover. The solar glass cover is made out of a high-purity glass mixture and reaches a transmission value of 91%.

The auroTHERM plus flat plate collector VFK990/1 has a special anti-reflex coating on the toughened sunarc 4mm thick glass. Due to a special surface additive process it reaches 96% transmission value. The collector consists of an ultrasonically welded copper grid with a high selective absorber coating and 60mm rear and side insulation. The whole assembly is encased in a polished aluminium frame for a neat construction.

Each of the collectors can be assembled to interconnecting rows in horizontal or vertical orientation to suit the available roof space.

An extensive range of accessories is available for pitched or flat roof, and the added option of in-roof installation means that the flat plate collector can be fitted in virtually any situation.



Options of application:

- Solar warm water generation, heating of swimming pools and/or support of central heating
- Compatible for simple on-roof installation, for harmonious inroof installation and for remote installation
- Optionally for horizontal or vertical installation - for solar earnings even on cloudy days

Let it show you what you have earned - solar control auroMATIC



auroMATIC offers three times periods for auxiliary storage heating, giving the end user total control over the hot water performance in his home. This is an intelligent solar differential control with an easy to read LCD display and simple push button operation. It monitors the temperature of the collector and of the storage. When sufficient solar energy is available the control switches the solar pump unit on in order to load the storage. If there is insufficient solar energy available, the control will automatically determine when the auxiliary heat source is required.

auroMATIC 560

Application in the solar supported creation of warm water with option of auxiliary heating tailored to the specific requirement.

- Vaillant user comfort "turn and click"
- Fast, safe installation thanks to System ProE
- Symbol display, indication of operation status and cycle times
- Special functions (f.ex. Economy, party, singular storage loading...)
- Program for holidays
- Detection of solar earning, indicated over the graphical display

Options of application:

- 2 independent collector fields
- Possibility of connecting a second storage or swimming pool heating
- Drinking water circulation pump

auroMATIC 620

Busmodular control system for solar supported heating which can be extended up to 14 heating circuits and up to 8 remote control appliances.

- Integrated weather-driven regulation
- Comfortable text display with graphical indications
- Constant display of solar earning
- Option for remote control
- Control of heating cascades
- Easy to install with ProE connection plugs and ample inner space

Options of application:

- 2 independent collector fields
- 1 direct heating circuit, 1 mixing circuit (f. ex. for underfloor heating)
- 1 buffer storage and an indirect heated warm water storage or a solar combi storage
- 1 drinking water circulation pump

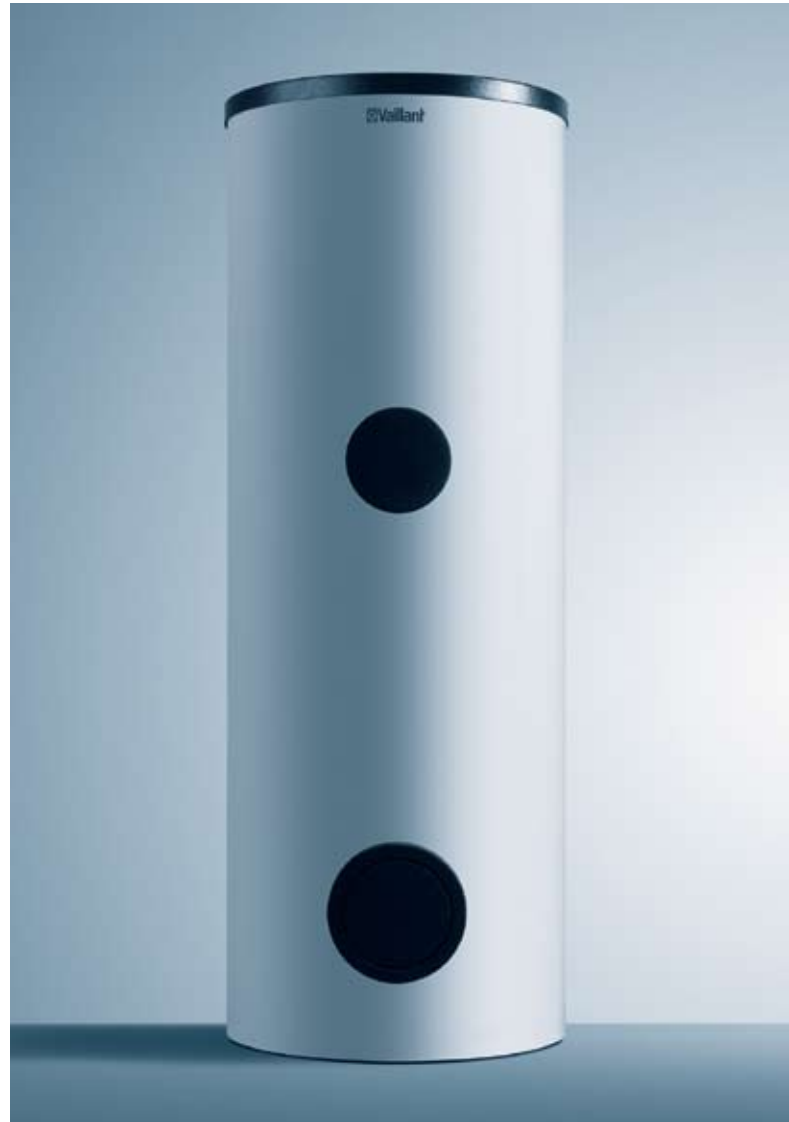
Solar warm water storages

Warm water comfort made by Vaillant: solar warm water storages **VIH S**

auroSTOR solar storages

Our bivalent solar storage manufactured from stainless steel stands in a vertical position. The storage itself, as well as both tube coils, are enamelled on the upstream face and additionally equipped with a magnesium anode. The casing has got a removable synthetic envelope and CPC-free 75mm warmth insulation. Furthermore the auroSTOR contains a cleaning lid as well as an integrated thermometer and the connection for an electric heating rod.

It is available with the capacities 300, 400 and 500 litres of domestic hot water thus making it an essential part of any solar system.



Options of application:

- Indirect heated solar drinking water storage
- For one family or multi-family houses
- For over pressures up to 10bar

Warm water buffer storages VPS - all in one solution for your warm water and central heating

Solar buffer storages

The buffer storage range VPS S is made of high quality steel. It is destined for the supply of warm water for central heating. This is the optimal supplement for solar thermal systems - it facilitates an ideal adjustment to the customers' individual requirement. We offer three capacities (500, 750 and 1000 litres) for a particular adaptation to your requirements for warmth.

The high-value 90mm-warmth-insulation drops operation costs and reduces the stand-by-losses to a minimum.

Buffer storage - with domestic warm water upon demand

Drinking water stations can be combined with our buffer storages. Based on the principle of instantaneous warm water generation domestic hot water is created hygienically.

Our range offers the capacities of 25 or 40 litres/minute for a comfortable combination with our solar buffer storage range.

Combi solar storages - all-in-one with solar thermal technology

auroSTOR VPS SC 700 is a tank-in-tank storage: 490 litres of buffer volume and 180 litres of domestic warm water for the central supply of warm water and central heating.

Buffer storages at a glance:

- Immediate hot water at the desired temperature
- Reliable and hygienic supply of warm water for up to 9 units in multiple-family-dwellings
- High efficiency due to shift load principle
- High capacities from 61kW to 98kW
- An illuminated display with user-friendly handling
- Individually programmable circulation functions
- Stainless-steel plate heat exchanger



Options of application:

- Central supply of heating to a one- or two-family-house, optionally the supply of limited quantities of domestic warm water with drinking station

Auxiliary source for solar thermal systems

When solar energy alone cannot cover your demand: extensive Vaillant range to meet all your warm water and heating requirements



Whenever solar irradiation is not enough to fully cover your demand for warm water and/or central heating, the solar system could automatically regulate the switch to the auxiliary backup system of a second source appliance. Whether floor-standing or wall-hung - chose any boiler or heater out of our wide range and combine it with your solar thermal system.

Combined with a bivalent storage the Vaillant control will take over the whole adjustment work and make your system function efficiently and to your fullest satisfaction. You don't have anything to do apart from "telling" it your requirements concerning the temperature of your warm water and/or your heating demands - let the system take care of your well-being at home!

Full service and comfort for you - that is our aim.

Solar system auroSTEP: the easiest way to be independent from any energy supplier



Drainback system auroSTEP

The solar system auroSTEP offers the opportunity to use new solar thermal technology for the generation of warm water in your home. Herewith we present a system that is easy to implement and offers calculable costs.

The solar system package auroSTEP contains a solar storage with a pre-mounted solar pump, an integrated solar control, a corresponding auroTHERM flat plate collector (or collectors - depending on the system) and the compatible installation accessories for the particular type of roof.

This is a well adjusted system for standard installations which does not require detailed planning. We offer the solar system in three versions: monovalent with 2,2m² collector area, bivalent with 4,4m² or bivalent with electric back-up (E-patron 2kW and 3kW/230 V). The auroSTEP storage is available with 150 and 250 litres of drinking warm water.

Drainback technology

When the auroSTEP system is switched off the solar liquid "drains back" to the bottom of the pipes- in the storage and in the upper pipes is nothing but air. The system is pre-mounted and pre-filled what makes the planning and its installation less complicated and thus less susceptible to errors. Our system "plug'n flow" lets you enjoy your warm water heated by solar energy after a very short time.

auroSTEP at a glance:

- Small planning effort
- Small installation effort
- Protected from stagnation damage
- Frost protection
- Installation place of the storage can be chosen arbitrarily

Options of application:

- Decentral supply of domestic warm water in 1-family houses
- For refurbishment or new construction

Thermosyphon system auroSTEP pro

Solar system auroSTEP pro: proven concept in compact design



Our auroSTEP pro system contains a storage which is installed on the roof directly over the collector/s. Well crafted collectors, enamelled "tank-in-tank" storages and a coated mounting bracket give the system the known Vaillant quality.

The storages are available in the capacities of 150, 200 and 300 litres of domestic hot water.

When the solar earnings are not sufficient to cover the warm water demand, electrical backups of 2 or 3 kW can be added to the system. You get further warm water comfort without big installation efforts.

auroSTEP pro at a glance:

- No additional energy costs to start the pump
- Reduced maintenance costs
- Corrosion protection
- Cost effective solar system for 1-family houses

Options of application:

- Decentral supply of domestic warm water in 1-family houses

Vaillant Solar-System: efficient and fair-looking



Vaillant solar thermal technology gives highest comfort with high efficiency..., but this is not all.

With our system you opt for a fair-looking way of using a natural source for your warmwater and heating generation.

Technical data

Product properties collectors	unit	VFK 990/1	VFK 900
Surface	m ²	2,24 / 2,02	2,24 / 2,02
Height	mm	1930	1930
Width	mm	1160	1160
Depth	mm	110	110
Weight	kg	43	43
Absorber content	l	1,1	1,1
Copper flat sealing connection	diameter mm	G 1/2	G 1/2
Insulation thickness	mm	60	60
Operational pressure max.	bar	10	10
Light transmittance of the solar security glass	%	96 +/-2	91 +/-2
Absorber emissions	%	5 +/-2	5 +/-2
Absorber absorption	%	95 +/-2	95 +/-2
Solar sensor capsule	diameter mm	6	6
Construction certification DIN and control certification		CE 0036	CE 0036
shutdown temperature (acc. prEN 12975-2, c<1m/s)	°C	232	196
Degree of efficiency	%	85,4	81,4
Coefficient of efficiency k ₁	W / (m ² k)	3,37	3,47
Coefficient of efficiency k ₂	W / (m ² k ²)	0,0104	0,0101

Product properties controls	unit	auroMATIC 560	auroMATIC 620
Nominal voltage	V	220-230	220-230
Frequency	Hz	50	50
Power consumption	W	3	3
Breaking capacity		250 V AC 2A	250 V AC 2A
Ambient temperature (min./max.)	°C	0-40	0-40
Protection degree	IP	IP 40 as per DIN 40050	
Protection class		IP, conform with VDE 0631	

Product properties warm water storages	unit	VIH S 300	VIH S 400	VIH S 500
Nominal storage capacity	l	300	400	500
Max. storage pressure	bar	10	10	10
Max. heater pressure	bar	10	10	10
Max. primary circuit temperature	°C	115	115	115
Max. hot water temperature	°C	85	85	85
Heat loss	l	1,9	2,1	2,3
Primary solar exchanger				
Area	m ²	0,7	0,7	1
Volume	l	10,7	9,9	14,2
Primary heat exchanger				
Area	m ²	0,7	1	1
Volume	l	4,7	4,5	6,6
Hot water power	l / 10min	165	195	245
Continuous power	kW	20	21	29
Continuous power	l / h	494	505	724
Dimensions				
Diameter without insulation	mm	500	650	650
Width with cover	mm	660	810	810
Height	mm	1775	1470	1775
Cold mains inlet, DHW outlet	thread	R 1	R 1	R 1
Circulation	thread	R 3/4	R 3/4	R 3/4
Flow / return connection	thread	R 1	R 1	R 1
Weight incl. insulation and packing	kg	150	169	198

Technical data

Product properties buffer storages	unit	VPS S 500	VPS S 750	VPS S 1000
Storage capacity, net (total)	l	500	750	1000
Max. heat pressure (max. operational pressure)	bar	16	16	16
Area solar heat exchanger	m ²	2,41	4,29	5,21
Pressure loss	mbar	150	60	70
Max. heat temperature	°C	95	95	95
Diameter	mm	597	750	850
Height with insulation	mm	1950	2002	2043
Diagonal length	mm	1980	2040	2090
Weight ready for operation	kg	89	185	216

Product properties combi storages	unit	VPS SC 700
Storage capacity, net (total / drinking water / buffer)	l	670 / 180 / 490
Continuous power	l / h	610
Max. heat pressure	bar	3
Max. hot water pressure	bar	10
max. solar pressure	bar	6
Primary solar exchanger		
Area	m ²	2,7
Volume	l	17,5
Pressure loss	mbar	20
Max. flow temperature	°C	95
Max. hot water temperature	°C	95
Primary heat exchanger		
Area heat exchanger	m ²	0,82
Hot water demand	l/h	2000
Volume heat exchanger	l	4,8
Max. heat temperature	°C	95
Heat loss ($\Delta t=40K$)	kWh / 24h	3,6
Dimensions		
Diameter	mm	950
Diameter without insulation	mm	750
Height with insulation	mm	1895
Height without insulation	mm	1655
Diagonal length	mm	1765
Weight		
Without insulation and packing	kg	210
Incl. insulation and packing	kg	230
Ready for operation	kg	926

Technical data: auroSTEP system - collector and storages

Product properties collectors	unit	VFK 900 S
Area (gross, aperture / net)	m ²	2,24 / 2,02
Absorber volume	l	1,25
Stagnation temperature	°C	196
Zero loss collector efficiency	%	79,1
Coefficient k ₁	W / (m ² k)	3,78
Coefficient k ₂	W / (m ² k ²)	0,0155
Max. pressure	bar	10
Absorber absorption	%	95 +/-2
Absorber remittance	%	5 +/-2
Transmittance	%	90 +/-2
Dimensions		
Width	mm	1160
Depth	mm	110
Height	mm	1930
Net weight	kg	39,5

Product properties warm water storages	unit	VIH SN 150i	VIH SN 250i	VEH SN 250i
Nominal storage capacity	l	150	250	250
Max. storage pressure	bar	10	10	6
Voltage	V AC / Hz	230 / 50	230 / 50	230 / 50
Power consumption	W	max. 180	max. 180	max. 7
Current	A	2	2	2
Primary solar heat exchanger: area	m ²	1,3	1,3	1,3
Solar liquid demand	l	8,5	8,5	8,5
Volume heat exchanger	l	8,4	8,4	8,4
Max. flow temperature solar	°C	110	110	110
Max. hot water temperature	°C	75	75	75
VIH: primary heat exchanger area	m ²	0,8	0,8	Immersion heater 2 kW 230 V / 50 Hz
Continuous power (at 85/65°C)	kW		26	26
Dimensions				
Diameter	mm	600	600	600
Width	mm	605	605	605
Depth	mm	731	731	731
Height	mm	1082	1692	1692
Weight with insulation and packing	kg	110	140	130
Weight ready for operation	kg	250	400	390

Technical data: auroSTEP pro system - collector and storages

Product properties collectors	unit	VFK 750 T
Area (gross, aperture / net)	m ²	1,97 / 1,77
Efficiency	%	η ₀ = 75
Stagnation temperature	°C	120
Casing		Aluminium casing, powder coated
Glass		4 mm solar safety glass
Coefficient k ₁	W / (m ² k)	4,53
Coefficient k ₂	W / (m ² k ²)	0,004
Operating pressure	bar	10
Absorber		copper plate
Coating		vacuum coating
Absorption	%	α = 95
Emission	%	ε = 5
Volume	l	1,1
Tranmission	%	88,5
Dimensions		
Width	mm	990
Depth	mm	79
Height	mm	1990
Net weight	kg	42

Product properties warm water storages	unit	VIH S 150 T	VIH S 200 T	VIH S 300 T
Nominal storage capacity	l	141	178	285
Max. operating pressure storage	bar	10	10	10
Max. hot water temperature	°C	85	85	85
Stand-by energy loss	W / K	1,8	2	2,9
Area heat exchanger	m ²	0,8	0,9	1,67
Volume heat exchanger	l	7,7	8,7	19,5
Dimensions				
Outer diameter	mm	500	530	530
Height	mm	1323	1323	2083
Weight	kg	59	67	106
Weight ready for operation	kg	208	254	411

Your local partner for Vaillant products:

Vaillant GmbH

Berghauser Str. 40 ■ Germany ■ 42859 Remscheid
Phone: +49 2191 18 - 0 ■ Fax: +49 2191 18 - 3090
info@vaillant-export.com ■ www.vaillant-export.com