

**Heat Pipe Vacuum Tube Solar Water heater
(High-pressure)
User manual**



**Please read this manual carefully before
beginning installation**

Specification

- Tubes 12 --- 30 ϕ 58X1800
- Nominal volume tank capacity 100L --- 300L
- Frame material : Galvanized steel with powder coating /Aluminium Alloy
- Tank material : SUS 304 stainless steel / Titanium steel with enamel coating
- Insulation : 55 mm polyurethane foam
- Pipe fitting : 1/2" BSP of called 15 mm /3/4" BSP of called 22 mm
- Tank Color : white or polished stainless steel
- Frame color : you can choose as you need .

This solar water heater system consists of a horizontal water cylinder with an external stainless steel casing insulated with 55mm polyurethane foam , the inner and outer cylinders have apertures to allow glass vacuum tubes to penetrate the inner cylinder .the silicon seal is triple edged to ensure they remain watertight and prevent leakage .

This solar water system is intended for high-pressure application and has a max pressure rating of 6 bar for the cylinder . the test pressure is 12 bar .

You can also use this system with an electric pump on the hot water side without pressuring the tank and glass tubes .

Safety first

A few careful preventative measures will ensure the safe operation of this solar hot water heating system .

- Always wear gloves and long sleeve overalls when working with glass tubes .
- Mount the system to ensure people / children can not inadvertently run/walk into the tubes .
- The system should be mounted in such a way as to deter accidents
- The system must be bolted down at the 6 feet position so that strong wind cannot blow it over

We appreciate you are keen to assemble your system and no doubt have assembled it on your front lawn full of boiling water .Do not do this – give a thought to the potential hazard , A child running into this system would be seriously cut and burnt with scolding hot water , do not let this happen, please ensure you erect this system in a safe place such that this will never occur.

Safety tips

- Wear gloves and overalls
- Erect in a suitable place out of reach of adults/children.
- Do not over pressurize the system .
- Read the instructions priors to assembling .
- If a tubes breaks , please cut off the water supply & call your repairman to check it & replace the tubes .
- Ensure that if this system is using water that is not treated ,then the water heated to 60 °C to avoid the risk of legionnaires disease .
- Boiling water will cause serious burns ,make sure it is plumbed in correctly and secured correctly .
- Ensure the tank is full with water during sunlight hours .

Safe temperatures

Water tank storage systems are currently required to reach 60 °C degree to ensure that the water is hot enough to kill unwanted organisms that might establish in your hot water tank , it is recommended that this temperature is reached everyday .but in practice , this is not possible in solar hot water system without electric backup , so now we suggest you turn on the electric backup and heating the water to 60 °C every week .

In situations where the system is preheating swimming pools , hot tubs and as preheater for an existing house/farm hot water system then the water be heated above 60 °C .

Intended use of this system

This system is star popular in China , as such , it will generally capture sufficient energy to pay for it in 2 years , based on use electric heater cost (excluding all installation costs) .

The intended use is for :

- Hot tubes
- Swimming pool heating
- Domestic hot water heating in some cases where your council allows
- Kiwi outside bath

Glass tube indirect mains pressure system

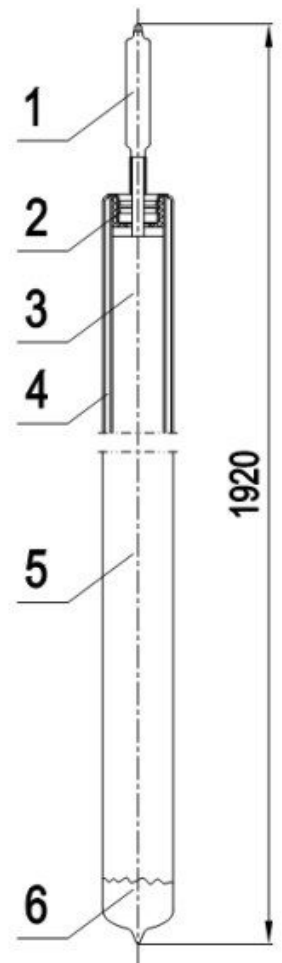
Main pressure glass tube system rely on copper collector pipes containing refrigerant inside the glass tubes , the sun's energy vaporizes the refrigerant , which then transfer the energy in heat exchanger manifold to the water . the resulting hot water is then pumped to your hot water tank through another exchanger , these systems are more complicated , contain expensive copper pipes and cost much more .

Main pressure systems have a number of heat exchanger processes which results in a reduced delivered efficiency , the efficiency of main pressure glass tube systems is similar to conventional copper pipe collectors that do not need heat exchange .

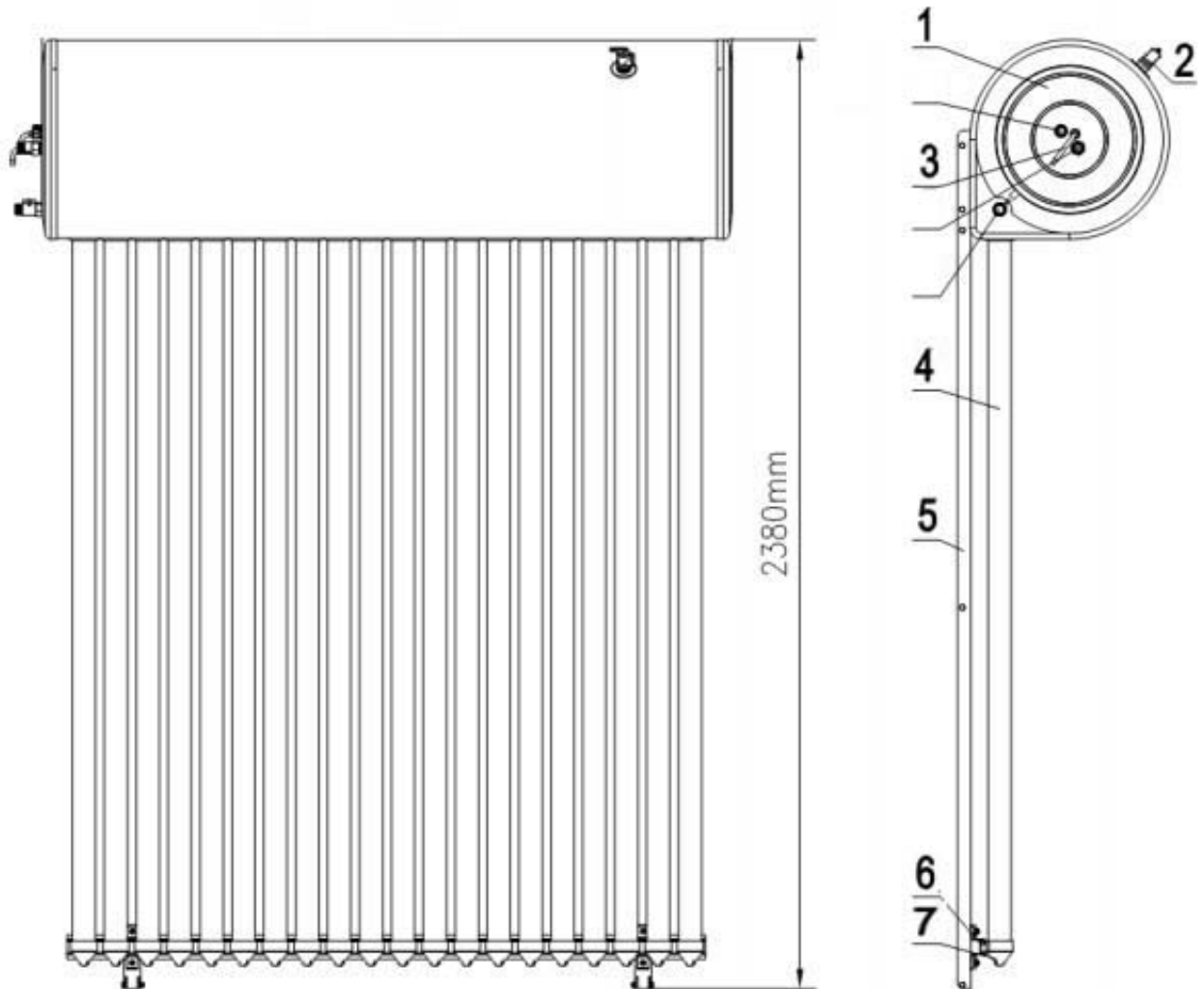
Solar tubes

Components

1. Heat pipe
Transfer the thermal energy from the bottom to the condenser efficiently and rapidly .
2. Cover
Fix up heat pipe and protect the thermal energy lost from the glass tube
3. Conductive Aluminium fins
Transfer the thermal energy from the glass inner wall to the heat pipe rapidly
4. Vacuum layer
Vacuum layer between inner glass and outer tube ensures good heat protection
5. Solar glass tube
6. Getter
This part seems like mirror color which show the vacuum layer keeps well or not



Components and Dimensions



1. Water tank
2. T&P valve
3. Cable (for electric heater and temperature sensor)
4. Solar tube
5. Front track
6. Bottom track
7. Tube bottom holder

Installation

Select south-faced roof to install solar water system , the installation angle should be equal as local latitude degree , the roof should be strong enough to load the system without shadow surrounded .

Sloping roof installation



Flat roof installation



Support mounting on sloping roof

Assembly horizontal tracks , front tracks on the roof as below figure , Fix the one end of perforated bands on the roof as below figure requested size under tracks assembly , then the other end of perforated bands hold the horizontal tracks with screws .



Flat roof support assembly

Galvanized steel with powder coating

With 2 holders

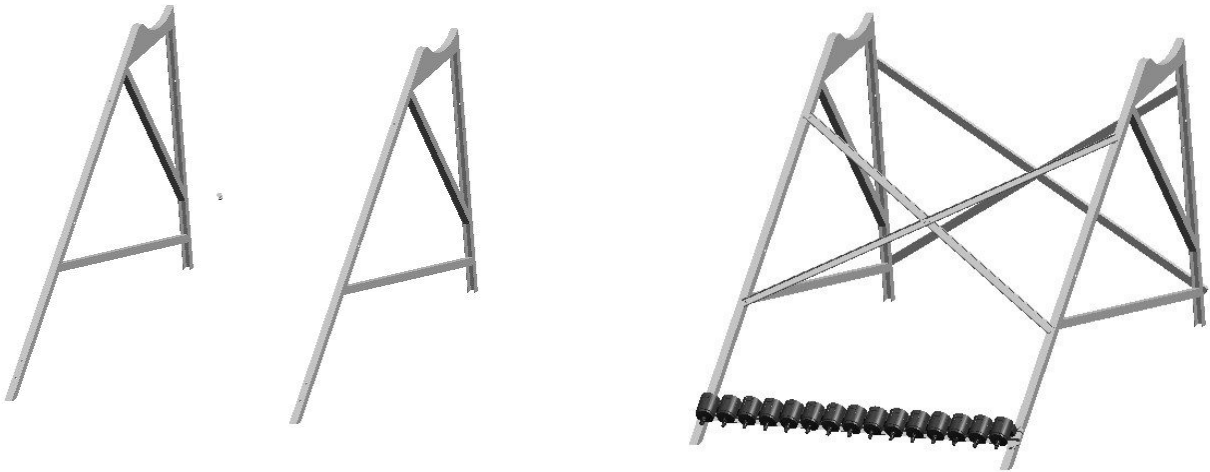


With 3 holders

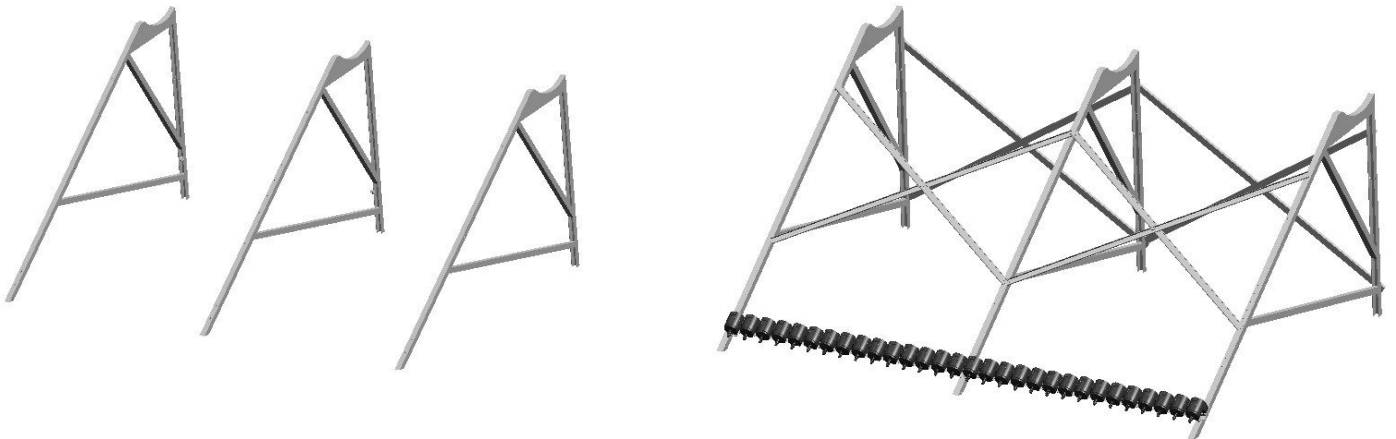


Aluminium Alloy Frame

With 2 holders

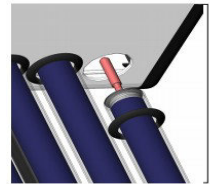


With 3 holders

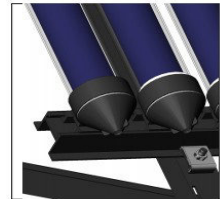


Assembly the solar tubes and bottom holder

As right figure ,insert solar tubes to water tank with water-proof rubber ring on the glass tube top and thermal condition paste on heat pipe condenser.

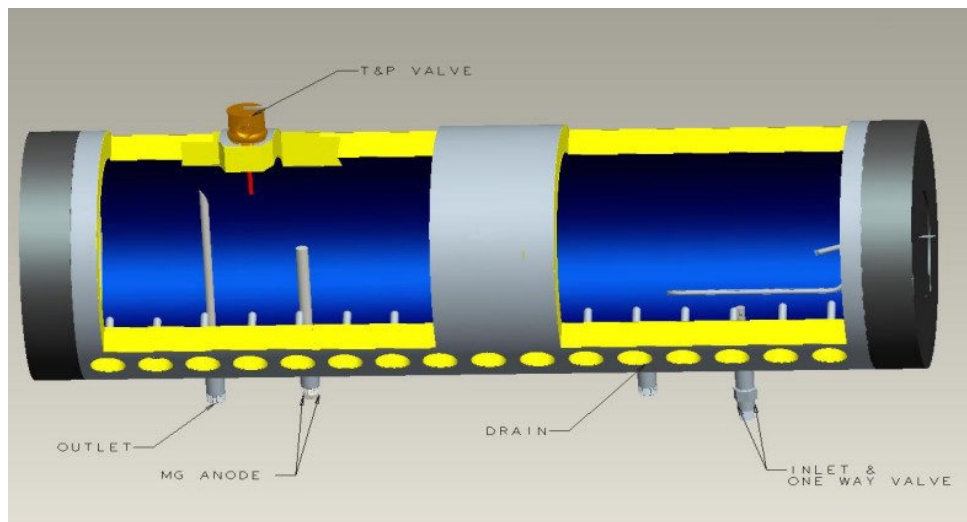


After assembly solar tubes , fix tube bottom plastic holders on the bottom track as right figure .

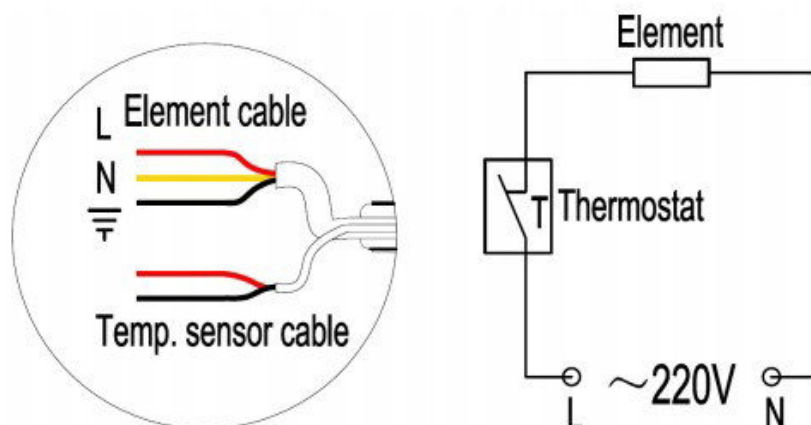


Water tank structure and wire connection

Water tank structure



Wire connection



Cautions

- Gloves and eye protection must be used when handling glass tubes , Avoid scratching or any sudden shock to tubes
- No installation solar water tubes before other components assembly , once installation solar tubes , ensure the storage water tank was full of water (prevent high temperature to effect whole system)
- If the system stop operation long time , it is to shadow the solar tubes
- Please regularly change the Mg Anode (recommend to change every year)
- Do not install by hang to avoid drop and hurt human
- Product are packing in carton and do not be caught in the rain during the course of transportation and storage , pay attention to the moisture
- When the temperature is under 2 °C , please start the electric heater to avoid freeze (if install that part)
- Please clean up the snow accumulation to make this system to absorb the sun light after snow .
- Suggest to install a thermostatic mixing valve when to user , avoiding scald by hot water
- T&P valve is demand from which steam can escape during normal or stagnation conditions shall be mounted , in such a way that no injuries , harm or damage can be caused by the escape of steam .
- the system has a provision to drain an amount of drinking water as a protection again overheating , the hot water drain shall be constructed in such way that no damage is done to the system or any other materials in the building by the drained hot water (Using T&P valve to keep pressure relief when 7 bar and drain when 99 °C)
- For system in which the temperature of the domestic hot water delivered to the user can exceed 60 °C :the assembly instruction shall mention the need for a thermostatic mixing valve which limits the draw-off temperature to 60°C (scald protection)
- The drinking water maybe drained from the system during high irradiation