Data Sheet

LaZer2 Solar Thermal Collector

Overview

The UK designed and manufactured LaZer2 collector has been developed to deliver the maximum amount of thermal energy. Independent tests carried out by a leading European research institute (Institut für Solartechnik SPF) have shown that the LaZer2 solar collector out-performs all of our major competitors' products*1.

Because we realise that reliability is as important as performance, the LaZer2 collector has been designed to operate for at least 25-years with no loss of performance and to require no scheduled maintenance. To ensure total confidence in the collector's reliability all LaZer2 vacuum tubes are covered by a **25-year warranty***2.

If the LaZer2's unparalleled performance and reliability isn't enough, then the collector's sleek and compact design really sets it apart from the competition. An all-black anodised aluminium frame means minimum visual impact, whilst the unique manifold-end allows all unsightly pipes, insulation and cables to be completely hidden from view.

Technical Specification	
Type	LaZer2 Direct Water
Absorber Area	0.80m²
Aperture Area	0.93m² (1m²)
Gross Area	1.35m²
Total Length	2110mm
Total Width	615mm
Total Depth	104mm (Manifold 113mm)
Total Weight	43Kg
Op. Pressure	<4-bar
Design Life	>25-years
Vacuum Tube	High-Borosilicate Glass
Tube Diameter	58mm
Tube Length	1960mm
Vacuum	$P = 5 \times 10^{-2}$Pa
Tube Strength	Tested to withstand a 25mm hailstone
Absorber	AL-N/AL
Efficiency	> 93% (optimum)
Tube Warranty	25-Years
EN/BS standard	EN12975

Design

The all-glass design of the LaZer2 vacuum tubes (evacuated tubes) means that you no longer have to worry about collector failure. In traditional vacuum tube collector designs the glass-metal seal can fail due to the varying expansion/contraction of the two materials. By eliminating the glass-metal seal we have eliminated the risk of vacuum loss.

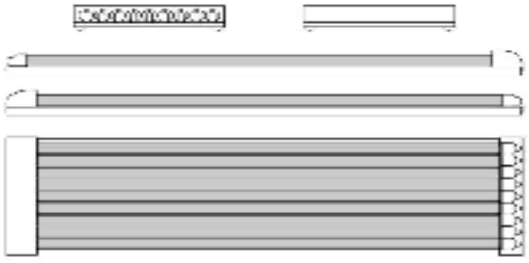
Our >93% efficient vacuum tubes are ideal for climates like those of the UK as they are virtually unaffected by air temperature or wind-chill, with no noticeable variation in performance whether the ambient temperature is 0°C or 30°C.

The LaZer2 collector incorporates horizontally mounted vacuum tubes with a curved collecting surface. The collector can therefore be mounted off of the optimum angle yet still absorb the same amount of energy. This design allows a constant aperture to be maintained to the sun, in order to maximise solar gain. By automatically compensating for the change in the sun's angle throughout the year, more 'useful' energy can be gained.

The LaZer2 collector features a unique aluminium heat sink and a direct-water, serial-manifold. A direct-water manifold is more efficient than a heat-pipe manifold because it does not require an in-direct transfer of energy, which will always lead to some loss of energy. In a collector with a serial-manifold, the transfer fluid passes through each vacuum tube in series rather than just in and out of a single tube. This means the fluid moves much faster as it has further to travel (38m in a LaZer2 collector). The increased speed means more turbulence and a distinct improvement in heat transfer.

Operation

Solar energy penetrates the glass and is absorbed by the specially selected coating on the collecting surface. Once absorbed the energy is trapped inside the tube by the vacuum. The unique aluminium heat-sink transfers the trapped energy to the advanced internal manifold, directly heating the transfer fluid.



*1: Other collectors tested include (but not limited to): Apricus, Risol, OPC, Schott, Seido, Sonnenkraft, Stiebel Eltron, Thermomax, Vallient, Viessmann.
*2: Limited warranty covers LaZer2 tubes against loss of vacuum during normal operation for a period of 25-years.