

COLLECTOR SPECIFICATIONS

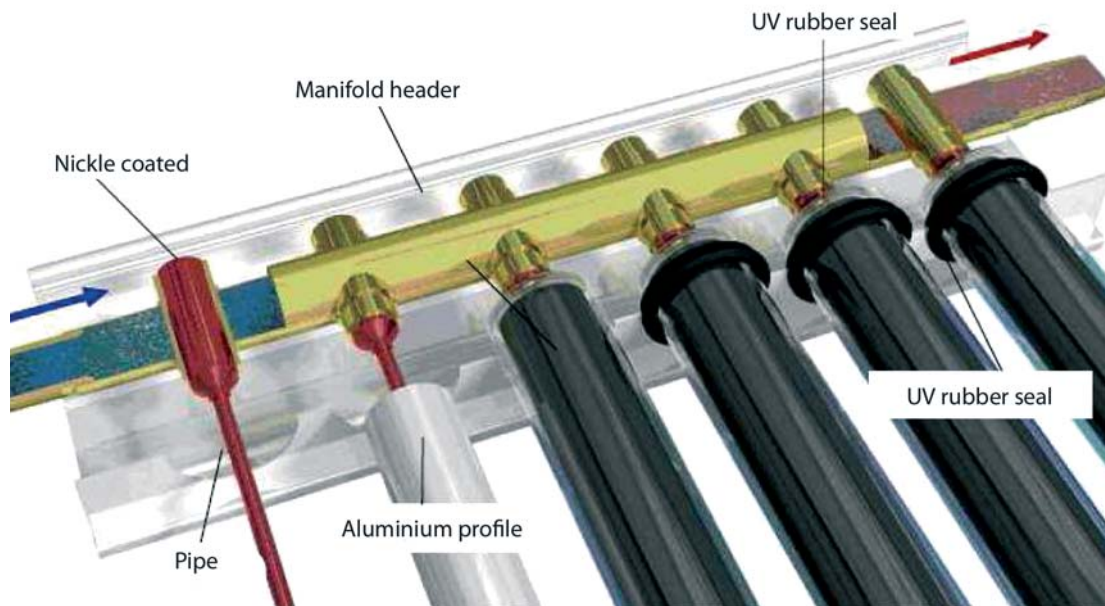
TZ58-1800 Heat Pipe Solar Collector

The Firebird TZ58-1800 Heat Pipe Solar Collector is the latest addition to the Firebird solar range and offers 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 TZ58-1800 Heat Pipe Solar Collector works

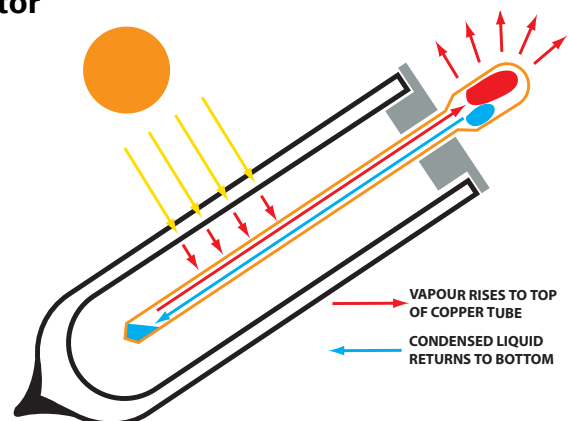
The TZ58-1800 Heat Pipe Solar Collector consists of a borosilicate glass tube with a near-perfect vacuum and a selective absorber coating applied to its inner surface. A copper heat pipe is located inside the heat pipe which contains an alcohol-type fluid that can evaporate at temperatures as low as 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 a 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 of the TZ58-1800 Heat Pipe Solar Collector

- 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.



Collector Specifications: TZ58-1800 Heat Pipe Solar Collector

Type		TZ58-1800 20 tube set	TZ58-1800 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
Content	[L]	1.6	2.3
Angle of inclination permitted		15° to 75°	15° to 75°
Flow rate		0.5 to 1.5 l/min per m ² of aperture	0.5 to 1.5 l/min per m ² of aperture
Solar anti-freeze fluid		Tyfocon LS or equivalent	Tyfocon LS or equivalent
Performance Data		Aperture Area	Absorber Area
Zero-loss collector efficiency, η_0		73.4%	85.0%
Annual energy yield	[kW/m ²]	> 525	> 529
Collector heat loss coefficient, a_1	[W/m ² K]	1.529	1.771
Collector performance ratio, a_1/η_0	[W/m ² K ²]	0.0166	0.0192
Absorption		> 94%	> 94%
Emission		< 7%	< 7%