



TZ58 Heat Pipe Solar Collectors



The TZ58-1800 heat pipe solar collectors are the latest addition to the Firebird solar range and offer an optimum performance to price ratio. Built to Firebird's exacting standards, they have an extremely high efficiency and can deliver solar energy even in overcast weather conditions.

How the TZ58 Heat Pipes Work:

The TZ58 heat pipes consist of a borosilicate glass tube with a near-perfect vacuum with a selective absorber coating applied to its inner surface. A copper heat pipe is located inside the heat pipe which contains an alcohol-type fluid that can evaporate at temperatures as low as 25°C. Solar energy is absorbed onto the absorber surface on the glass tube and then transfers to the heat pipe, causing the alcohol-type fluid to heat-up and turn to vapour. As the fluid evaporates it rises to the top of the heat pipe, known as the condenser section. Here it condenses back to fluid state and releases latent heat which is transferred to the heat exchange fluid passing through the upper manifold. The condensed liquid flows back to the bottom of the heat pipe to once again repeat the process.

Key Features:

- **High build quality – aluminium manifold design, nickel plated condenser head, borosilicate glass.**
- **High efficiency vacuum tube - round shaped absorber tube ensures solar energy is captured throughout the day.**
- **Heat pipe technology - manifold can be installed initially and tubes added later during commissioning.**
- **Approvals – CE, SEI Greener Homes, Solar Keymark, EN 12975.**
- **5 year Firebird Warranty.**

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Sizing:

The TZ58-1800 heat pipes are available in sets of 20 and 30 tubes and up to a maximum of 100 tubes can be connected in series; i.e. 5 x 20 tubes or 3 x 30 tubes. Recommended tank sizes for different tube configurations are;

Number of tube sets	Tank size (litres)
1 x 20 TZ58 tubes	~ 150
1 x 30 TZ58 tubes	~ 200
2 x 20 TZ58 tubes	~ 250
1 x 30 TZ58 + 1 x 20 TZ58 tubes	~ 300
2 x 30 TZ58 tubes	~ 300

Technical Specifications:

TZ58-1800 20 tube set 30 tube set

Collector Outer Dimensions:		
Height [mm]	2020	2020
Width [mm]	1825	2655
Depth [mm]	155	155
Heat Pipe dimensions		
Diameter [mm]	58	58
Length [mm]	1800	1800
Weight [Kg]	78	115
Gross collector area [m ²]	3.507	5.005
Aperture area [m ²]	1.867	2.791
Max Operating Pressure [bar]	6	6
Stagnation temperature [°C]	200	200
Angle of inclination permitted	15° to 75°	
Flow rate	0.5 to 1.5 l/min per m ² aperture	
Solar fluid	Tyfocor LS	

Performance Data:

Zero-loss collector efficiency, η_0 (based on aperture area)	73.4%
Collector heat loss coefficient, a_1 [W/m ² K]	1.529
Collector performance ratio, a_1/η_0 [W/m ² K ²]	0.0166
Absorption	> 94 %
Emission	< 7%
Annual Energy Yield [kWh/m ²] (based on aperture area)	> 525

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