

# Solar

## domestic hot water systems



auroTHERM exclusive VTK 570/2  
auroTHERM plus VFK 150  
auroTHERM VFK 145  
auroSTOR  
auroMATIC

# Soaking up the sun

Solar heating for domestic hot water is the fastest growing renewable technology across Europe



## Vaillant - Intelligent System Solutions

Vaillant has been setting the standards in the heating market for more than 130 years, creating products that have revolutionised the industry.

Today, as Europe's number 1 heating technology manufacturer, our heating systems cover renewable technologies, domestic gas boilers, hot water cylinders, controls and products for commercial applications. All systems provide the same enviable reputation for performance, efficiency, quality and reliability that has become synonymous with the Vaillant brand.

This brochure has been designed to provide all the information needed to select your next heating and hot water system. Should you need any additional information please contact us to see how we can help.

With global temperatures continuing to rise and as traditional energy resources decline, it's no wonder that domestic energy conservation remains a universally high priority. The development of innovative and effective renewable energy solutions is critical to future efficiency and environmental wellbeing. Solar heating for domestic

hot water is one such solution and is the fastest growing renewable technology across Europe. It is based on harnessing energy from the sun to indirectly heat water in a cylinder, and in the UK alone, sales of glazed solar collector units are forecast to double over the next four years. It is a market in which Vaillant continues to make significant investment to create category leading products that precisely meet the needs of specifiers, installers, home owners and, of course, the environment.

Vaillant's solar DHW system can provide around 50-60% of annual domestic hot water requirements and because it uses indirect solar radiation, not just direct sunlight, it works as efficiently in the UK as it does in other countries with similar climates. And, as you would expect from Vaillant, the solar control system has a built-in intelligence allowing it to automatically switch from solar to conventional power when needed. Vaillant's solar domestic hot water system ensures hot water comfort, helps reduce fuel bills, adds value to a property and is a positive benefit to the environment because it reduces carbon dioxide emissions.

### All the benefits under the sun

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

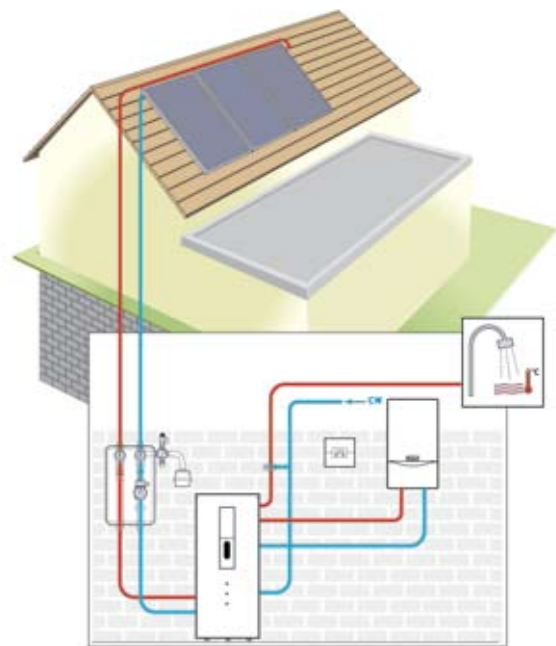
### Vaillant solar domestic hot water system

Vaillant's range of highly efficient solar collectors have been designed to give maximum energy absorption and are easy to install in various applications. As the panels work on diffused solar radiation as well as direct sunlight, they will even generate small amounts of energy on partially cloudy days. Multiple panels can easily be fitted together as required for larger systems.

Vaillant's **auroTHERM exclusive** vacuum tube collector has an external reflector known as a Compound Parabolic Concentrator (CPC) and has the highest annual solar yield per square metre area of any of our collectors. This small and lightweight collector is delivered pre-assembled for easy installation. Brackets are available to suit most pitched roofs, and A-frames are available for flat roof installations. The robust tubes are made from borosilicate glass and have a glass to glass vacuum seal for longevity. The tubes are internally coated with a high selective aluminium nitrite absorber coating for maximum solar efficiency. They have an appealing design, and multiple collectors can be easily fitted in series as required.

The **auroTHERM plus** flat plate collector has a special anti-reflex coating on the glass to maximise solar transmission and is one of the highest performing flat plate collectors currently available on the UK market. It is an ideal alternative to the vacuum tube collector in areas where collector durability is paramount or where collector weight is less important. This collector can be fitted using a range of mounting brackets to a pitched roof, flat roof or can even be integrated into the roof of a property for improved aesthetics. It can also be installed in horizontal or vertical orientation.

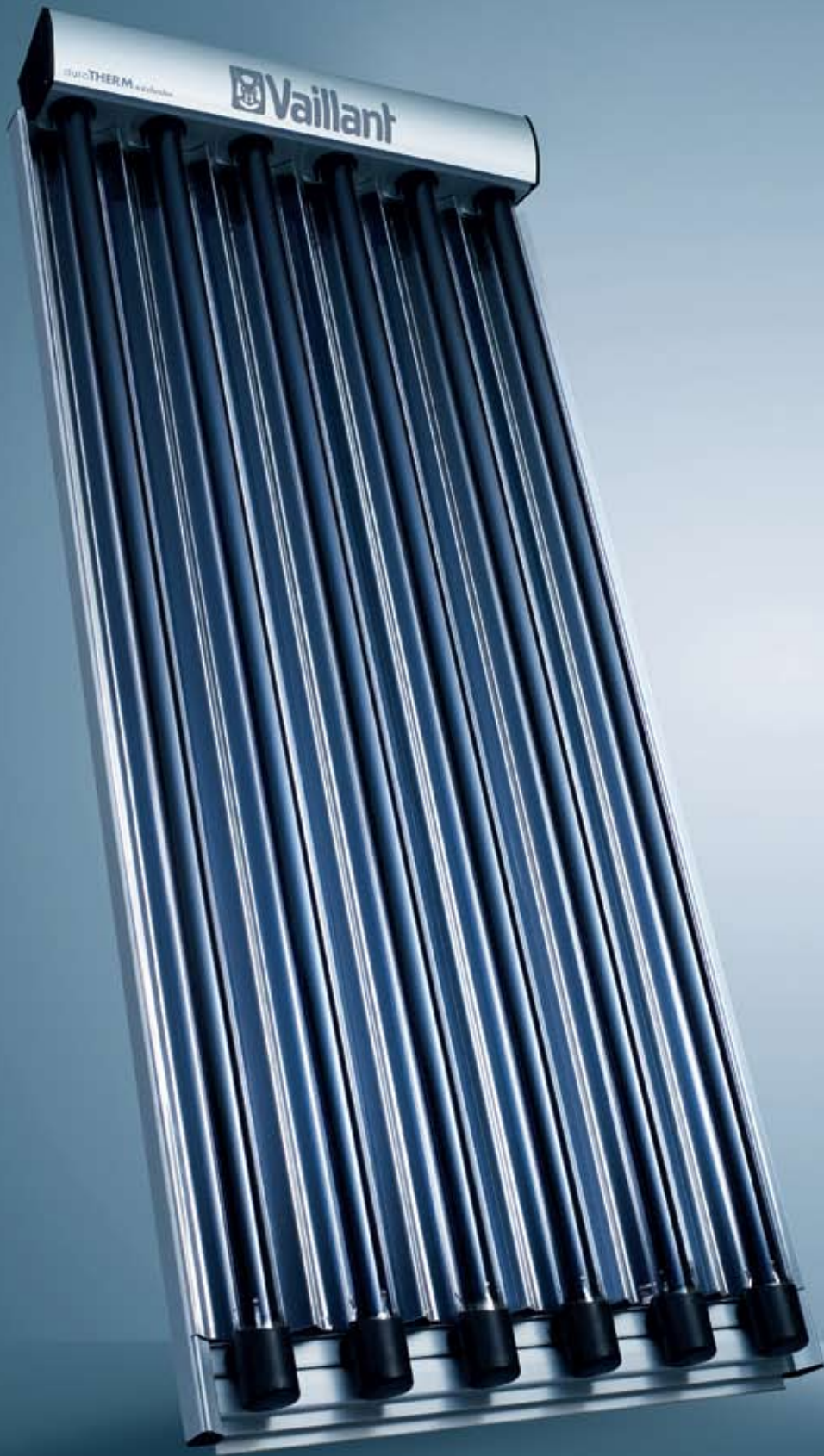
Where price/performance ratio is considered more important than collector efficiency, the **auroTHERM** flat plate collector offers an excellent alternative. Using the same roof fixings as the auroTHERM plus collector, it has the same degree of installation flexibility.



### Total Solar System Solution

The sun's energy heats solar fluid in the solar collector which is then pumped by the solar pump unit to a coil designed to heat water in a dedicated stainless steel storage cylinder, auroSTOR. A second indirect coil in the cylinder is connected to a conventional heating source, such as a gas boiler, to provide additional heating when there is insufficient solar energy available. The boiler is also required to provide central heating. Managed by the solar control auroMATIC 560/2 the system is able to automatically switch between solar and the auxiliary heat source to ensure there is always hot water on demand.

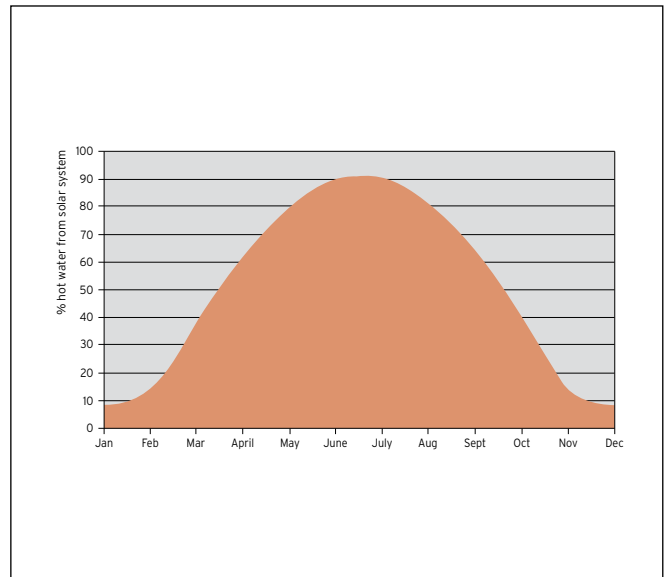
So, by incorporating the most modern technology, Vaillant's unique Total Solar System Solution intelligently blends solar and conventional energy supplies to optimise domestic heating efficiency.



auroTHERM exclusive VTK 570/2

# Vacuum tube solar collectors

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




Graph showing the typical hot water contribution from solar heating in the UK

## auroTHERM exclusive VTK 570/2

Vaillant's latest vacuum tube collector is manufactured using toughened glass and each tube is internally coated with a special high selective absorber coating. Each collector is delivered pre-assembled with 6 tubes per collector, and is compact and lightweight for ease of installation. The tubes have the benefit of a 10-year guarantee against loss of vacuum and if necessary, can be replaced without draining down the solar system. Collectors can be connected together and up to 12 collectors can be connected in series, using black ionodised roof brackets providing a neat and attractive installation.

The external Compound Parabolic Concentrator (CPC) ensures that solar radiation is efficiently directed toward each tube and has a ceramic coating to limit the build-up of dirt. Total siting flexibility is provided by an extensive range of roof brackets for concrete profiled or flat tiles, as well as low profile brackets for slates and A-frames for flat roof installations. The auroTHERM exclusive collectors are fully tested and approved to EN 12975.

The auroTHERM exclusive VTK 570/2 are  Solar Keymark approved and therefore quality for grant funding where applicable.

Numbers;  
auroTHERM exclusive VTK570/2

011 - 7S306R

**10**  
year  
guarantee  
vacuum tube  
Refer to page 17  
for further details



auroTHERM plus VFK 150 Vertical (V)

# Flat plate solar collectors




auroTHERM plus VFK 150

## **auroTHERM flat plate collectors**

The auroTHERM plus VFK 150 (vertical or horizontal model) flat plate collectors, manufactured in Vaillant's purpose built factory in Germany, have a toughened 3.2mm thick glass for improved durability, and special anti-reflex coated glass for excellent solar transmission. The collector consists of a laser welded copper/aluminium grid with a high selective absorber coating and new 40mm rear insulation. The whole assembly is encased in a black ionodised aluminium frame for a neat construction. The collectors are available in two models that can be connected in series in horizontal or vertical orientation to suit the available roof space. An extensive range of accessories are available for pitched or flat roof installation, with the added option of in roof installation flashings means that the flat plate collector can be fitted in virtually any situation.

The auroTHERM VFK 145 (vertical or horizontal model) flat plate collectors have the same high build quality as the auroTHERM plus but with a slightly lower solar efficiency. It has a toughened 3.2mm thick solar glass cover and 40mm rear insulation. The collector can be connected in series in horizontal or vertical orientation to suit the available roof space. The same range of roof fixing accessories can be used.

The auroTHERM plus VFK 150 and auroTHERM VFK 145 are  Solar Keymark approved and therefore quality for grant funding where applicable.

Numbers;

auroTHERM VFK 145 (V or H)

auroTHERM plus VFK 150 (V or H)

011 - 7S406F

011 - 7S406F

**10**  
year  
guarantee  
vacuum tube  
Refer to page 17  
for further details

# Installation



Roof mounting bracket

The newly designed and standardised Vaillant roofing systems for all new auroTHERM solar collectors make the installation of solar systems faster, easier and safer. The Installer will only require one tool to fix the brackets. There are no small parts on the roof and, most importantly, there is just one single attachment element for the collector rail and the collector.

The roof retainers for the mounting system can be fixed to the roof rafters or suitable roof battens. That too reduces the time needed for design and the amount of time required on site.



Flat roof mounting system

## **Quick installation on flat roofs**

When assembling the A frame for the collector on flat roofs. No tools are required to assemble the A frame. The supporting rail is simply folded open and secured using the supplied pins which are secured with stainless steel clips.

The pre determined index settings ensure the solar collector sits at just the right angle - which again reduces installation time.

## **The solar roofing system at a glance:**

- Standardised installation system for Vaillant vacuum tube collectors and flat plate collectors suitable for pitched roof and flat roof assembly
- Innovative roof-integrated mounting system for Vaillant flat plate collectors
- Short assembly time
- Flexible mounting options for collectors (side by side or above each other)
- Black ionodised roof brackets



# Total solar system



auroSTOR

## auroSTOR solar cylinder

This twin coil unvented solar cylinder manufactured from stainless steel is designed for use with a boiler to provide auxiliary hot water during periods of low solar gain. Delivered with a 3kW back-up immersion heater as standard, it comes in three sizes of 200, 250 and 300 litre volumes and has a 25 year warranty on the cylinder shell. Each cylinder features two sensor pockets for simple straightforward connection of the control sensors and a 22kW rated auxiliary coil for a rapid heat up. Insulation exceeds CHES best practice and heat loss is as low as 0.08kW/h. Compact and stylish the cylinders are easy to install.

auroSTOR complies with G3 Building Regulations and is WRAS and KIWA approved for use within solar systems. The Vaillant Total Solar System Solution package also has WRAS approval which allows the heating system to be controlled by the Vaillant VRC weather compensator to optimise heating efficiency.



auroMATIC 560/2 control

## auroMATIC 560/2 solar controller

An intelligent solar differential control with an easy to read LCD display and simple push button operation, the auroMATIC 560/2 offers three time periods for auxiliary cylinder heating giving the end user total control over the availability of hot water. The control monitors the temperature of the collector and of the cylinder. When sufficient solar energy is available the control switches on the solar pump unit to charge the cylinder. If there is insufficient solar energy available the control will automatically determine when the auxiliary heat source is required.










**25**  
year  
guarantee  
cylinder shell

**2**  
year  
guarantee

**WRAS**  
APPROVED  
PRODUCT



# Solar system sizing guide

	<b>Boiler</b> ecoTEC plus	<b>Solar system</b> auroTHERM exclusive VTK 570/2	<b>Solar system</b> auroTHERM plus VFK 150	<b>Solar system</b> auroTHERM VFK 145	<b>Solar cylinder</b> auroSTOR
					
<b>Typical 1 bedroom house / flat / apartment with 1 bathroom<sup>1</sup></b>					
	ecoTEC plus 415  ecoTEC plus 615	2 collectors <sup>3</sup>	1 collector <sup>3</sup> (auroTHERM plus 150 only)	Unavailable (auroTHERM plus 150 only)	200 litres <sup>2</sup>
<b>Typical 2 or 3 bedroom semi-detached with 1 bathroom<sup>1</sup></b>					
	ecoTEC plus 415 or 418  ecoTEC plus 615 or 618	3 collectors <sup>3</sup>	2 collectors	2 collectors	250 litres <sup>2</sup>
<b>Typical 3 or 4 bedroom detached with 1 or 2 bathrooms plus en-suite<sup>1</sup></b>					
	ecoTEC plus 418 or 428  ecoTEC plus 618, 624 or 630	4 collectors	2 collectors <sup>3</sup>	2 collectors <sup>3</sup>	300 litres <sup>2</sup>
<b>Typical 4 bedroom detached with 3+ bathrooms<sup>1</sup></b>					
	ecoTEC plus 428 or 438  ecoTEC plus 630 or 637	5 collectors <sup>3</sup>	3 collectors	3 collectors	300 litres <sup>2</sup>

<sup>1</sup> Full heat loss calculation should be done to accurately size boiler and hot water requirement.

<sup>2</sup> Recommended cylinder size assumes average requirement of 40 litres per person per day.

<sup>3</sup> An additional collector might be required depending on solar radiation level and site conditions. Your installer will advise.

**auroTHERM exclusive VTK 570/2 vacuum tube solar collector sets**  
**Slate/flat tile roofing collector sets and concrete pantiles collector set**

	Slate - flat tile sets				
	Mini	Small	Medium	Large	Extra large
Product name	0020078686	0020078687	0020078688	0020078689	0020078690
auroTHERM exclusive VTK 570/2	2	3	4	5	6
Connection set VTK, single collector	1	1	1	1	1
Connection set VTK, additional collector	1	2	3	5	5
Mounting rail set VTK 570/2	2	3	4	5	6
Roof bracket set Type S flat, black ionodised	2	3	4	5	6
Solar expansion and protection vessel 2-in-1 25 + 10	1	1			
Solar expansion and protection vessel 2-in-1 35 + 12			1	1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1
Solar pump station	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1
Solar fluid 10 L	2	2	2	2	2
Automatic air separator	1	1	1	1	1
	Concrete pantiles sets				
	Mini	Small	Medium	Large	Extra large
Product name	0020078691	0020078692	0020078693	0020078694	0020078695
<b>auroTHERM exclusive VTK 570/2 conc/pantile</b>	2	3	4	5	6
auroTHERM exclusive VTK 570/2	2	3	4	5	6
Connection set VTK, single collector	1	1	1	1	1
Connection set VTK, additional collector	1	2	3	4	5
Mounting rail set VTK 570/2	2	3	4	5	6
Roof bracket set, Type P, black ionodised	2	3	4	5	6
Solar expansion and protection vessel 2-in-1 25 + 10	1	1			
Solar expansion and protection vessel 2-in-1 35 + 12			1	1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1
Solar pump station	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1
Solar fluid 10 L	2	2	2	2	2
Automatic air separator	1	1	1	1	1

**Flat roof 'A' frame collectors per set**

	Flat roof 'A' frame sets				
	Mini	Small	Medium	Large	Extra large
Product name	0020078696	0020078697	0020078698	0020078699	0020078700
auroTHERM exclusive VTK 570/2	2	3	4	5	6
Connection set VTK, single collector	1	1	1	1	1
Connection set VTK, additional collector	1	2	3	5	5
Mounting rail set VTK 570/2	2	3	4	5	6
Mounting set VTK flat roof	3	4	5	6	7
Solar expansion and protection vessel 2-in-1 25 + 10	1	1			
Solar expansion and protection vessel 2-in-1 35 + 12			1	1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1
Solar pump station	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1
Solar fluid 10 L	2	2	2	2	2
Automatic air separator	1	1	1	1	1
<b>Trays required</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>14</b>

Accessories for 'A' frame kits	Article number
Gravel trays - 2 trays *	0020059904
Gravel trays - 3 trays *	0020059905

Installations require 2 trays per 'A'

## auroTHERM plus VFK 150 V/H slate/plain tiles

Description	auroTHERM plus VFK 150 V/H slate/plain tile sets					
	Vertical			Horizontal		
auroTHERM plus VFK 150 on roof kits	0020078646	0020078647	0020078648	0020078649	0020078650	0020078651
auroTHERM plus VFK 150V	1	2	3			
auroTHERM plus VFK 150H				1	2	3
Hydraulic connection-set, collector string VFK	1	1	1	1	1	1
Hydraulic extension-set, VFK side-by-side		1	2		1	2
Roof bracket set, new Type S flat, black	1	2	3	1	2	3
Mounting bar set horizontal, on-roof				1	2	3
Mounting bar set vertical, on-roof	1	2	3			
Solar expansion and protection vessel plus 25 + 10	1			1		
Solar expansion and protection vessel plus 35 + 12		1	1		1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1	1
Solar pump station	1	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1	2
Solar fluid 10 L	2	2	2	2	2	1
Automatic air separator	1	1	1	1	1	1

## auroTHERM plus VFK 150 V/H concrete pantiles

Description	auroTHERM plus VFK 150 V/H concrete pantile sets					
	Vertical			Horizontal		
auroTHERM plus VFK 150 on roof kits	0020078656	0020078657	0020078658	0020078659	0020078660	0020078661
auroTHERM plus VFK 150V	1	2	3			
auroTHERM plus VFK 150H				1	2	3
Hydraulic connection-set, collector string VFK	1	1	1	1	1	1
Hydraulic extension-set, VFK side-by-side		1	2		1	2
Roof bracket set, Type P, black	1	2	3	1	2	3
Mounting bar set horizontal, on-roof				1	2	3
Mounting bar set vertical, on-roof	1	2	3			
Solar expansion and protection vessel plus 25 + 10	1			1		
Solar expansion and protection vessel plus 35 + 12		1	1		1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1	1
Solar pump station	1	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1	2
Solar fluid 10 L	2	2	2	2	2	1
Automatic air separator	1	1	1	1	1	1

Accessories for VFK	Article number
Collector tubing 2 x 1 meter DN16	302444
Clamp for DN16 solar flextube 4 pcs	0020025385
Refractometer	0020042549
Antifreeze test kit	0020020645
Filling pump with trolley	0020045576
Filling pump without trolley	0020026480
Safety belt set for roof working	302066

auroSTOR solar cylinders	Article number
auroSTOR 200I	307206
auroSTOR 250I	307207
auroSTOR 300I	307208

## auroTHERM plus VFK 150 V/H In-roof sets

Description	auroTHERM plus VFK 150 V/H In-roof sets					
	Vertical			Horizontal		
auroTHERM plus VFK 150 In-roof kits	0020078666	0020078667	0020078668	0020078669	0020078670	0020078671
auroTHERM plus VFK 150V	1	2	3			
auroTHERM plus VFK 150H				1	2	3
Hydraulic connection-set, collector string VFK						
Hydraulic connection-set in-roof	1	1	1	1	1	1
Hydraulic extension-set, VFK side-by-side		1	2		1	2
In-roof set, 1x VFK V	1					
In-roof set, 2x VFK V, side-by-side		1	1			
In-roof mounting set, 1x VFK H				1		
In-roof mounting set, 2x VFK H, side-by-side					1	1
In-roof extension set VFK V, side-by-side			1			
In-roof extension set VFK H, side-by-side						1
Solar expansion and protection vessel plus 25 + 10	1			1		
Solar expansion and protection vessel plus 35 + 12		1	1		1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1	1
Solar pump station	1	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1	2
Solar fluid 10 L	2	2	2	2	2	1
Automatic air separator	1	1	1	1	1	1

## auroTHERM plus VFK 150 V/H flat roof 'A' frame sets

Description	auroTHERM plus VFK 150 V/H flat roof 'A' frame sets					
	Vertical			Horizontal		
auroTHERM plus VFK 150 on roof kits	0020078680	0020078681	0020078682	0020078683	0020078684	0020078685
auroTHERM plus VFK 150V	1	2	3			
auroTHERM plus VFK 150H				1	2	3
Hydraulic connection-set, collector string VFK	1	1	1	1	1	1
Hydraulic extension-set, VFK side-by-side		1	2		1	2
Mounting bar set horizontal, flat roof				1	2	3
Mounting bar set vertical, flat roof	1	2	3			
'A' frame, VFK V	2	3	4			
'A' frame, VFK H				2	3	4
Solar expansion and protection vessel plus 25 + 10	1			1		
Solar expansion and protection vessel plus 35 + 12		1	1		1	1
Single insulated tube, DN16, length 15m	2	2	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1	1	1
Thermostatic mixing valve	1	1	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1	1	1
Solar pump station	1	1	1	1	1	1
Solar fluid 20 L	1	1	1	1	1	2
Solar fluid 10 L	2	2	2	1	2	1
Automatic air separator	1	1	1	1	1	1
<b>Trays required</b>	<b>4 **</b>	<b>12</b>	<b>16</b>	<b>6</b>	<b>9</b>	<b>12</b>

Accessories for 'A' frame kits	Article number
Gravel trays - 2 trays *	0020059904
Gravel trays - 3 trays *	0020059905

Vertical installations require 8 trays per collector (4 per 'A')  
Horizontal installations require 6 trays per collector (3 per 'A')

\*\* Only possible with 4 offset gravel trays

## auroTHERM VFK 145 V/H slate/plain tile roof sets

Description	auroTHERM VFK 145 V/H slate/plain tile sets			
	Vertical		Horizontal	
<b>auroTHERM VFK 145V sets</b>	<b>0020078642</b>	<b>0020078643</b>	<b>0020078644</b>	<b>0020078645</b>
auroTHERM VFK 145V	2	3		
auroTHERM VFK 145H			2	3
Hydraulic connection-set, collector string VFK	1	1	1	1
Hydraulic extension-set, VFK side-by-side	1	2	1	2
Roof bracket set, Type S	2	3	2	3
Mounting bar set horizontal, on-roof			2	3
Mounting bar set vertical, on-roof	2	3		
Solar expansion and protection vessel plus 25 + 10	1		1	
Solar expansion and protection vessel plus 35 + 12		1		1
Single insulated tube, DN16, length 15m	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1
Thermostatic mixing valve	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1
Solar pump station	1	1	1	1
Solar fluid 20 L	1	1	1	2
Solar fluid 10 L	2	2	2	1
Automatic air separator	1	1	1	1

## auroTHERM VFK 145 V/H on roman/pantile on roof sets

Description	auroTHERM VFK 145 V/H on roman/pantile roof sets			
	Vertical		Horizontal	
<b>auroTHERM VFK 145V on roof sets</b>	<b>0020078652</b>	<b>0020078653</b>	<b>0020078654</b>	<b>0020078655</b>
auroTHERM VFK 145V	2	3		
auroTHERM VFK 145H			2	3
Hydraulic connection-set, collector string VFK	1	1	1	1
Hydraulic extension-set, VFK side-by-side	1	2	1	2
Roof bracket set, Type P	2	3	2	3
Mounting bar set horizontal, on-roof			2	3
Mounting bar set vertical, on-roof	2	3		
Solar expansion and protection vessel plus 25 + 10	1		1	
Solar expansion and protection vessel plus 35 + 12		1		1
Single insulated tube, DN16, length 15m	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1
Thermostatic mixing valve	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1
Solar pump station	1	1	1	1
Solar fluid 20 L	1	1	1	2
Solar fluid 10 L	2	2	2	1
Automatic air separator	1	1	1	1

Accessories for VFK	Article number
Collector tubing 2 x 1 meter DN16	302444
Clamp for DN16 solar flextube 4 pcs	0020025385
Refractometer	0020042549
Antifreeze test kit	0020020645
Filling pump with trolley	0020045576
Filling pump without trolley	0020026480
Safety belt set for roof working	302066

auroSTOR solar cylinders	Article number
auroSTOR 200I	307206
auroSTOR 250I	307207
auroSTOR 300I	307208

## auroTHERM VFK 145 V/H In-roof sets

Description	auroTHERM VFK 145 V/H In-roof sets			
	Vertical		Horizontal	
auroTHERM VFK 145V In-roof sets	0020078662	0020078663	0020078664	0020078665
auroTHERM VFK 145V	2	3		
auroTHERM VFK 145H			2	3
Hydraulic connection-set in-roof	1	1	1	1
Hydraulic extension-set, VFK side-by-side	1	2	1	2
In-roof set, 2x VFK V, side-by-side	1	1		
In-roof mounting set, 2x VFK H, side-by-side			1	1
In-roof extension set VFK V, side-by-side		1		
In-roof extension set VFK H, side-by-side				1
Solar expansion and protection vessel plus 25 + 10	1		1	
Solar expansion and protection vessel plus 35 + 12		1		1
Single insulated tube, DN16, length 15m	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1
Thermostatic mixing valve	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1
Solar pump station	1	1	1	1
Solar fluid 20 L	1	1	1	2
Solar fluid 10 L	2	2	2	1
Automatic air separator	1	1	1	1

## auroTHERM VFK 145 V/H flat roof 'A' frame sets

Description	auroTHERM VFK 145 V /H flat roof 'A' frame sets			
	Vertical		Horizontal	
auroTHERM VFK 145V on roof sets	0020078676	0020078677	0020078678	0020078679
auroTHERM VFK 145V	2	3		
auroTHERM VFK 145H			2	3
Hydraulic connection-set, collector string VFK	1	1	1	1
Hydraulic connection-set in-roof				
Hydraulic extension-set, VFK side-by-side	1	2	1	2
Mounting bar set horizontal, flat roof			2	3
Mounting bar set vertical, flat roof	2	3		
'A' frame, VFK V	3	4		
'A' frame, VFK H			3	4
Solar expansion and protection vessel plus 25 + 10	1		1	
Solar expansion and protection vessel plus 35 + 12		1		1
Single insulated tube, DN16, length 15m	2	2	2	2
Fittings pack for DN16 tube	1	1	1	1
Thermostatic mixing valve	1	1	1	1
Solar control auroMATIC 560/2	1	1	1	1
Solar pump station	1	1	1	1
Solar fluid 20 L	1	1	1	2
Solar fluid 10 L	2	2	2	1
Automatic air separator	1	1	1	1
<b>Trays required</b>	<b>12</b>	<b>16</b>	<b>9</b>	<b>12</b>

Accessories for 'A' frame kits	Article number
Gravel trays - 2 trays *	0020059904
Gravel trays - 3 trays *	0020059905

Vertical installations require 8 trays per collector (4 per 'A')  
Horizontal installations require 6 trays per collector (3 per 'A')

# Questions and answers

## Your questions about solar heating for domestic hot water answered

### Why should I consider using solar energy?

Firstly, because by reducing carbon dioxide emissions, you can rest assured that it's better for the environment and you will also be helping to conserve the world's rapidly diminishing supplies of gas and oil. Secondly, utilising solar energy for hot water will help to reduce the impact of rising oil and gas prices and means that you won't be so reliant on these conventional fuels. Thirdly, installing a good solar system can add value to your property.

### How does a solar DHW heating system work?

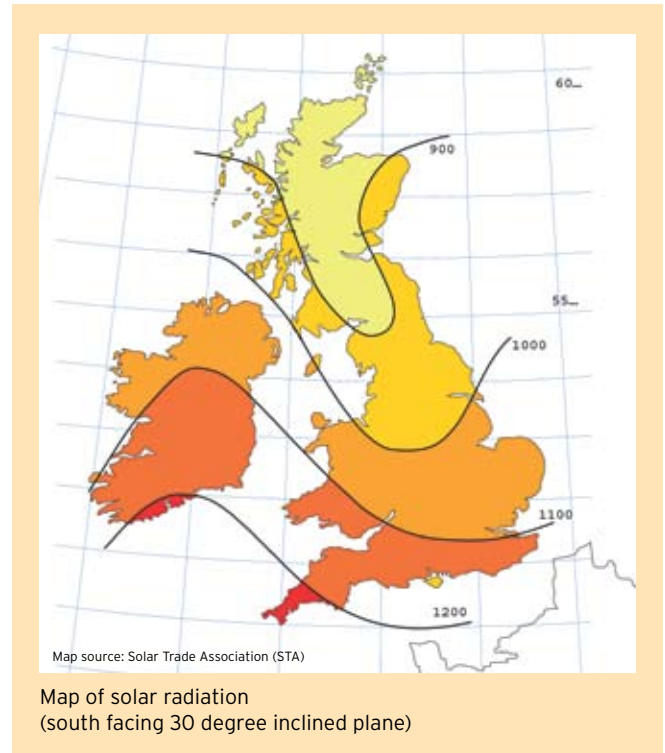
The principles are quite straightforward. Solar collectors absorb energy from the sun to heat a fluid that is pumped in a sealed circuit to an indirect coil in a water cylinder to heat the domestic water.

### Where are the collectors fixed?

Vaillant's high performance solar collectors are easily sited on pitched roofs, flat roofs, or in roof. Ideally the solar panels should be oriented to face south, but they will work with a small loss of efficiency sited between 30 degrees east and 40 degrees west of south.

### Do I want vacuum tube or flat plate collectors?

Vacuum tube collectors offer the highest operating efficiency all year round and, due to their low weight and smaller dimensions, offer easier installation and handling. Flat plate collectors should be used when efficiency during autumn, winter and spring is not so important and in areas where a tough collector is preferred.



### Surely there is not enough sunshine in this country to make it work?

As the panels work on diffused solar radiation as well as direct sunlight, they will even generate small amounts of energy on partially cloudy days. This lowers the energy required from your boiler.



Different mounting methods for auroTHERM and auroTHERM plus flat plate solar collectors.



The DTI has calculated that there are sufficient solar radiation levels across the whole UK to provide useful energy. In areas with lower solar radiation, the number of collectors can be increased to maximise solar energy usage. In addition the design of Vaillant's tube collectors ensures that they capture solar radiation at a wide range of angles making them more efficient than other designs during spring and autumn.

#### **So why do I still need a conventional boiler?**

Vaillant's solar DHW heating system will provide around 50-60% of annual domestic hot water requirements, but an auxiliary heat source is required for times of low solar energy to ensure there's always hot water on demand. In addition, the boiler is also necessary to operate the central heating system. Vaillant's intelligent solar control unit facilitates automatic switching between solar and conventional power when there is insufficient solar energy available to heat the water - particularly useful during the winter months. The system will work with a new Vaillant boiler and is also compatible with most existing heating appliances but remember to check the controls configuration to make sure the boiler only fires when there is little or no solar energy available.

#### **How much would a typical solar system cost?**

There is not really a typical cost - it depends on the number of collectors required, the size of the cylinder and on installation details such as accessibility for the scaffold and the complexity of the wiring.

#### **Are there any financial incentives to install solar power?**

Vaillant solar products carry the solar keymark and therefore qualify for government funding which provides grants to homeowners to assist them in installing a solar domestic hot water system.

#### **What additional products will I need to complete the installation?**

Research indicates that installers prefer to purchase all their solar equipment from one manufacturer so Vaillant has ensured that we can supply all the necessary components. This includes the collectors, fixing brackets, solar pump station, stainless steel cylinder, solar control, and even the insulated flexible stainless steel pipes to run between the collectors and the cylinder. The only other items you may need are electrical cables and copper pipe work.

#### **How do I design a solar system?**

Vaillant's solar training course will give installers details of how to design solar systems and advice on all the key issues. Our expert technical team will be able to assist with general design questions and will help tackle more complex work. We are committed to working in partnership with our installers, offering the very best industry support and training to develop the solar heating market.

#### **Do you offer solar training?**

We offer two types of training course:

- The BPEC Solar DHW course is a two-day course designed for new solar DHW installers who require BPEC certification.
- The Solar appreciation course is a one-day course designed for experienced heating installers to provide an insight into Vaillant's solar DHW heating.

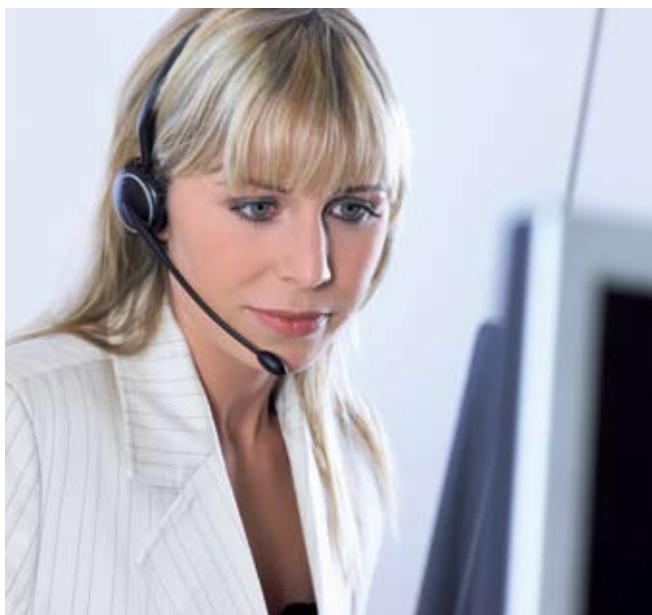


#### **Warranty**

**Flat plate** - The Vaillant flat plate collector has the benefit of a 10-year warranty commencing from the date of installation. For the first five years from installation, the guarantee on the collector will apply to both parts and labour. For years 6-10 the guarantee is restricted to parts only against defects in manufacture. This applies provided that the warranty registration form has been completed and returned and that the system has been correctly installed and serviced in accordance with our installation manuals.

**Vacuum tube** - The Vaillant vacuum tube collector has the benefit of a 10-year warranty commencing from the date of installation. For the first five years from installation, the guarantee on the collector will apply to both parts and labour. For years 6-10 the guarantee is restricted to parts only against defects in manufacture. This applies provided that the warranty registration form has been completed and returned and that the system has been correctly installed and serviced in accordance with our installation manuals.

# Customer support services



## Working in partnership

The after sales service and support behind every Vaillant product is part of the quality package that has helped us build a unique reputation within the industry. It is an approach that is reflected in our support for our Total Solar System Solution. We are committed to working in partnership with our installers, offering the very best industry support and training to develop the solar heating market.

## Vaillant technical support team

Our dedicated team is on-hand to offer technical support. We are here to help with product familiarisation and to tackle any other issues that arise in relation to our solar DHW heating products.

## High quality training

Please contact our training team to register your interest in attending a Vaillant solar training course.

## Contact details

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# Technical specification

auroTHERM collectors		auroTHERM exclusive	auroTHERM plus		auroTHERM	
		VTK 570/2	VFK 150 H	VFK 150 V	VFK 145 H	VFK 145 V
Area gross	m <sup>2</sup>	1.16	2.5			
Area net - aperture (H1)	m <sup>2</sup>	1.0	2.3			
Absorber content	l	0.9	2,16	1,85	2,16	1,85
Connection, flat sealing DN 16	DN	16 (G3/4")	16 (G3/4")			
Insulation vacuum / rock wool	mm	Tubes vacuum / 50 header	40			
Operation pressure max.	Bar	10	10			
Solar anti-reflex /security glass transmission t	%	95	96	91		
Absorber absorption a	%	94	95			
Absorber-emission e	%	5	5			
Absorber material		Stainless steel / glass	Copper / aluminium			
Stagnation temperature EN 12975-2, c < 1 m/s	°C	290	220	210		
coefficient $\eta_0$ EN 12975 (H2)	%	64.2	84	80		
Efficiency coefficient k1 (H3)	W/m <sup>2</sup> K	0.885	3.7			
Efficiency coefficient k2	W/m <sup>2</sup> /K <sup>2</sup>	0.001	0.012			
<b>Collector dimensions</b>						
Height	mm	1650	1233	2033	1233	2033
Width	mm	700	2033	1233	2033	1233
Depth	mm	110	80			
Weight	kg	19	38			
Solar Keymark certificate number		011 - 7S306R	011 - 7S479F		011 - 7S406F	

auroSTOR unvented solar hot water cylinder		auroSTOR 200	auroSTOR 250	auroSTOR 300
Volume	litres	200	250	300
Maximum water supply pressure	Bar	10	10	10
Operating pressure	Bar	3.5	3.5	3.5
Pressure reducing valve	Bar	3.5	3.5	3.5
Expansion relief valve	Bar	6.0	6.0	6.0
Expansion vessel charge pressure	Bar	4.0	4.0	4.0
Temperature & Pressure valve	°C / Bar	95°C / 7 Bar	95°C / 7 Bar	95°C / 7 Bar
Maximum primary circuit pressure	Bar	2.5	2.5	2.5
Weight (empty)	kgs	39	44	49
Weight (full)	kgs	245	310	340
Height	mm	1500	1790	2110
Width (excluding connections and PRV) mm	mm	554	554	554
Heat Loss	kW / 24hrs	1.9	2.1	2.4
Cylinder connections		22mm compression	22mm compression	22mm compression
Electrical connections		230/240 V, 50 Hz	230/240 V, 50 Hz	230/240 V, 50 Hz
Back-up immersion heater output	kW	3	3	3

auroMATIC solar control		auroMATIC 560
Dimensions (W x H x D)	mm	272 x 175 x 55
Operating voltage	V	230
Power consumption	W	Max 10
Minimum sensor wire diameter	mm2	0.75
Minimum power cable wire diameter	mm2	1.5
Level of protection		IP 20

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