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Information On Solar Panels

General

Q: Why Should I Buy A Solarwerk Solar System?

A: At Heat Tech it's not our aim to trick customers into buying a solar system by high pressure sales techniques, gimmicks or unjustifiable claims about savings to be made.

The Heat Tech system has been independently tested and the performance figures are freely available for comparison. They show the system to perform very well in its class, which is for a typical Dutch System with a panel area of 2.7 square metres. Now taking into account the low power consumption of the 3-watt pump (or PV option) and the minimal maintenance requirements we believe that the Solarwerk panel has the edge on its competitors.

However the 'bottom line as a potential customer is how much does the Heat Tech system cost compared to other systems in its class.?

Our answer is that we believe we are providing one of the lowest-cost and best value solar systems in Ireland and in the UK and we therefore encourage you to compare our prices with any other suppliers.

Q: What Guarantees do you Supply?

A: We offer a six-year manufacturer's guarantee on the Solarwerk solar panels and two years on the Solarwerk pump station and controls. The guarantee on the cylinder depends on the manufacturer, which varies depending on which system is chosen. This relates to defects in the manufacture of the components and not any subsequent damage. If we install the system ourselves, we offer a one – year guarantee on our workmanship.

Q: How does the Solarwerk flat plate collector compare to evacuated tubes?

A: There is a lot of conflict information available about the relative performance of flat and evacuated tubes.

For example comparing evacuated tubes to unglazed flat plate collectors or those with non – selective absorbers, or comparing at temperatures, which are not representative of normal domestic hot water usage. This has led some people to believe that a much lower area of solar collectors are required to be used for evacuated tubes, which is simply not the case.

The truth is that they are good solar collectors and bad solar collectors and many flat plate collectors perform better than evacuated tubes for a given collector area.

Also a lot depends on the design of rest of the solar system, such as the pump energy consumption, control system and hot water cylinder.
We believe that Solarwerk solar system is one of the better systems, having a low water volume panel, a selective absorber surface, and a low wattage pump.

Therefore until more conclusive quotes for the same area of evacuated tubes as our panels.

Q: Do I Need Planning Permission to install a solar system?

A: Planning permission may be required from you local authority in some cases, depending on where you live. Certain types of minor development(e.g. roof windows and solar panels) in some areas are known as permitted development and are given general permission by the Town and Country Planning General Permitted Development Order 1995.However local authorities have the powers to override this locally, in which case a planning application will be required, as is also the case for new buildings.

Also be careful in National Parks, conservation areas and in listed buildings. Where planning regulations are must tighter.
In any case always check with your planning authority who can quickly tell you.

Sytems Design

Q: What's so imaginative about the Solarwerk low flow system?

A: The low flow system has been chosen for a number of reasons:

. Its innovative design uses a low power DC pump, which only uses 3 watts of electricity and therefore costs less than two euro per year to run.

. With low flow rates the return water temperatures is much hotter, meaning that hot water at a useful temperature is available at the top of the cylinder much sooner due to stratification (when the cylinder is progressively hotter from bottom to top), rather than a larger quantity of cooler water.

. With low flow rates small microbore pipe is used which is easier to plumb (very often in a single length, bent by hand, without any soldered joints) and has a lower surface area for heat loss.

Q: What are the Advantages of the Solarwerk drain back system?

A: The drain-back system, which is very common on the continent, has a number of advantages over the pressurized system, which is common in Ireland and the UK:

. At night, when there is no sun or in other very cold weather there is no water in the panel to freeze, so plain tap water can be used in the system.

. No Chemical antifreeze is required, so there is no maintenance to check and maintain antifreeze protection for the system.

. In very hot weather with no water draw –off (e.g. whilst away on summer holidays) the system is protected from boiling by draining back the water when the cylinder exceeds 80 degrees centigrade.

. In the event of a power failure the system always fails safe, with water draining back out of the panel, where it will neither freeze nor boil.

. Plain tap water is a better heat transfer medium than antifreeze, so carries a greater density of heat from the panel into the hot water cylinder.

Q: Why not use a pressurised system?

A: The un- pressurised Solarwerk System has a number of advantages:

. There is no expansion vessel to regularly service.

. Low pressure puts less strain on pipe work and joints, so less chance of any leaks.

. Very low maintenance, as the system does not need servicing or re-pressurising of there are any leaks or a release of water from the pressure relief valve.

Q: Can I use the Solarwerk Solar system with a combi boiler?

A: Combi boilers, which provide instantaneous hot water and central heating, are now very popular in Ireland and the UK. For this reason we have ensured that we can offer a solar system, which will operate as a pre-heat for a combi boiler.

In fact the Solarwerk system is imported from the Netherlands where the vast majority of solar systems are used with combi boilers. The main difference is that you will require a mains pressure cylinder or heat store which is unfortunately more expensive.

Unfortunately most older combi boilers will not accept the pre-heat hot water which comes from the solar system, although this is not a problem if you are planning a new boiler where we can recommend boilers which will work with pre-heat hot water.

However, even with an old combi boiler there is a clever way around this problem by simply decommissioning the instantaneous hot water feature and installing a new dual coli solar cylinder.

Q: Can a Solarwerk solar system be used to provide space heating for the home?

A: Whilst not as cost –effective as heating domestic hot water, space heating can be assisted by the use of a solar system, particularly in conjunction with a low temperature under floor heating system.

Of course a much larger area of panels are required and there is still a requirement for a back –up heating system. This works best on very insulated new build houses.

Q: Is it possible to run the pump from a photovoltaic (PV) panel?

A: Yes, we can supply as Standard a small PV panel (318 x 930mm) which will provide enough electricity to operate the control system pump. This is because we use only a 3-watt DC pump and low power electronic controls, rather than a more typical 50-watt mains electric pump.

This makes our solar system very suitable for remote locations with no mains power supply- or just because you want to be 'super green'

Q: My roof doesn't face south, what can I do?

A: Whilst a south facing roof is ideal, it's not essential to have one. Between southeast and southwest is also quite good. An east –facing roof will collect solar energy mainly in the morning, whilst a west facing roof will collect solar energy in the afternoon.

With east and west roofs, we can supply two solar panels and control systems, which will typically collect more energy than a single south – facing panel.

Q: Why use a polycarbonate cover for the Solarwerk solar panel?

A: The one piece injection moulded polycarbonate cover is preferred to the typical 'box' construction panel for a number of reasons:

. A Polycarbonate cover is virtually unbreakable, unlike glass covered panels or evacuated tubes and the polycarbonate has been specially treated to maintain light transmission over many years to avoid yellowing, brittleness and deterioration.

. There is no need for Aluminium side pieces for the panel, which add to both cost and weight of most solar systems. For those interested in the environment, the embodied energy (energy used in manufacture) is therefore much lower, as aluminium is completely avoided in the construction.

Q: Why do you prefer to roof integrate the solarwerk solar panel?

A: Most solar systems either rest directly on top of the roof or are suspended just above the roof on brackets. We prefer to fully integrate the panels onto the roof because:

. Our roof integrated panel provides a very attractive low profile when intergraded into the roof covering. Being sunken below tile level it's actually lower than a typical roof light.

. The steamlined design helps keep the panel in place and minimise any potential noise in the winds.

. There are no tiles or slates hidden under the panel ,which are inaccessible for maintenance or renewal.

. In existing roofs many tiles and slates become available for repairs elsewhere.

. All plumbing is safe and dry inside the roof, very fitted by drilling holes through roof tiles and sealing with mastic.

. Fitting the panel to the roof normally only takes one day.

. The cover has a special UV anti-aging treatment, which prevents reduction of light transmission by more than 6% in over 10 years. In the unlikely event of a damaged cover (virtually unbreakable) a separate a replacement is available at low cost.

Control Systems and Safety

Q: Why control the Solarwerk solar system on light levels rather than water temperatures?

A: We Prefer the Solarwerk control system to a differential temperature controller because it's simplicity. Also with a differential controller (comparing temperatures between panel and cylinder) it is quite difficult to find positions in either the solar panel or the stratified hot water cylinder, which are truly representative for use in a differential controller. Therefore we measure the amount of solar radiation and start the pump running when the sun is providing 180 watts per square metre, which is enough to exceed the heat losses in the pipe work.

Q: How safe is the Solarwerk solar system?

A: The Solarwerk system has a safety cut out which will operate when the hot water cylinder reaches 80 degrees centigrade and also the pump will not operate in the event of a mains power failure. As the system is an un-pressurised drain back system there is no potential danger due to a faulty pressure relief valve to the hot water supply, to eliminate the risk of scolding in sunny weather.

Q: How much energy does the solarwerk solar system save?

A: All solar systems save far more energy in use than in their manufacture and operation. However because of the Solarwerk wattage pump [3watts] we have much lower electricity use and running costs than on most other solar systems which typically use a pump of 30-50 watts. In fact we can provide a P V (photovoltaic) panel powered version, which uses no mains electricity at all if required.

The actual amount of energy saved depends on the household hot water usage, but is generally between 30 and 70% of the total hot water consumption. The financial savings will depend on the cost of fuel and efficiency of the existing boiler. Tests by the Netherlands building research organization TNO have shown that a single panel system should provide 4GJ [giga joules] per year or 1112kWh [kilo watt hours] under standard circumstances.

Of course the more panels that are fitted the more energy that will be saved.

Q: How cost effective are solarwerk solar systems?

A: Everyone always asks how much will a solar system save and long will it be before I recoup the costs? The difficulty in answering is because it is a complex calculation, which is different in each case. The more hot water you use, for example with more people in the house, the more you will save by having a solar system. Also if you use more hot water in sunny weather the more you will save, because that's when free hot water is available.

The other factor is the cost of your existing fuel, which may range from an efficient condensing gas boiler to an electric immersion heater. Each case is different but we would suggest carrying out cost effective measures such as loft insulation and cavity wall insulation before considering purchasing a solar system.

However a solar system is probably more cost effective than double glazing your home and is one of the vary few measures you can do in your home which actually contributes energy rather than merely reduce the amount used.

If you do decide to get a solar system the most cost effective one is that which is efficient and at the lowest cost which is why we have done as much as possible at Heat T to bring you a high quality low cost solar system.

Q: How environmentally friendly ['green'] are solarwerk solar systems?

A: A number of features have been incorporated to make solarwerk solar systems?

. The systems run on plain tap water and require no chemical anti-freeze.

. A low wattage pump [3watts] uses a fraction of the electricity of a conventional pump and can be powered by a small PV [photovoltaic] Panel if required.

. The solarwerk solar panel design uses small amounts of material and minimises the use of aluminium, a material requiring high-energy use for manufacture.

. Our standards hot water cylinder is CFC free and is available as HCFC as an option.
. Solar panel insulation is CFC and HCFC free glass wool with CFC free polyurethane insulation behind.

. The Solarwerk Solar system displaces many times more carbon dioxide over its lifetime than is used in its manufacture or operation.

Please Note: the above Information is just general information and recommendations may change depending on your installation.