

Evacuated tube system

The evacuated tube solar systems have been around for 20 years, and have proven to be reliable and dependable. The vacuum tubes consist of a tough wall glass tube with a space in the centre which contains the heat pipe. The sun's radiation is absorbed by the coating on the inner glass surface, but prevented from re-radiating by the silvered innermost lining. This is in effect like a one way mirror that has been optimized for infra-red radiation. In fact it is very efficient, 93% of the sunlight energy hitting the tube's surface is absorbed. The presence of the vacuum wall prevents any loss – just like a thermos flask. Because of this, the system will work even in low temperatures. This is why our system can be used to heat up water even at the South Pole Antarctic Science Base – where ambient air temperature can drop to -40°C.

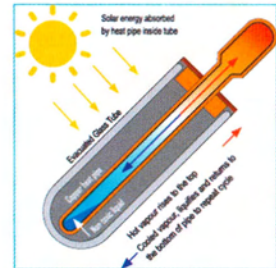
The heat transferred to the tip of the heat pipe is in turn transferred to a copper manifold in which water circulates that runs through your Pool Heat exchanger. If a tube is placed in a summer day, the temperature can reach 250°C – so even on cold winter days, the system is capable of providing heat for domestic hot water.

Design :

The collectors are suitable for applications where aesthetics and efficiency are important. They allow easy installation and are suitable for single or modular large scale units.

Assets :

Long service life – Elegant aesthetical design - Integration into buildings – Improved power conversion at a low solar irradiation level – High performance, reliable, glass evacuated tubes – Use of non-toxic heat transfer compound – Low start up °C – Freestanding mounting frame also available – Collector insulated – Space saving – Unequalled performance – Works on cloudy days – And very important, 100% renewable energy that saves you a lot of money.

**How much heat will I gain ?**

Average daily Irradiation figures for each month of the year (at UK latitudes)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
kWh/day/m ²	0,64	1,17	1,94	3,22	4,17	5	4,44	3,61	2,78	1,67	0,78	0,47
Heat gain 1,10x47mm panel												
Per day / kWh	1,15	2,11	3,94	5,8	7,51	9	7,99	6,5	5	3,01	1,41	0,85

3 kWh is equivalent to boiling your kettle over one hour or heating 65 litres of water at 40°C

Vacuum tube characteristics

	47 mm Tube	58 mm Tube
Length	1500 mm	1800 mm
Outer tube diameter	47 mm	58 mm
Inner tube diameter	37 mm	48 mm
Weight	1,3 kg	1,7 kg
Glass thickness	1,6 mm	1,6 mm
Material selective absorption	Borosilicate Glass 3.3	
Coating	Graded A1/N/A1	
Vacuum (pressure)	P<5*10 ⁻³ Pa	
Thermal expansion coefficient	3,3*10 ⁻⁶ /°C	
Stagnation °C	>200°C	
Absorption efficiency	>93%	
Re-emission	<7%	
Heat loss	<0,8W/(m ² °C)	
Maximum strength	0,8Mpa	
Temperature resistance	-35°C	
Hailstone resistance	Diameter 25 mm	