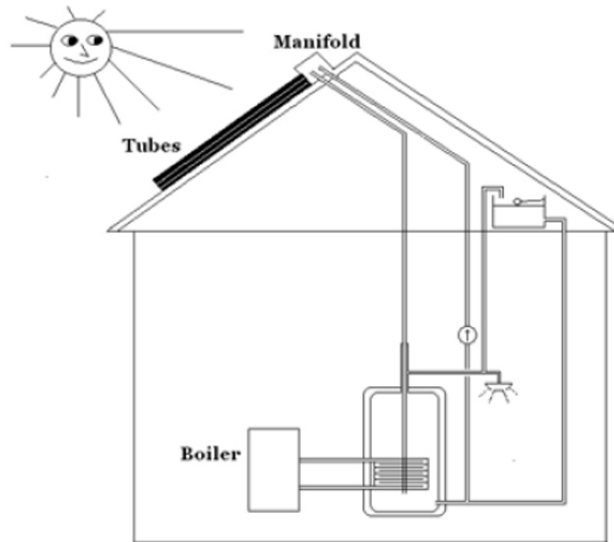




New 'direct' evacuated tubes installation procedure to a 'vented' hot water cylinder ('vented' thermal stores compatible too)

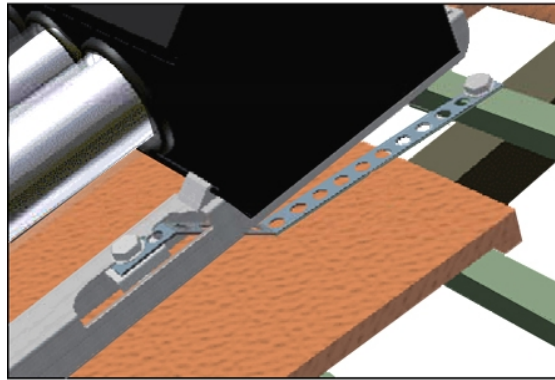


7 easy steps to a solar installation

The easy to install evacuated solar tubes system, fits easily to most standard gravity feed hot water tanks. The benefits of this system over traditional solar systems are:

- Better annual performance especially during winter months.
- Easily installed within a day.
- No-ongoing expensive servicing needed, simply fit and forget.





'Direct' solar tubes

The Apricus evacuated tubes collector and the direct installation method have been developed as a straight forward and economical system, which can be installed by a competent DIY enthusiast or a qualified tradesperson, at a reasonable cost, and will enable energy savings to be made quickly.

We are confident that, once properly installed, the Apricus solar tubes collector has the potential to provide significant energy savings for the customer, and these savings will pay for them selves in a much shorter time than traditional solar methods.

Schematics for information only

Components included in the kit

1. Apricus solar collector frame, manifold and 22 tubes. (1.8m wide x 1.68m)
2. Solar thermal heat exchanger conversion valve (fits into most copper cylinders)
3. Grundfos high temperature bronze pump
4. Resol Delta professional solar controller
5. Roof flashing and pipe covers
6. 20 metres of high temperature seamless insulation tubes and clips
7. Fused spur, extended cable for sensors

Hard water

A magnetic de-scaler or water conditioner must be used.

Connection

Please refer to the accompanying Solar Collector Installation & Operation Manual for installing the collector.

Connecting solar water pipes to existing cylinder

- a. The unit is supplied with 2 stainless steel pipes to penetrate the roof these should be fitted using the roof flashings and insulated for their full length. In the loft area, identify the flow and return pipes and route the two stainless steel pipes towards the cylinder and extend down into the airing cupboard insulating all pipework.
- b. Turn off the water supply from the cold tank to the cylinder.
- c. Open up hot water taps until the water stops running.



- d. If possible open the drain cock to allow a small quantity of water out below the immersion heater. So the water level in the cylinder is below the connection.
- e. Disconnect the hot water outlet and vent pipe from the 22mm brass connector situated at the top of the cylinder using a pipe cutter if soldered in situ.
- f. Unscrew the 22mm x $\frac{3}{4}$ " compression fitting at the top of the cylinder.
- g. Take the Solar thermal valve and cut 15mm dip tube to required length which needs to be 2/3rds of the height of the cylinder, in other words no longer than 2/3rds way down the cylinder. Screw it into the cylinder and tighten up. Spare washers are provided to assist.
- h. Reconnect the vent pipe when refitting the hot water outlet pipe to the 22mm compression on the top of the solar thermal solar valve.
- i. Cut the 22mm cold water feed pipe at about 150mm above the top of the cylinder and install a brass T compression fitting.
- j. To this fitting fit a small length of 22mm copper pipe with an elbow allowing for a further short length of 22mm pipe to be fitted.
- k. To this upright piece of 22mm pipe, install the bronze pump supplied with the direction facing upwards. To the 15mm fitting on the pump, attach the pipe which has been extended from inside the roof (other end connected to the short length of stainless steel flexible pipe, also insulated).
- l. Take the other stainless steel flexible pipe protruding through the loft space and extend this using the stainless or copper pipe and connect to the 15mm connection on the side of the solar thermal valve, thus completing the open loop.
- m. Having lengthened the collector sensor wire with two core cable supplied, (sensor inserted in the hot out, flow end of the manifold) make sure it is firmly taped to the insulated pipe, then wire into the solar control unit.
- n. Attach the second sensor to the lower part of the cylinder (about 12" up) by cutting a section of the foam away from the side of the cylinder and inserting the sensor tip vertically so that it makes good contact along its length with the cylinder. Replace the piece of foam to trap the sensor cable.
- o. All plumbing connection are now complete. Turn on the feed from the cold tank and allow the cold water from the tank to flow into the cylinder and out to the taps. Check for any leaks.

Electrical connections

The next procedure is the electrical side that we recommend should be carried out by a qualified electrician.

If you are located in a hard water area, to protect the complete system from scale build up, a water conditioner must be fitted as instructed on the down pipe of the cold water supply feed to the cylinder and plugged into a fuse spur socket. If a water conditioner is not fitted, the warranty provided will be void.



In order to gain a good contact for the temperature of the water in both the collector manifold and the lower part of the cylinder, it is important that the sensors are in tight contact at each end in order that the controller works at its best.

The pocket inlet at each end of the collector manifold comes sized to meet various sensors offered to buyers worldwide, so make sure of a tight fit. We recommend that some kitchen foil be used to wrap around the sensor, so when its inserted into the pocket at the end where the water flows out. (Do not place where the water flows in), ensure sensor 'bottoms out' in pocket. Once inside, tape the cable over the SS pipe insulation, so it does not come out when passing both the insulated pipe and sensor through the roof flashing.

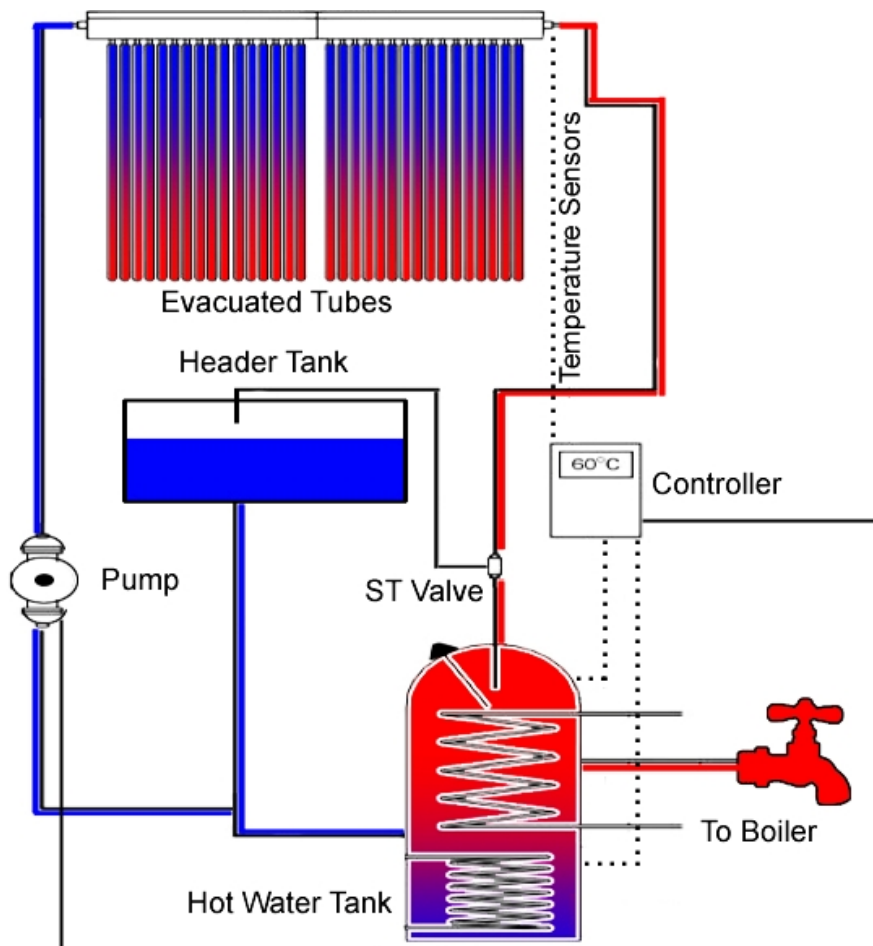
Solar controller

- a. Select a suitable location for the Resol Pro controller. Ensure that it is at least 30cm (1ft) away from the heat source, for example the hot water cylinder. The controller should not be exposed to any excess humidity, as this will cause malfunction.
- b. Remove the cover and fix the back plate through the screw holes in a suitable position.
- c. Fix the pump cables. The pump earth must be connected to the controller.
- d. Install the sensor cables. Be care full to avoid damage to the sensor cables and avoid moisture. Clamp the sensors in place ensuring you make proper metal to metal contact, so as to provide corrcct temperature readings. Maximum length of cables 50 metres.
- e. Connect the mains to the unit via a switched spur fitted with a 5 amp fuse.
- f. Check all wiring and clamp all leads. Push the display head onto the backplate by carefully pushing the contact board into the strip.
- g. The mains may now be switched on. The display should now illuminate and show the temperature within the manifold.
- h. For full instructions on programming, please see Resol manual supplied.

Purging the system - When all the electrical and plumbing connections have been made and checked, the water can be turned back on. In order for the air in the collector to be purged, the pump should be switched on, using manual control. With the pump running, water and air will be pushed through the collector and into the cylinder, where it will vent naturally. Continue to run the pump until the pump runs quietly.

Please refer to the Apricus installation manual supplied.





Maintenance

No maintenance is required. Natural weathering should keep the tubes clean. Simply fit and forget.

IMPORTANT - Any deviation from our specified installation methods and instructions will void any warranty or guarantee. The responsibility of the system will then pass to the installer.

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