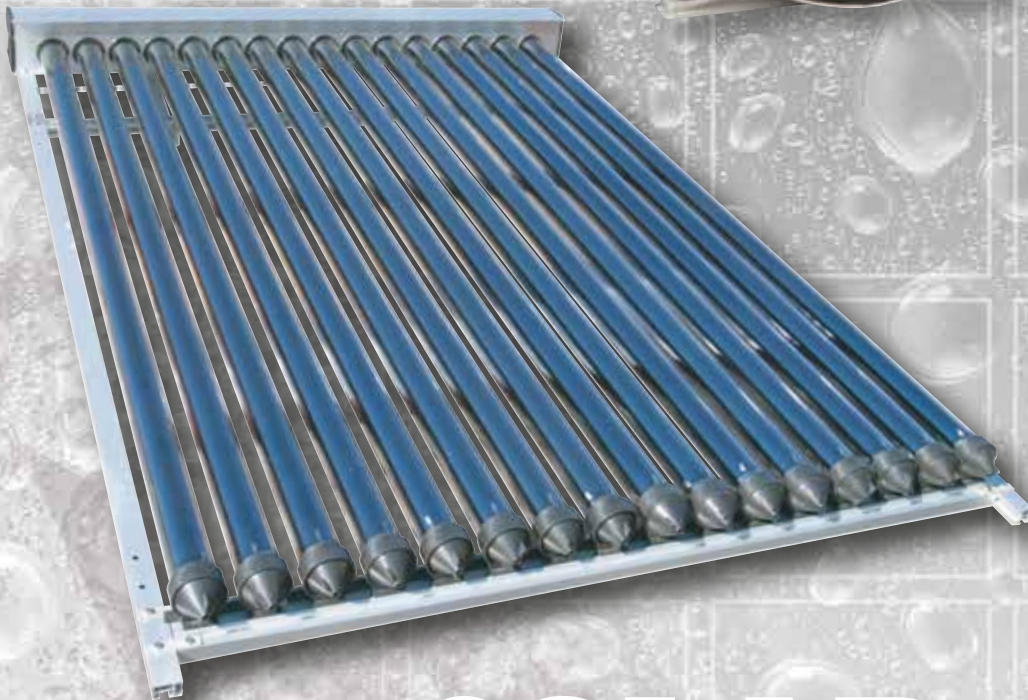


Kwik SOL

SOLAR RETROFIT CONVERSION KIT

DIRECT

**SYSTEM FOR FROST AND
FROST-FREE LOCATIONS**



SOLAR

**CONVERSION FOR
ELECTRIC WATER HEATERS**

RETROFIT CONVERSION KIT - DIRECT SYSTEM FOR ALL LOCATIONS



Solar Retrofit Conversion Kit - Direct System

direct system

This particular direct system is used in both frost and frost free locations and where the water quality is good (less than 600ppm Total Dissolved Solids/Minerals).

The direct system is where the water to be used in the household (hot water), circulates through the vacuum tube manifold, transferring solar energy into a storage vessel.

product features

The solar retrofit conversion direct system, is specifically designed to convert an existing installed Kwikot or any other make or brand of high pressure electric water heater (400kPa or 600kPa working pressure) with a water storage capacity of 150lt and 200lt, into a solar system. The system works on the pump circulating method.

product installation data

Solar Retrofit Components

The first thing that has to be determined is the working pressure i.e. 400kPa or 600kPa of the existing electric water heater that is to be converted to a solar system, as this will determine which Installation Component Kit is required.

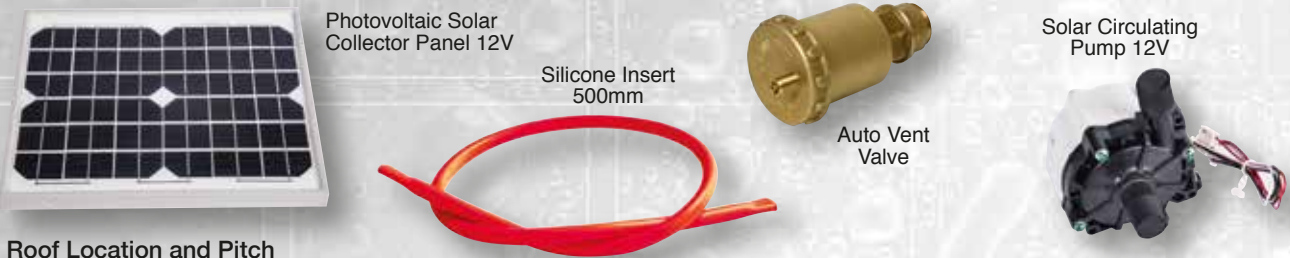
The Installation Component Kit consists of the following products:



(Refer to the installation diagram and table where these components are to be installed).

The vacuum tube system is used as the solar collector, due to the systems resistance against freezing with silicone inserts inserted into the exposed copper pipe work on the roof, which is installed on either ends of the vacuum tube manifold. This pipe work must be lagged in 22mm Thermal Pipe Lagging. It is recommended that all pipe work within the interior of the roof is lagged as well, in order to reduce heat loss.

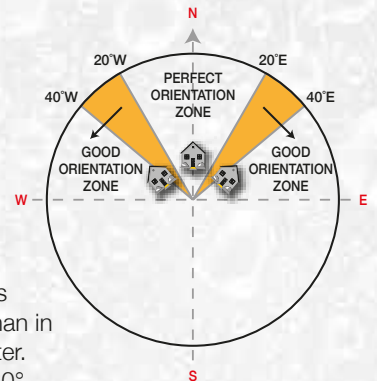
A solar circulating pump 12V installed in the inside of the roof and on the cold water supply from the electric water heater, is powered by a solar crystallite panel 10W, which is installed on the exterior of the roof.



Roof Location and Pitch

- The solar vacuum tubes are to be installed in a parallel array and at an angle determined by the latitude of the installation.
- For optimum performance the solar vacuum tubes need to face the equator (facing north for southern hemisphere installations). Installation on angles of up to 45° away from the equator do not have a major effect on the annual solar output, consequently roof locations which face less than 45° away from the equator are acceptable. Solar radiance from the sun begins at about 10:00 until about 16:00 and is at its peak between 12:00 and 14:00.
- If the solar vacuum tubes are installed with an east facing bias, the best solar capture is achieved in the morning, and if installed with west facing biased, in the afternoon.
- The location should not be subject to excessive shading from trees and adjacent buildings and particularly between 9:00 and 15:00. Remember that shadows are longer in winter than in summer so a location that is free of shadows in summer may have some shadows in winter.
- The solar vacuum tubes should be installed on a roof pitch greater than 8° and less than 30°.

Where the roof pitch is greater than 30°, the installation will require additional support to prevent it from moving downwards when installing and after installing. If the roof pitch is less than 8° the installation will require a mounting frame to increase the pitch to above 8°.

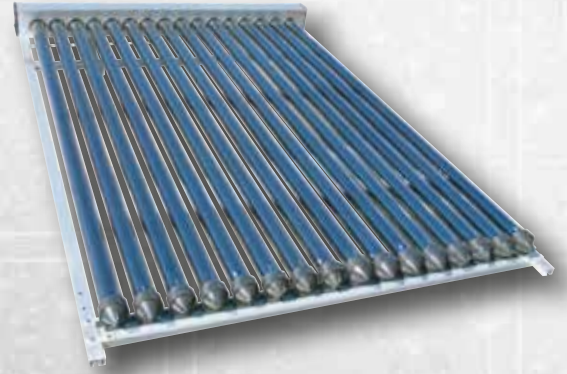




Solar Vacuum Tubes

solar vacuum tubes features

- The Kwiksol Solar Vacuum Tubes have been approved to use in frost areas.
- The solar vacuum tubes consist of two glass tubes manufactured from borosilicate glass.
- The outer glass tube is transparent allowing light rays to pass through it with minimum reflection.
- The inner glass tube is coated with a solar special selective coating (Al-N/A1), which provides excellent solar radiation absorption.
- The top of the two vacuum tubes are fused together and the air is extracted, which forms a vacuum and is key to the efficiency of the vacuum tubes.
- To maintain the vacuum between the two vacuum tubes, a barium getter is used. The barium layer also provides a clear visual indication of the vacuum status. The silver coating will turn white if the vacuum is ever lost.
- Anodized Aluminium frame and manifold.
- Working pressure up to **600kPa**



Electric Water Heater Capacity (Litres)	Array (number of Vacuum Tubes)	Tube Dimensions length x diameter (mm)	Absorbing Area (m ²)	Mass Empty (kg)	Mass Full (kg)	Energy Transfer Fluid
150	16 (1 x 6 + 1 x 10)	1800 x 58	1.16	48	41	water
200	20 (2 x 10)	1800 x 58	1.94	62	64	water

product warranty

The warranty period on the Kwikot Solar Retrofit Conversion Kit (new parts) is one year from the date of installation providing that documented proof of installation is furnished. On existing parts, the balance of the original warranty will apply i.e. the Kwikot Electric Water Heater. The installation must be carried out by a Kwikot Approved Installer, failing this the warranty will become void.

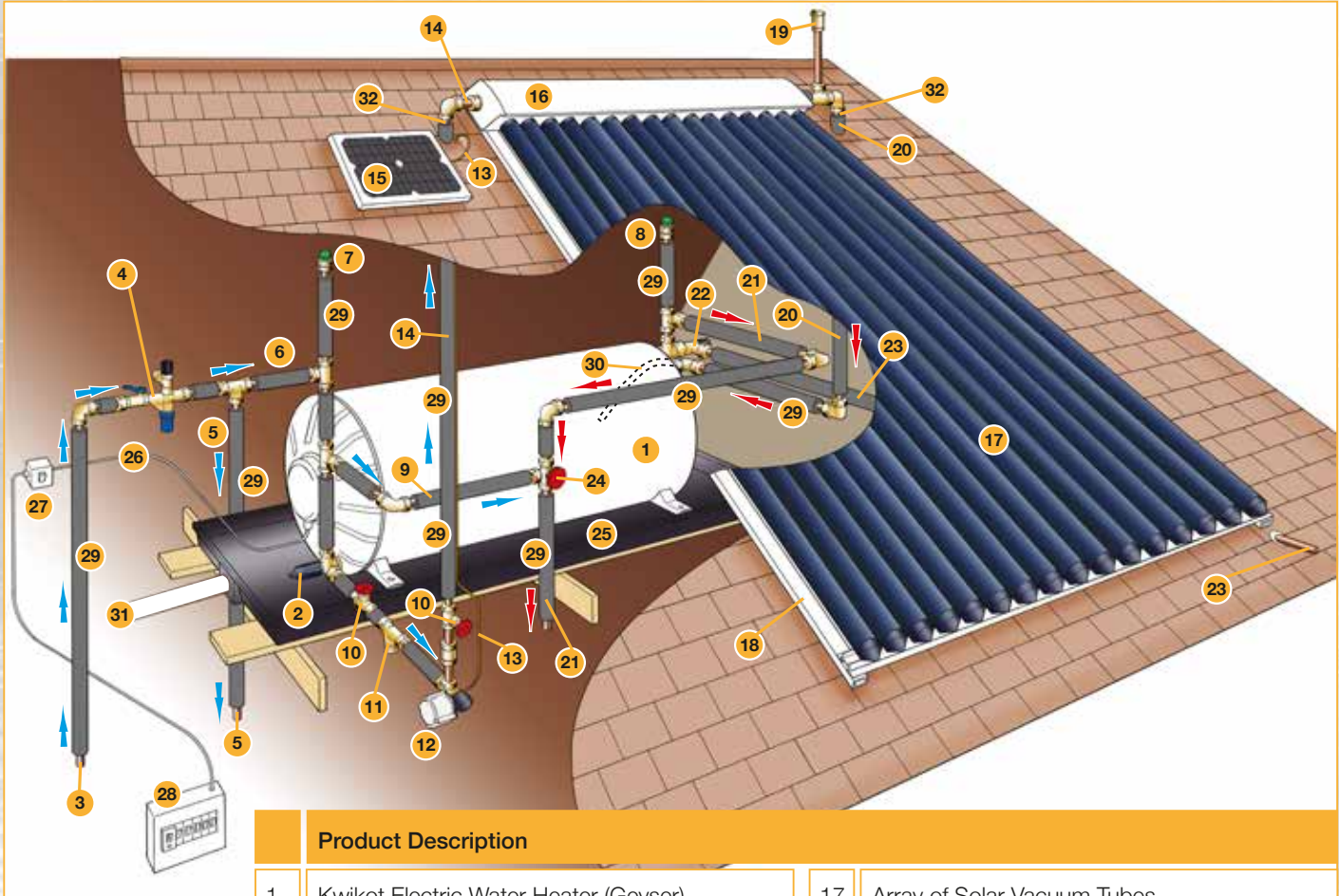
The solar vacuum tubes have a comprehensive 5 year warranty from date of installation and subject to the following conditions:

- The warranty only applies to defects, which have arisen solely due to faulty materials and workmanship during the manufacturing process of the solar vacuum tubes.
- If any component fails during the warranty period, Kwikot will replace or repair the failed component free of charge.
- Breakage or cracks to the vacuum tubes is not covered by the Kwikot warranty.
- Any freeze damage caused as a result of an incorrect installation in frost areas is not covered by the warranty and the warranty on the installation is the responsibility of the installer.

solar retrofit conversion kit supplied components - direct system

Product Code for Complete Kit	Product	Quantity
SOL—150-RT for 150 lt geyser	Vacuum Tubes	16
	Vacuum Tube Frame	1
	Vacuum Tube Manifold	1
	Bracket for Frame	1
	Installation Component Kit	1
	Solar Circulating Pump 12V	1
	Solar Crystallite Panel 10W	1
	Thermostatic Mixing Valve	1
	7 Day Digital Geyser Timer 20A	1
	500mm Silicon Inserts	1
	22mm Thermal Pipe Lagging	1
SOL—200-RT for 200 lt geyser	Vacuum Tubes	20
	Vacuum Tube Frame	1
	Vacuum Tube Manifold	1
	Bracket for Frame	1
	Installation Component Kit	1
	Solar Circulating Pump 12V	1
	Solar Crystallite Panel 10W	1
	Thermostatic Mixing Valve	1
	7 Day Digital Geyser Timer 20A	1
	500mm Silicon Inserts	1
	22mm Thermal Pipe Lagging	1

retrofit installation diagram for an electric water heater



Product Description

1	Kwikot Electric Water Heater (Geyser)	17	Array of Solar Vacuum Tubes
2	Kwikot Combination Drain Cock	18	Solar Vacuum Tube Frame
3	Incoming Cold Water Mains Supply	19	Auto Vent Valve (UV Resistant)
4	Kwikot Multi Pressure Control Valve	20	Hot Water Supply to Geyser
5	Cold Water Feed to Taps (Balanced Pressure)	21	Hot Water Supply to Taps (Balanced Pressure)
6	Cold Water Feed to Geyser (Balanced Pressure)	22	Combination Safety Valve 400kPa or 600kPa
7	Vacuum Breaker Cold Side	23	Overflow Pipe
8	Vacuum Breaker Hot Side	24	Thermostatic Mixing Valve
9	Cold Water Feed to Thermostatic Mixing Valve	25	Geyser Drip Tray
10	Shut Off Valve (Gate Valve/Lever Ball Valve)	26	Electrical Cable (minimum 2.5mm ²)
11	Y-Strainer	27	Isolating Switch 1m away from Electrical Connection on Geyser
12	Solar Circulating Pump 12V	28	Distribution Board
13	Cable from Solar Crystallite Panel 10W	29	Thermal Pipe Lagging (R1 Rating)
14	Cold Water Feed to Heat Exchanger Manifold	30	Diffuser Pipe
15	Solar Crystallite Panel 10W	31	50mm Overflow from Drip Tray
16	Heat Exchanger Manifold	32	Silicone Insert Placed Inside of Exposed Pipe

NB. The Auto Vent Valve (19) must be installed to allow air in the system to be released into the atmosphere

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