

SOLAR WATER HEATER



# **Evacuated Tube Collector (ETC)**

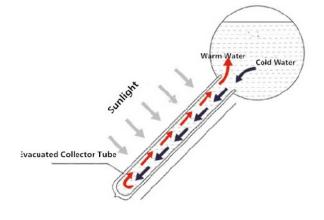


93% Absorption of solar energy advanced tubular designs

This Solar Heater is designed by advanced technology i.e tried & tested in the international market. The water heater is made from world class materials that not only ensure longer life but also overcomes the adverse climate conditions in Asia.

#### **ADVANTAGES**

- High Heat Convergence.
- Vacuum Tubes: These vacuum tubes have been designed with a Borosilicate Glass, giving it better stroke resistance.
- The well synchronized aluminium, nitrogen & carbon planting which effectively absorbs solar energy up 93%.
- G.I. 1.6 to 2 mm inner tank with puf insulation.
   Automatic argon arc welding equipment prevents chemical reaction in joints ensuring con-



Sr. No	Model No.	System Capacity	No. of Persons
1	AD-100	100lpd	3 - 4
2	AD-150	150lpd	4 <b>-</b> 5
3	AD-200	200lpd	4-6
4	AD-250	250lpd	5-7
5	AD-300	300lpd	6 - 8
6	AD-500	500lpd	8 - 10



#### tamination free water.

- 50 mm thick polyurethane thermal material acts as an excellent protection against dampness, high temperature and aging. The high performance foaming also offers better integration between the inner tank and outer shell. It also maintains the water temperature during cold season.
- Specially made for hard water.

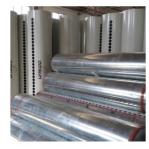
#### **TECHNICAL DETAILS**

- Vacuum tube : 58 x 1800 mm / 58 x 2100 mm
- Water tank material (inside): GI with coated
- Water tank material (outside): MS with powder coated
- Insulation 50-70 mm polyurethane integral foam
- Frame material: stainless steel, aluminium alloy or Zinc coated steel
- Temperature (sunny season): 40 96°C/day
- Whole glass vacuum tube adopt supper hard borox and silicate glass
- Absorb rate 93%, thermal radiation rate: 0-6%
- Resist 25 mm hail, using life can last 15 years

#### **OUR MANUFACTURING UNIT**























## **OUR PROJECTS**







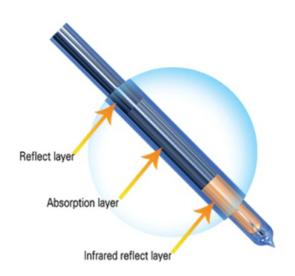








# THREE TARGET SOLAR VACUUM TUBE





The three target vacuum tube is much more efficient than single target tube because its coating is interferential and it has only three layers.

Tube Structure		All Glass Double Deck Coaxial Structure		
Glass Material		Borosilicate 3.3 Glass		
Outer Tube Diameter and Glass Thickness		Ø 47±0.7 mm; Thickness 1.6±0.15 mm		
		Ø 58±0.7 mm; Thickness 1.6±0.15 mm		
		Ø 70±0.7 mm; Thickness 2.0±0.15 mm		
Inner Tube Diameter and Glass Thickness		Ø 37±0.7 mm; Thickness 1.6±0.15 mm		
		Ø 47±0.7 mm; Thickness 1.6±0.15 mm		
		Ø 58±0.7 mm; Thickness 1.6±0.15 mm		
Tube Length		1200, 1500, 1600, 1800, 1900, 2000, 2100±5 mm		
Absorptive Coating	Coating Material	Cu/SS-AIN/AIN		
	Sediment Method	Three Targets Magnetron Sputtering Plating		
	Absorptivity	α≥0.93 (AM 1.5)		
	Emittance	ε≤6.5% (80±5°C)		
Vacuum Degree		P≤5x10 <sup>-3</sup> Pa		
Transmittance of Glass Tube		T≥0.89 (AM 1.5, ISO980-1:1994)		
Stagnation Parameter		Y = 200-240 m <sup>2</sup> °C/KW		
Average Heat Loss		$U_{LT} \leq 0.65 \text{ W/(m}^2  ^{\circ}\text{C)}$		
Hail Resistance		Ø25 mm		



# TRI-ELEMENT HITECH VACUUM TUBE

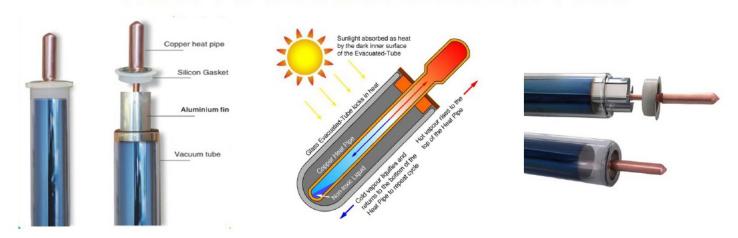


Tri-element tube also adopt thre target sputtering technique. It is almost the same with three target tubes and their difference is the coating constituents resulting in different colour.

Tube Structure		All Glass Double Deck Coaxial Structure	
Glass Material		Borosilicate 3.3 Glass	
Outer Tube Diameter and Glass Thickness		Ø 47±0.7 mm; Thickness 1.6±0.15 mm	
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		Ø 58±0.7 mm; Thickness 1.6±0.15 mm	
Tube Length		1200, 1500, 1600, 1800, 1900, 2000, 2100±5 mm	
	Coating Material	Cu/SS-AIN (H)/SS-AIN (L)/AIN	
Absorptive	Sediment Method	Three Targets Magnetron Sputtering Plating	
Coating	Absorptivity	A=0.93-0.96 (AM 1.5)	
	Emittance	ε≤6.0% (80±5°C)	
Vacuum Degree		P≤5x10 <sup>-3</sup> Pa	
Transmittance of Glass Tube		T≥0.89 (AM 1.5, ISO980-1:1994)	
Stagnation Parameter		Y = 200-240 m <sup>2</sup> °C/KW	
Average Heat Loss		U <sub>LT</sub> ≤0.65 W/(m <sup>2</sup> °C)	
Hail Resistance		Ø25 mm	
Pressure Endurance		0.6 MPa	



# **HEAT PIPE SOLAR VACUUM TUBE**



Heat pipe is sealed copper pipe containing a little volatile fluid and some addictive but with no air. Heat pipe vacuum tube consist of the glass vacuum tube and a copper pipe which is fixed by aluminium flake and silicon plug.

While heat pipe being heated, it will conduct heat to its condenser tip inside the manifold, which is plugged on the heat pipe. Water runs through the tip and then heat is transferred from the condenser tip to the water.

### **PARAMETERS**

Axial Heat Flow Density	Dimension	
Equivalent Thermal Coefficient	1200, 1500, 1600, 1800 mm	
Aggregate Radiation Activity	Ø 8 mm	
Acceptable Service Life	0.7 mm	

Heat Pipe Details	Dimension	Other Size
Pipe Length	1200, 1500, 1600, 1800 mm	Specific size available
Pipe Diameter	Ø 8 mm	Ø 10 mm or Ø 12 mm
Pipe Thickness	0.7 mm	0.5 to 0.8 mm
Condenser Tip Diameter	Ø 14 mm	Ø 14 mm or Ø 24 mm



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