SOLAR WATER HEATING

Hot water in the home is an essential requirement and it is estimated that the cost of using electric water heaters accounts for over 33% of the average household electricity bill. Understandably solar hot water heaters are becoming increasingly popular as not only in the energy largely free but also there are ecological benefits from using renewable energy sources.

How does a Dayliff Solar Water Heater Work

The principle is simple – cold water is fed into the integral storage tanks from where it circulates through the adjacent solar collector using the principal known as thermosyphon that results from the temperature differential between the top and the bottom of the unit. The collector is a series of capillaries attached to copper sheeting that collects the sun's energy and heats the water as it flows through. Hot water is then stored in the insulated tank for use when required. Dayliff solar water heaters also feature an auxiliary electric heart as standard so that hot water can also be supplied when the sun's energy is low.

Selecting a Solar Heater

Solar heaters are available in different sizes depending upon demand and available solar irradiation levels. Dayliff systems are supplied in three basic sizes with options of 160l, 220l and 320l tank capacity which typically are suitable for household of 5, 7 and 10 people. The amount of irradiation is also important so systems are supplied in two specification levels, one having a larger collector area for more temperature climates, for example in Nairobi. Generally the tanks are fitted on a frame together with the collector and sit above it on the roof. However, for aesthetic reasons this is sometimes not acceptable and it is possible to fit the tank under the roof providing it is above the top rail of the collector. This requires a sufficient roof pitch. Also available are the option of direct and indirect systems, the latter being applicable if the feed water is lightly mineralized with a tendency to corrode and block the capillaries. They work by separating the feed water and the heating water which circulates through the collector to a jacket around the tank and transfers heat to the feed water by induction. These systems are less efficient, though have applications at the Coast.

Solar Water Heater Installation

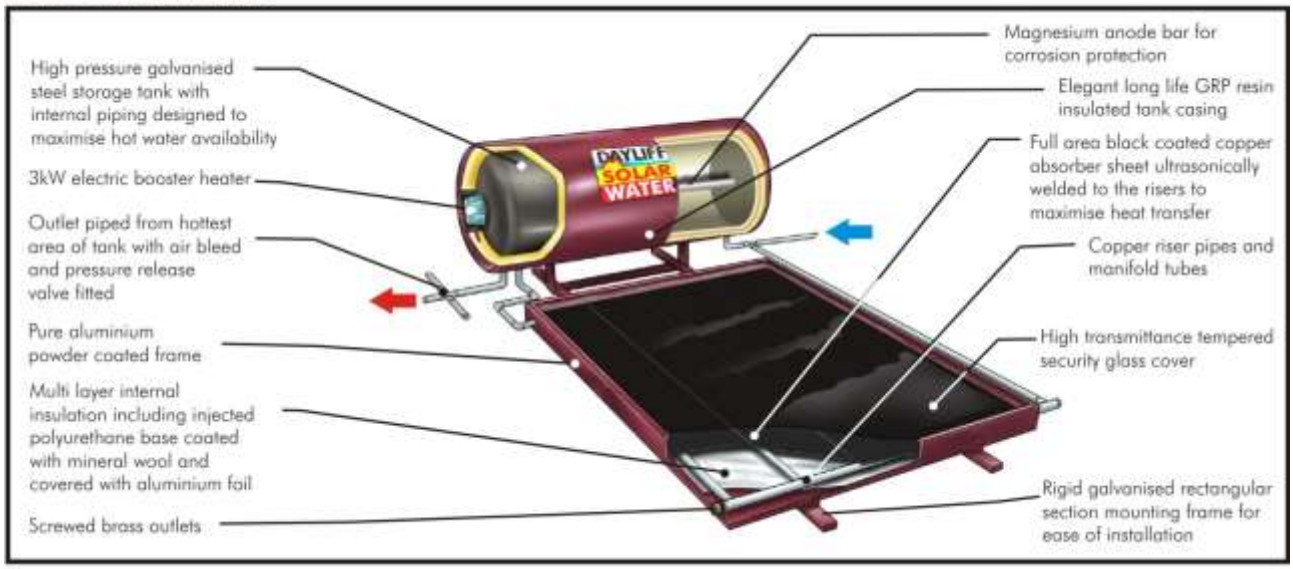
There are three golden rules of Solar Heater Installations – they must be exposed to as much direct sunlight as possible and so must not be shaded, they should be installed at a pitch of about 150 and the main axis should be oriented North – South with the panel facing South in the Northern hemisphere and vice versa. By following these simple rules the heat input will be maximized. It is also important to ensure that the system is suitably plumbed so hot and cold water pressures at the outlets are the same. This is simply done by arranging the solar heater's feed from the main cold water supply. Tanks are rated at 3.5Bar so the system supply can be rated to this pressure to give full water flow at the outlets – generally the gravity supply should be avoided as outlet pressures are too low and a booster pump should be fitted.

Solar Heater Usage

As there is only heat energy in the day solar heated water is only available once in a 24 hour period; if it is used in the evening there will be insufficient hot water in the evening. All Dayliff heaters therefore provided with an electric booster heater that can be fitted with a timer so hot water is available in the morning. If electricity is not available hot water use must be managed accordingly.

Unquestionably solar hot water systems are effective and of course save considerable power costs and considering their inherent advantages as well as legislation that is making the fitting of solar heaters compulsory on new buildings their application will increase. If correctly sized and installed they are now both highly effective and reliable, though it is also important that they are robust and designed for high efficiency. Dayliff solar heaters are tried and tested and with the benefits of a high efficiency Turkish sourced collectors and long life GRP cased tanks are particularly suitable for local conditions. Dayliff systems are also backed by experienced application engineers who will ensure a properly specified and engineered installation.

DESIGN FEATURES



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