

HELIOS 'INTEGRAL' SOLAR HOT WATER SYSTEM



HELIOS SPLIT 160 LITRE

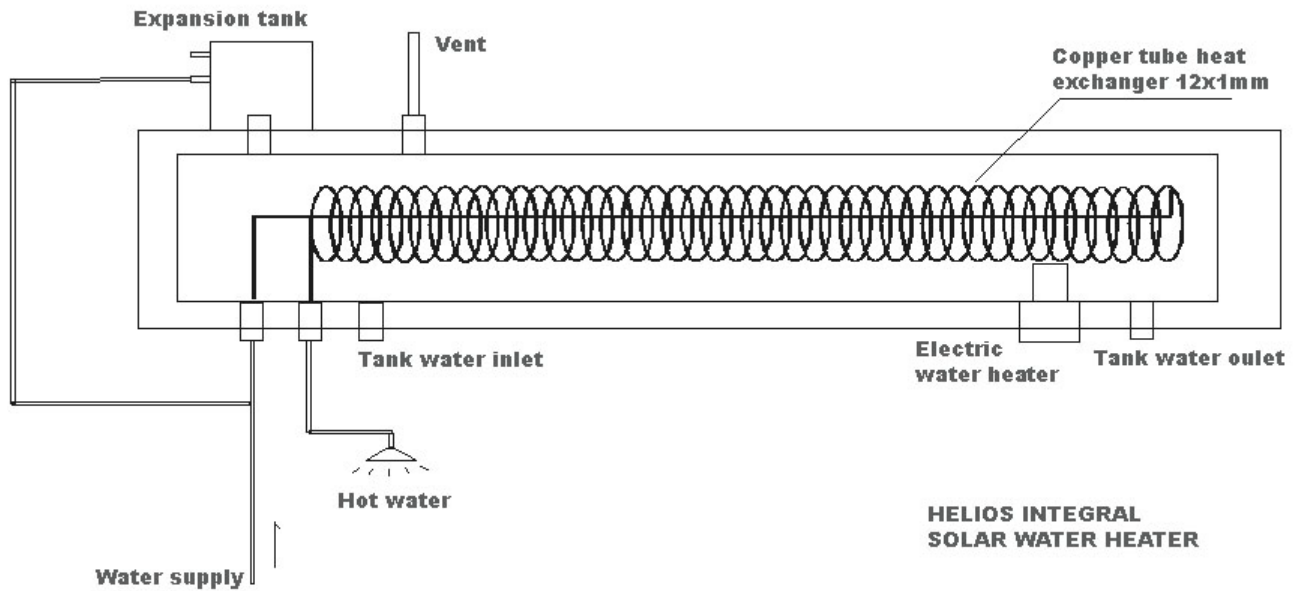
HELIOS SPLIT 240 LITRE

HELIOS SPLIT 270 LITRE

KIT CONTENTS

Domestic water storage tank, solar collector vacuum tubes, collector tubes frame and supports, collector header heat transfer tank, expansion tank.

Closed loop hot water system



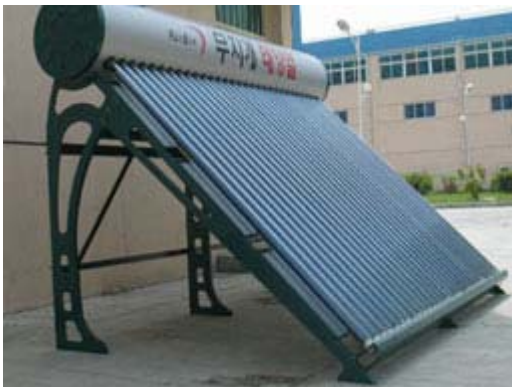
Features

Dual 'closed loop' water systems prevent contact between heating circuit and domestic hot water.

Heating circuit can be a Glycol mix to prevent freezing.

Lightweight aluminium frame

Branding opportunity to special order



Multi purpose mounting frame

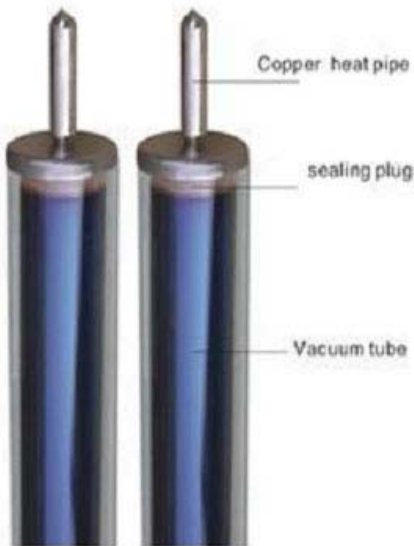


Modular solar collector panels

Features

Individual vacuum tubes can be removed or replaced without draining system.

Water does not pass through the tubes



High absorption performance

Low reflection ratio

15 year design life

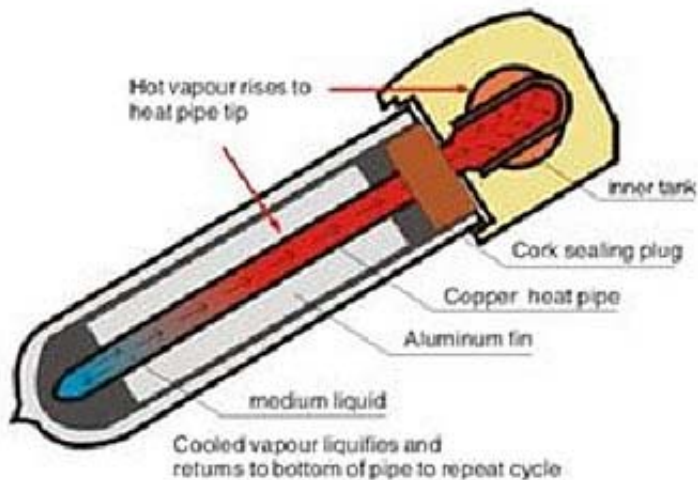
Performs to 30 degrees below freezing

Fast start up on cloudy days

Unique coating reduces cleaning requirement

Maintenance free

Easy to install without special tools.



Expansion vessel



Over pressure protection of the collector circuit

Standard $\frac{1}{2}$ or $\frac{3}{4}$ plumbing Connection depending on the model size

Water tank

Outer tank material and thickness: galvanized sheet/0.5mm

Inner tank material: porcelain enamel

Copper coil heat exchanger: standard tank with one coil

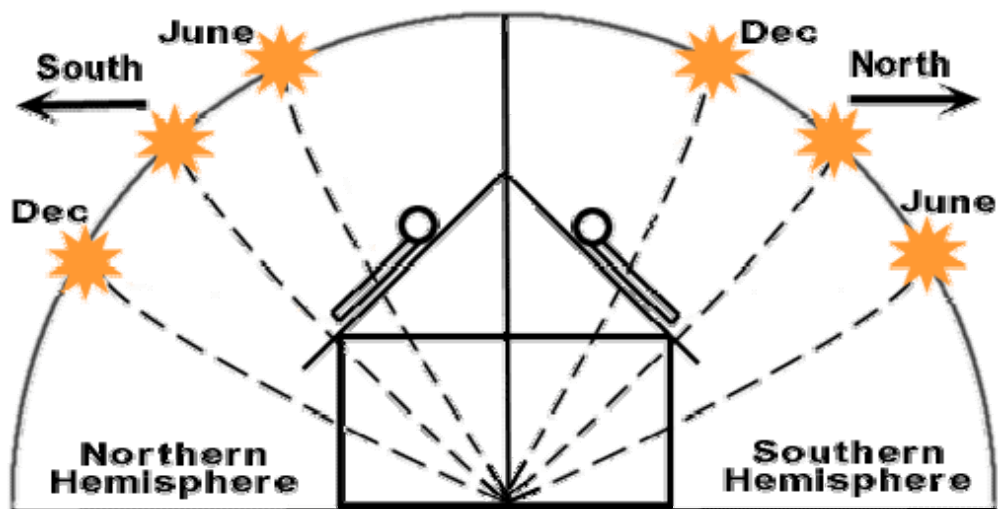
Insulation thickness: 50mm Working pressure < 6 bar

Electrical heater 1.5W(160L)/2.5W(240L-270L)

Installation method: integral horizontal

Integral anode to prevent corrosion

Installation

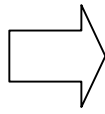


- ◆ Be careful and gentle in transportation and installation
- ◆ We recommend that all the following operations are carried out in a shaded area because the heat pipe will become too hot to touch as soon as it is in the sun.
- ◆ Connect the frame together, making sure that every screw is fully tightened.
- ◆ Fix the header tank onto the frame with the holes side downward, and put the silicone rubbers in the holes, making sure that they are tight.
- ◆ Put the base supports in the holes of bottom supports.

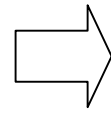
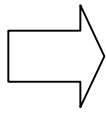


- ◆ Take out of the vacuum tubes from the corrugated paper box and fit each one into the holes respectively (note: fit the bottom of the vacuum tubes into the holes of the base supports first, and then insert the upper side of the vacuum tube into the holes of the flow passage, if this step is difficult, we suggest some soap be coated on the head of the heat pipe to make the operation easier, be aware that the bottom of the tubes should not touch the ground to avoid any damage to the tubes).





- ◆ Tighten the base supports by gently screwing them tight.



- ◆ Once the above operations are completed, the pipe work connection can commence. Connecting the heat collecting modules together, making sure they stand parallel to ensure alignment of the junctions.
- ◆ One copper pipe is connected to the water tank (the bottom circulation hole) and the other one connected to the working station (on the flow meter side) going through working station, connected to collector (without temperature sensor side), make sure there is a Union tee for Glycol filling. Through the collector flow passage, connecting the copper pipe with water tank (the upper circulation hole)
- ◆ Connect the water inlet on the water tank with the water supply.
- ◆ Connect the water outlet on the water tank with pipe to let hot water out.
- ◆ Connect the pressure relief tank with the tank if the expansion case is separate from work station.
- ◆ After all of this being completed, check the whole system to see if there is any leakage from the junctions. If yes, check the connections.

ATTENTION

- ◆ Read the instructions before operation, and resort to a professional technician when necessary.

Connecting a lightning conductor:

- Connect the heat collector and the lightning rod.
- Raise the lightning rod, making sure that it is at least 1.5 meters higher than the system.
 - ◆ Make sure that there are no obstacles in front of the system, so that the heat collector can get maximum sunshine.
 - ◆ Ensure that there is no leakage in heat collecting modules, pipes, valves and junctions, and no damage on the heat preservation layer; all the vacuum pipes and the heat collector joints should be connected correctly; check for colour changes to the vacuum pipes which signifies damage.

ATTENTION WHEN INSTALLING

- ◆ Face to the sun with no obstacle in front of the unit when installing
- ◆ Firmly fixed to the roof or any other platform when installing
- ◆ Try to minimize the route of the water supply
- ◆ Lag all outside pipe work to prevent freezing in winter
- ◆ Avoid any damage to the vacuum pipe ends and the washer when installing, this will greatly weaken the heat preservation abilities.
- ◆ The angle and direction of collectors is especially important when installing, the collector should face south in northern hemisphere and face north in southern hemisphere when installing.

Common problems and solutions

problem	Possible reasons	solutions
The water is not hot on sunny days	Something is covering the heat collector or the unit is in shade	Remove the obstacle or keep the vacuum pipes up straight in the sun so that it can get as much sunshine as possible or change location

Technical specifications

Dimensions – dependent on model

Vacuum tube details

Evacuated Tube Basic Specifications

Length (nominal)	1800mm
Outer tube diameter	58mm
Inner tube diameter	47mm
Glass thickness	1.6mm
Thermal expansion	$3.3 \times 10^{-6} \text{ } ^\circ\text{C}$
Material	Borosilicate Glass 3.3
Absorptive Coating	Graded Al-N/Al
Absorptance	>91% (AM1.5)
Emittance	<8% (80°C)
Vacuum	$P < 5 \times 10^{-3} \text{ Pa}$
Stagnation Temperature	>200°C
Heat Loss	<0.8W/ (m ² °C)
Maximum Strength	0.8MPa