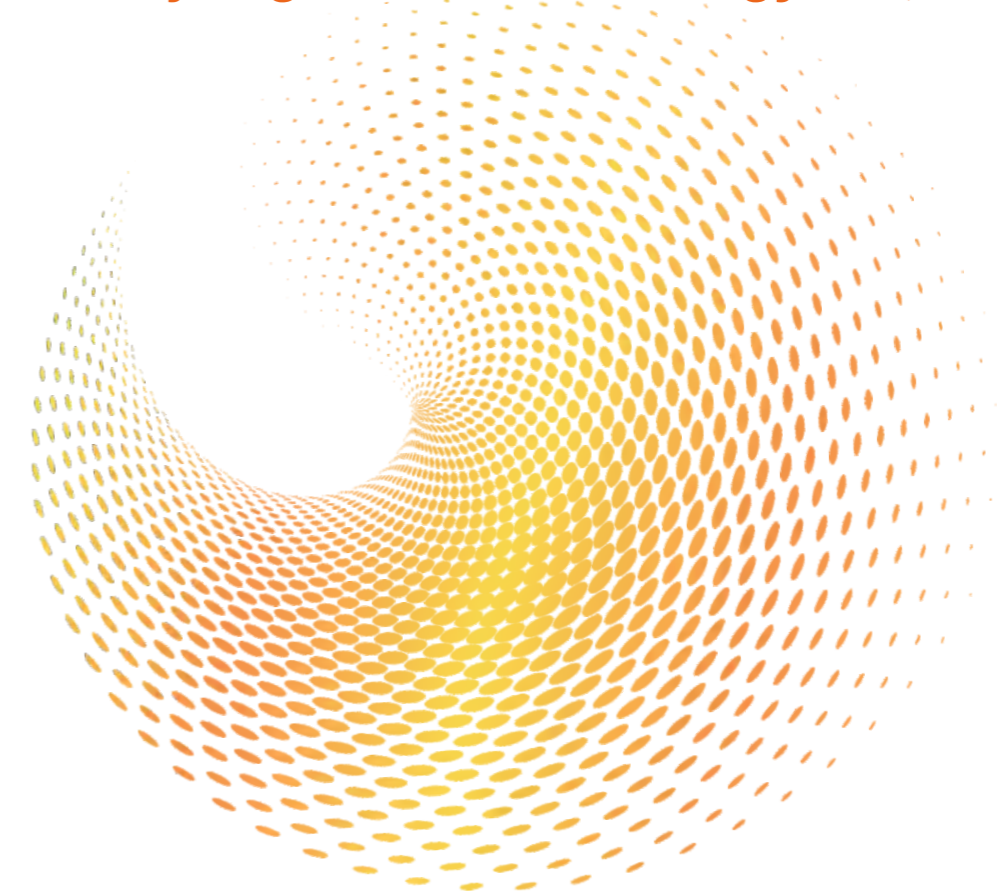




**Zhejiang Kesun New Energy Co.,Ltd**



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# COMPANY PROFILE



As a professional factory with a leading position in the solar thermal industry, Zhejiang Kesun New Energy Co., Ltd. integrates R&D, design, production and sales, and provides professional services to customers from all over the world. It was formed by the merger of Haining Ensun Solar Technology Co., Ltd. and Zhejiang Yile New Energy Co., Ltd.

Relying on the company's strong technological innovation capabilities, a large amount of investment in research and development, targeting customer needs, incorporating bold and innovative design concepts, we have developed and produced a series of new products: Sus coil Solar water heater Solar Air Heater and so on. The products are exported to more than 30 countries including Poland, Mexico, Spain, Bulgaria, South Africa, South Korea, Peru, Argentina, Vietnam, India, Poland, Macedonia, Serbia, Malaysia, Zimbabwe, Nepal, Kenya so on.

In the next a few years, Kesun company will increase investment in science and technology, strengthen technological advantages, improve service quality, and continuously improve employee training plans and corporate incentives, so that the company will form a high-quality talent team including scientific research personnel, management personnel, and marketing personnel, which lays a solid foundation of scientific research and human resources for the company's sustainable development goals in the new century.

"Enjoy the sunshine, enjoy the life", we hope to create a better future with you!

# SOLAR VACUUM TUBES

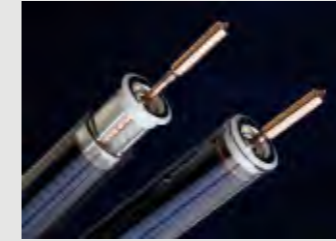
Solar vacuum tubes are key components of solar thermal systems used for harnessing solar energy. These tubes consist of two main parts: an outer transparent glass tube and an inner absorber tube. The inner absorber tube is coated with a selective absorbing material that absorbs sunlight and converts it into heat energy. The space between these tubes is evacuated to create a vacuum, which helps to minimize heat loss through convection and conduction.



Table of Parameters:

Model		58-1800
Structure		All-glass double-layer
Tube Material		High quality borosilicate glass 3.3
Dimensions	Outer tube diameter and thickness	∅58 & 1.6mm / 2.0mm / 2.2mm
	Inner tube diameter and thickness	∅47 & 1.6mm
	Tube length	1800mm
Absorption Coating	Structure	ALN/AIN-SS/Cu
	Sediment method	Magnetron sputtering coating
	Absorptance	$a=0.93-0.96(AM1.5)$
	Emittance ratio	$\Sigma=0.04-0.06(80^{\circ}C \pm 5^{\circ}C)$
Vacuum quality		$P \leq 5.0 \times 10^{-2} Pa$
Stagnation parameter		$Y=270-300m^2 \cdot ^{\circ}C/kw$
Average heat loss coefficient		$U_{LT}=0.4-0.6W(m^2 \cdot ^{\circ}C)$

Solar vacuum tubes with heat pipes are efficient and reliable systems for capturing solar energy and converting it into usable heat. They are commonly used in solar water heating systems, where they provide an environmentally friendly and cost-effective alternative to traditional heating methods.



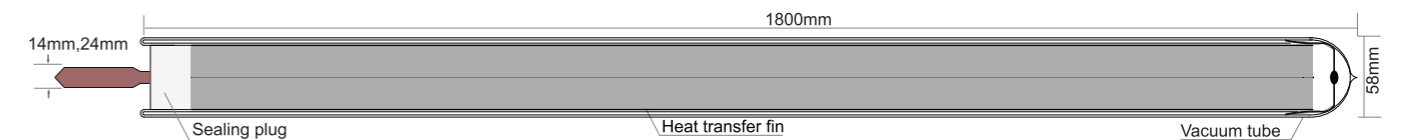
**Model: 58-1800 (14)**

- Vacuum tube: three target 58-1800
- Heat transfer fin: Styro Aluminum Conductive Fin
- Heat pipe: Red copper Condenser Diameter 14mm
- Sealing: silicon rubber with pressed stainless steel ring



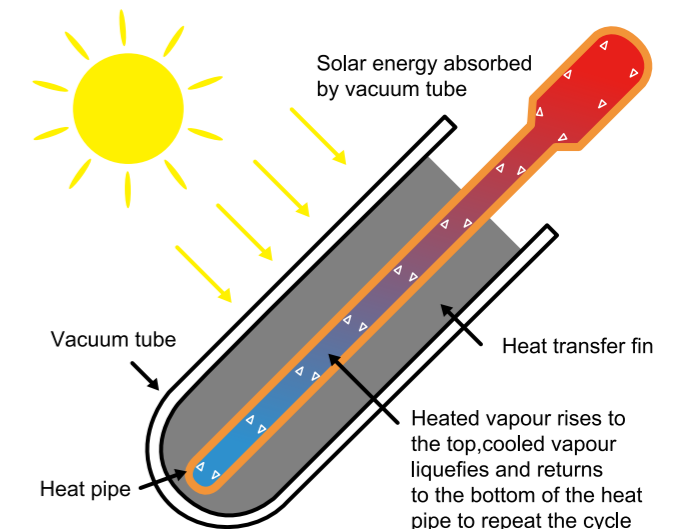
**Model: 58-1800 (24)**

- Vacuum tube: three target 58-1800
- Heat transfer fin: Styro Aluminum Conductive Fin
- Heat pipe: Red copper Condenser Diameter 24mm
- Sealing: silicon rubber with pressed stainless steel ring



**Solar vacuum tubes with heat pipes advantages:**

1. High Efficiency: The vacuum minimizes heat loss, while the heat pipe efficiently transfers heat from the absorber to the heat transfer fluid.
2. Improved Performance in Cold Weather: Solar vacuum tubes with heat pipes can operate efficiently even in cold weather (-50 °C) conditions.
3. Reliability: Heat pipes have no moving parts and are sealed, making them highly reliable with minimal maintenance requirements.
4. Quick Start-Up: Solar vacuum tubes with heat pipes can quickly start collecting solar energy as soon as sunlight is available.
5. No water inside vacuum tube, the whole collector can still work if a tube damaged.



# COMPACT PRESSURIZED SOLAR WATER HEATER (CPS)

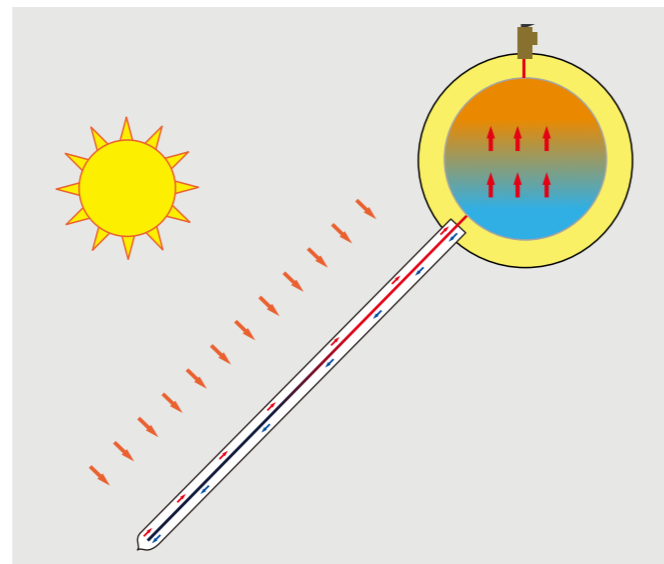


## Benefits With US

<b>Certified Quality:</b>	Solar Keymark(EN12976)&CE approved → Guaranteed safety and standards
<b>Proven in Europe:</b>	15+years of hot-selling success → Products trusted across the continent
<b>OEM Flexibility:</b>	Customized design & printing → Build your brand with unique solutions
<b>Strong Production:</b>	44,000m <sup>2</sup> ISO9001 factory → Stable supply & reliable quality control
<b>Trusted Partner:</b>	\$30M+ annual turnover → Confidence from clients worldwide

## How it works

The compact pressure solar water heater comprises a high-pressure storage tank, solar vacuum tubes with a heat pipe, and a support frame. The storage tank is built to endure the pressurized water supply, which allows for a direct connection to the household plumbing systems. Solar vacuum tubes capture solar energy and transform it into thermal energy, while the heat pipe conducts this thermal energy to the tank immediately for efficient water heating.



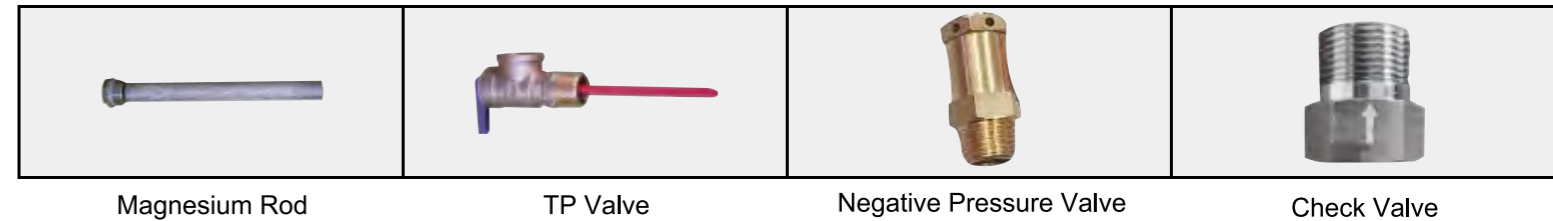
## Technical Specifications

Component	Specification
Inner Tank	Available in SUS304-2B, SUS316L or Duplex 2205 Stainless Steel
Outer Tank	Color Steel / Stainless Steel / PVDF
Insulation	High-Density PU Foam
Vacuum Tube	Borosilicate Glass 3.3, Size: Ø58mm X 1800mm
Heat Pipe	Red Copper, Size: Ø14mm X 1700mm
Aluminum fin	High-strength integrally formed aluminum sheet
Support Frame	Galvanized Steel / Aluminum Alloy / Stainless Steel
Heat Pipe Sleeve	Copper or SUS 316L
Working Pressure	Maximum 7 Bars
Accessories	PT Valve, Check Valve, Magnesium Rod, NP Valve, Sensor Sleeve

# COMPACT PRESSURIZED SOLAR WATER HEATER (CPS)

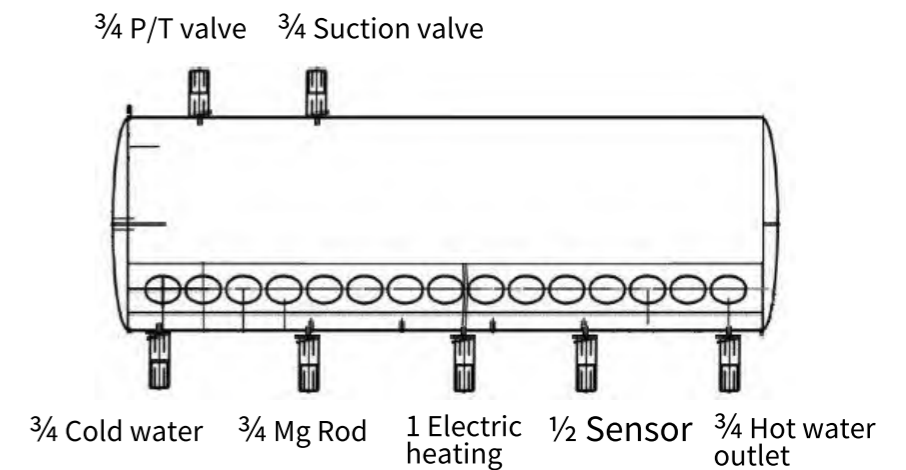
Model	Tubes qty & Size	Liters	CBM/set	set/ 40HQ	Price & remarks area
CPS100	10 58-1800	100	0.3645	187	
CPS120	12 58-1800	120	0.4194	162	
CPS150	15 58-1800	150	0.4944	138	
CPS180	18 58-1800	180	0.5871	117	
CPS200	20 58-1800	200	0.6378	107	
CPS240	24 58-1800	240	0.7477	92	
CPS300	30 58-1800	300	0.8976	76	

## Standard Accessories

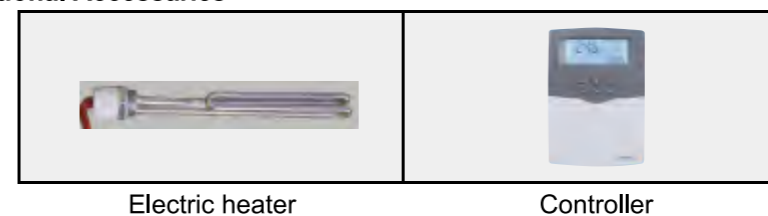


## Standard Tank Connection Design

The standard design of connections refers to the drawing on the right side. We can follow the requirement of clients too. Such as the holes on back side of tank.



## Optional Accessories



# NON-PRESSURIZED SOLAR WATER HEATER



## Model: CNP

- Inner tank: Stainless steel SUS304-2B or SUS316L
- Out tank: Galvanized steel / stainless steel / PVDF
- Insulation: High density PU foam
- Vacuum tube: Borosilicate glass 3.3 Φ58-1800
- Support frame: Galvanized steel / stainless steel / aluminum alloy
- Option accessories: Assistant tank / Electric heater / Controller

## Features:

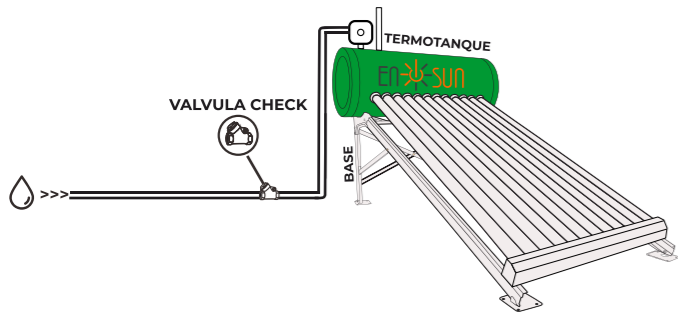
- **Higher Efficiency:** Vacuum tubes have a higher efficiency in capturing solar energy compared to flat-plate collectors.
- **Affordability:** making them a cost-effective option for households and small businesses
- **Reliability:** Non-pressure solar water heaters are known for their reliability and durability
- **Faster Heating:** Vacuum tubes heat water more quickly due to their superior insulation properties and ability to focus solar energy on a smaller surface area.
- **Reduced Corrosion:** The vacuum inside the tubes prevents oxidation and corrosion of the absorber coating, prolonging the life of the system and reducing maintenance requirements.

Using a thermosiphon system, a water flow cycle is established within the tubes due to the differing densities of hot and cold water. Hot water naturally rises while cold water flows to the bottom, creating a gravitational circulation system.

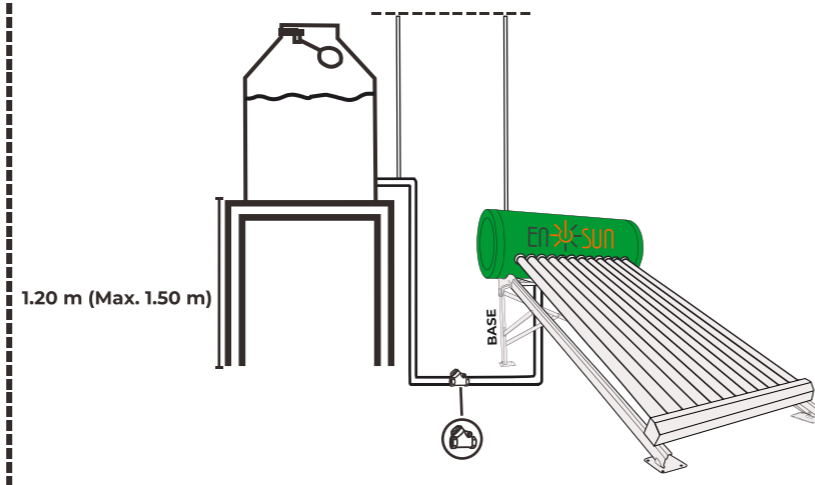


## System Plumbing Options

### Option 1: With Assistant Tank



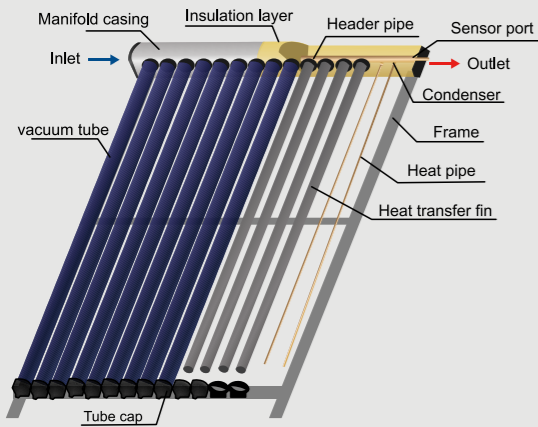
### Option 2: Connect to Big Tank on Roof



Model	Absorbing Area(m <sup>2</sup> )	Vacuum tube			Tank Capacity (Liter)	Loading Qty(sets)	
		Diameter (mm)	Length (mm)	NO: (pcs)		40HQ	20GP
ENSUN-CNP80	0.64	58	1800	8	80	235	92
ENSUN-CNP100	0.8	58	1800	10	100	200	78
ENSUN-CNP120	0.96	58	1800	12	120	170	68
ENSUN-CNP150	1.2	58	1800	15	150	141	55
ENSUN-CNP180	1.44	58	1800	18	180	118	48
ENSUN-CNP200	1.6	58	1800	20	200	108	42
ENSUN-CNP240	1.92	58	1800	24	240	90	36
ENSUN-CNP300	2.40	58	1800	30	300	72	28

# SOLAR COLLECTOR

A heat pipe solar collector is a type of solar thermal collector used to harness solar energy for heating purposes, typically for water heating or space heating in residential or commercial buildings. Heat pipe solar collectors are highly efficient and reliable systems for converting sunlight into usable heat.



### Specifications:

- Vacuum tube material: Borosilicate glass 3.3
- Manifold pipe material: Red copper
- Heat pipe material: Red copper
- Manifold casing material: Aluminum alloy
- Insulation: High-density rockwool
- Frame material: Aluminium alloy
- Heat transfer fin material: Aluminum sheet
- Working Pressure: 6 bars

### Features:

- Solar keymark certified
- High efficiency
- Low heat loss due to vacuum tube design
- Suitable for cold weather, can operate efficiently even in  $-50^{\circ}\text{C}$
- Material resistant to corrosion in all types of climates
- Comprehensive life time more than 15 years
- Maintenance free



**MODEL:HSC**

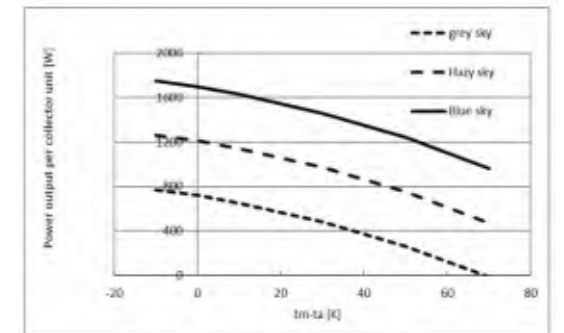
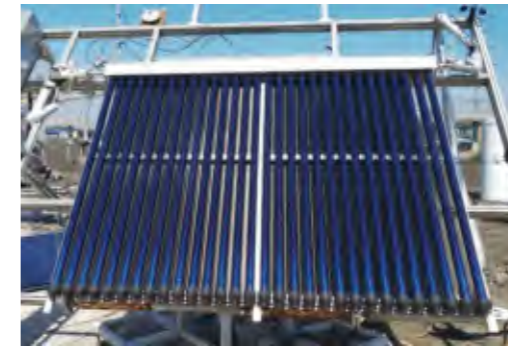
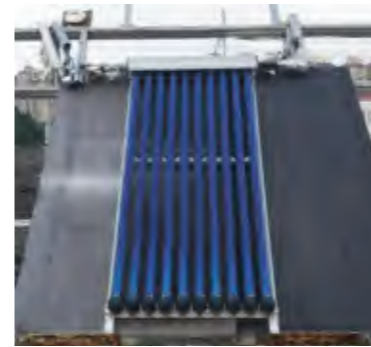
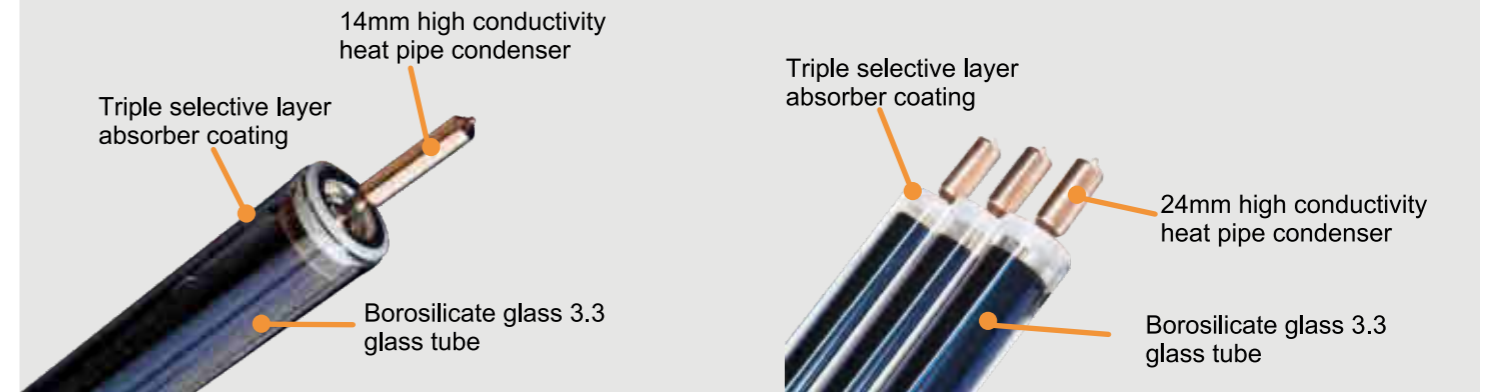


Figure 2 - Power output per collector unit for SRC



Model	Solar Vacuum tube with heat pipe					Container Loading Qty			Daily Output (50-90 $\square$ )
	Dia	Length	Coating	Qty	Condenser	20GP	40GP	40GP	
HSC-10	$\Phi 58$	1800	ALN/AIN-SS/Cu	10	$\Phi 14$	165	330	380	100L
HSC-12	$\Phi 58$	1800	ALN/AIN-SS/Cu	12	$\Phi 14$	145	300	340	120L
HSC-15	$\Phi 58$	1800	ALN/AIN-SS/Cu	15	$\Phi 14$	130	265	310	150L
HSC-18	$\Phi 58$	1800	ALN/AIN-SS/Cu	18	$\Phi 14$	105	215	250	180L
HSC-20	$\Phi 58$	1800	ALN/AIN-SS/Cu	20	$\Phi 14$	100	205	235	200L
HSC-24	$\Phi 58$	1800	ALN/AIN-SS/Cu	24	$\Phi 14$	92	190	220	240L
HSC-25	$\Phi 58$	1800	ALN/AIN-SS/Cu	25	$\Phi 14$	88	180	210	250L
HSC-30	$\Phi 58$	1800	ALN/AIN-SS/Cu	30	$\Phi 14$	85	175	205	300L

# PRESSURIZED WATER TANK

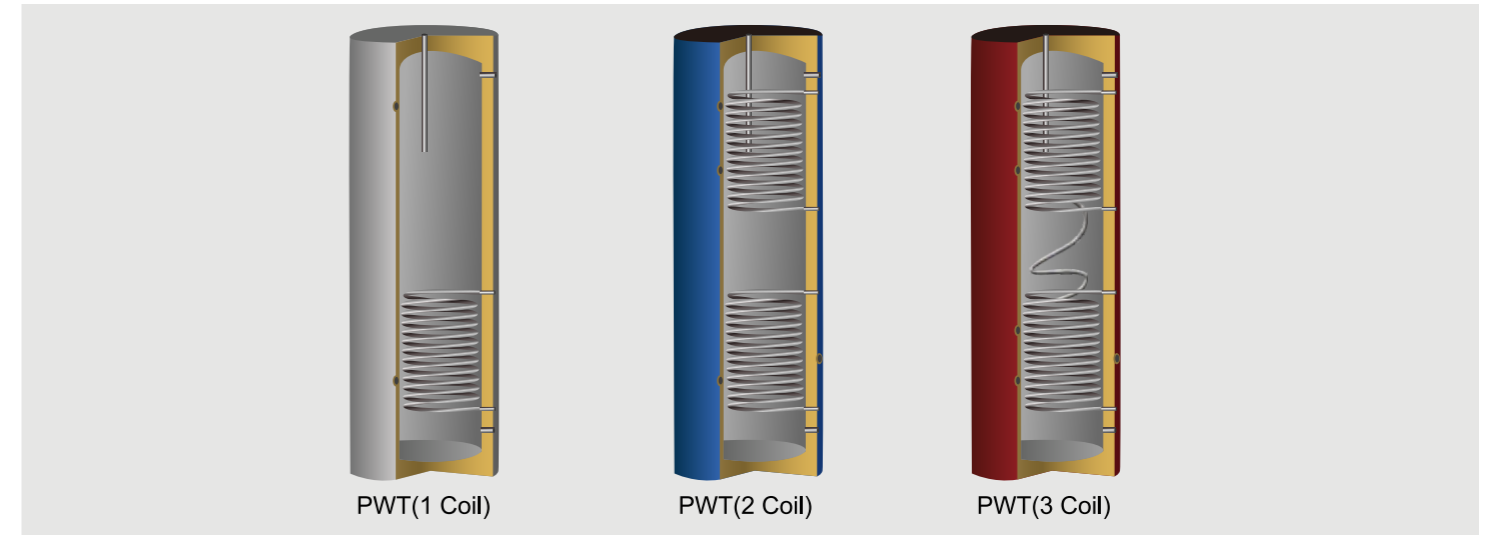
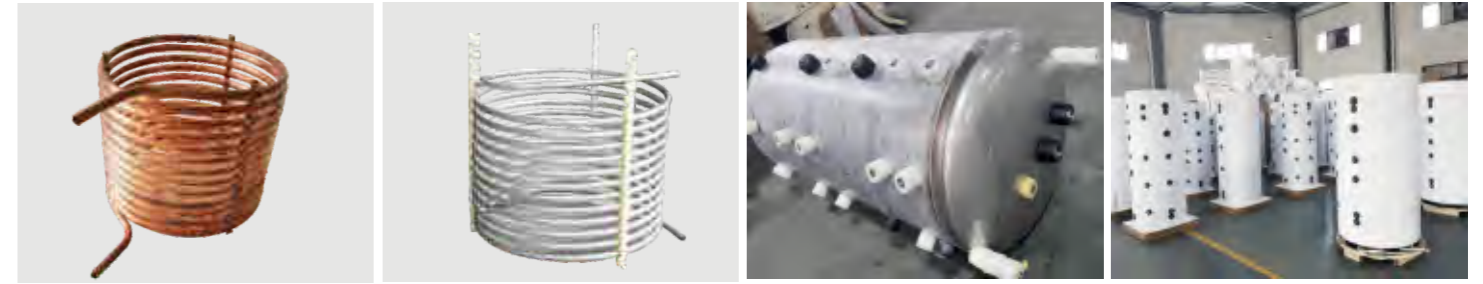


## Model: PWT

- Inner tank: SUS304-2B, SUS316L or Duplex SUS 2205 stainless steel
- Out tank: Color steel (white and grey available)
- Insulation: Polyurethane foam 45kgs/m<sup>3</sup> high density
- Tank capacity: 50L to 1500L available
- Heat exchanger: stainless steel pipe or copper pipe
- Coil quantity: 1,2,3,4
- Working pressure: no more than 7 bars
- Optional accessories: electric heater

## Main features

- 72hours remains hot water. Pressurized solar water tanks are typically well-insulated to minimize heat loss.
- Pressure Rating. These tanks are designed to handle pressure from cold water and thermal expansion.
- Health material. The stainless steel material to resist corrosion and maintain water quality.
- Multi-function. The heat exchanger can be connected to multi energy sources such as solar and heat pump combined.
- Safety. To prevent overpressure and overheating, pressurized solar water tanks are equipped with PT valve.
- Backup Heating Element (Optional)
- Durable hard water with magnesium rod.



## Duplex 2205, 316L, 304 Performance Comparision

Characteristics	Duplex 2205	316L	304
PRE(Pitting Resistance Equivalent)	≈35	24-26	18-20
Pitting Resistance	★★★★★ (excellent)	★★★★☆ (good)	★★★☆☆ (ok)
Crevice Corrosion Resistance	★★★★★ (excellent)	★★★★☆ (good)	★★★☆☆ (ok)
SCC Resistance	★★★★★ (excellent)	★★★★☆ (good)	★★★☆☆ (not good)
Seawater Corrosion Resistance	★★★★★ (excellent)	★★★★☆ (good)	★★★☆☆ (not recommend)
Oxidation Resistance	★★★★☆ (good)	★★★★★ (excellent)	★★★★☆ (good)
Food Grade	★★★★★ (excellent)	★★★★★ (excellent)	★★★★★ (excellent)
Pressure REsistance	★★★★★ (excellent)	★★★★☆ (good)	★★★★☆ (good)

## Technical Specifications

Model	PWT-150	PWT-200	PWT-300	PWT-400	PWT-500
Capacity(L)	150	200	300	400	500
Max. Working Pressure(Mpa)	0.7	0.7	0.7	0.7	0.7
Recommend Working Temperature(°C)	≤80	≤80	≤80	≤80	≤80
Reference Weight (kg)	42	49	62	85	96
Out Tank Diameter	580	580	580	700	700
Out Tank Length	1005	1265	1745	1640	1850
Packing Size (mm) LxWxH	660*660*1130	660*660*1360	660*660*1830	780*780*1780	780*780*1940
Copper Coil-Up(φ16)	15m(0.75m <sup>2</sup> )	15m(0.75m <sup>2</sup> )	15m(0.75m <sup>2</sup> )	15m(0.75m <sup>2</sup> )	15m(0.75m <sup>2</sup> )
Copper Coil-Down(φ16)	22m(1.11m <sup>2</sup> )	22m(1.11m <sup>2</sup> )	22m(1.11m <sup>2</sup> )	22m(1.11m <sup>2</sup> )	22m(1.11m <sup>2</sup> )

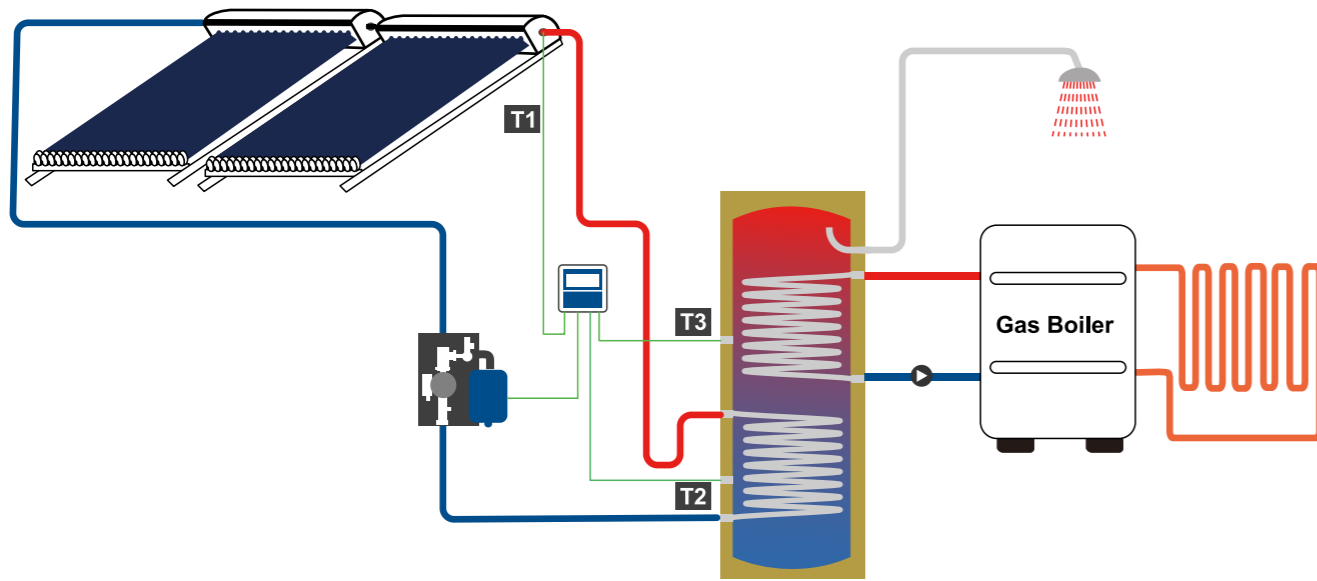
Magnesium Rod

# SPLIT SOLAR WATER HEATER

## Model: SPS

- Tank capacity: 100L to 1000L
- Collector: heat pipe solar collector
- Heat exchanger: copper pipe or stainless steel pipe
- Group pump station with controller
- Expansion vessel: 8L or 14L

A split pressurized solar water heater is an advanced solar thermal system designed for efficient hot water production. This system is divided into three main components: the solar collectors, the water storage tank, and the group pump station, allowing for flexible installation and space optimization. The collectors, usually mounted on the roof, absorb solar radiation and heat the working fluid within a closed loop. This heated fluid then circulates to the storage tank through a heat exchanger, transferring the heat to the water stored inside without mixing the fluids.



## Main features

- Split Design: By separating the collector from the storage tank, the water tank can be installed in anywhere indoor, while solar combined with buildings well.
- Pressurized System: The pressurized operation enhances consistent and comfortable hot water supply.
- High Efficiency: high efficient vacuum tube solar collector
- Integration Capability: It can be integrated with existing heating systems, including gas or electric boilers
- Eco-Friendly: renewable solar energy to heat water

Model	Collector	Working station	Expansion tank	Loading Quantities		
				Tank Capacity Liters	20GP Sets	40HQ Sets
ENSUN-SPS100-12	ENSUN-HSC12	1PC	8L	100L	50	112
ENSUN-SPS150-15	ENSUN-HSC15	1PC		150L	35	83
ENSUN-SPS150-20	ENSUN-HSC20	1PC		150L	30	74
ENSUN-SPS200-20	ENSUN-HSC20	1PC	12L	200L	28	68
ENSUN-SPS200-24	ENSUN-HSC24	1PC		200L	25	63
ENSUN-SPS250-24	ENSUN-HSC24	1PC		250L	24	60
ENSUN-SPS300-30	ENSUN-HSC30	1PC	18L	300L	20	48
ENSUN-SPS300-36	ENSUN-HSC18	2PC		300L	18	46
ENSUN-SPS300-40	ENSUN-HSC20	2PC		300L	17	44
ENSUN-SPS400-40	ENSUN-HSC20	2PC	24L	400L	17	40
ENSUN-SPS400-48	ENSUN-HSC24	2PC		400L	16	39
ENSUN-SPS500-60	ENSUN-HSC20	3PC		500L	13	32
ENSUN-SPS800-100	ENSUN-HSC20	5PC	800L	7	23	
ENSUN-SPS1000-120	ENSUN-HSC20	6PC	1000L	5	18	

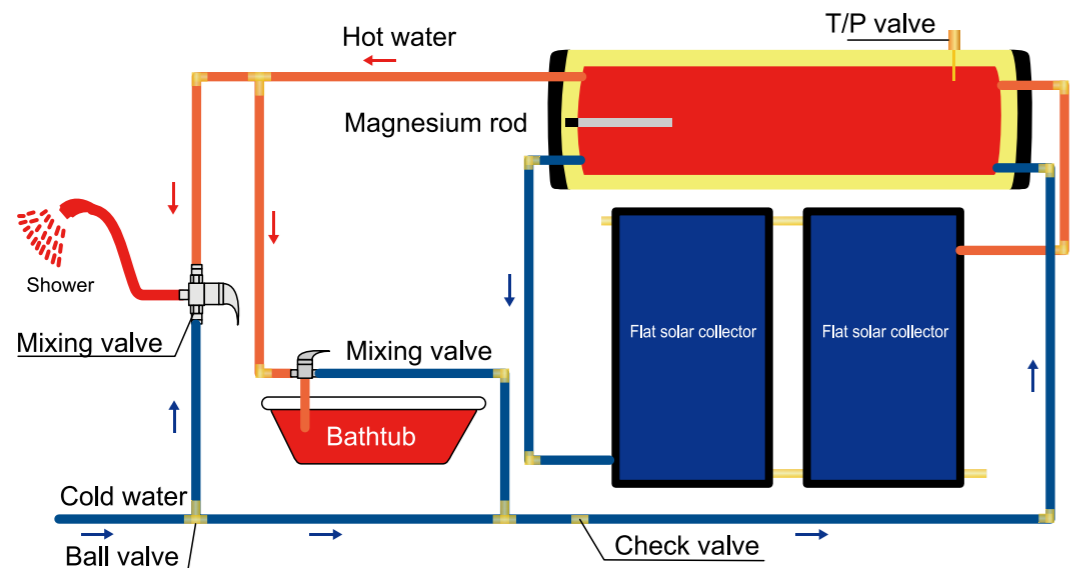
# FLAT PLATE PRESSURIZED SOLAR WATER HEATER



## Model:CPS-F

- Inner tank: SUS304-2B or SUS316L stainless steel
- Out tank: Color steel/stainless steel/PVDF
- Insulation: High density PU foam
- Collector: Flat plate solar collector
- Absorber: coated black or blue conductive material
- Support frame: Aluminum alloy or galvanized steel

The flat plate pressurized solar water heater is a comprehensive system comprised of a pressurized storage tank, a flat plate solar collector, and a support frame. This system operates on the principle of thermosyphon, where hot water naturally ascends from the top of the solar collector to fill the tank while cold water descends from the tank to the bottom of the collector. This efficient design ensures continuous circulation of heated water, providing a reliable and sustainable solution for meeting hot water needs.



## Main features

- Pressurized hot water flows out
- Thermosyphon System: circulation without the need for additional pumps
- Easy installation and free maintenance

Model	Flat collectors		Absorber Area/m <sup>2</sup>	Tank Capacity	Loading qty/sets		
	qty/pcs	M <sup>2</sup>			20GP	40GP	40HQ
CPS/F100	1	2.00	1.98	100L	45	80	105
CPS/F150	1	2.00	1.98	150L	40	75	99
CPS/F200	1	3.00	2.92	200L	38	70	91
CPS/F250	2	4.00	3.96	250L	32	65	86
CPS/F300	2	4.00	3.96	300L	27	56	66

# INDIRECT(Jacket) SOLAR WATER HEATER

An indirect solar water heater has two inner tanks to separate the potable water (the water intended for use) from the heat transfer fluid (often a non-freezing liquid such as propylene glycol) circulating through the solar collectors. Having two inner tanks in an indirect solar water heater allows for efficient heat transfer while maintaining the safety and quality of the potable water supply. It ensures that the water used for daily activities remains clean and free from any potential contaminants.

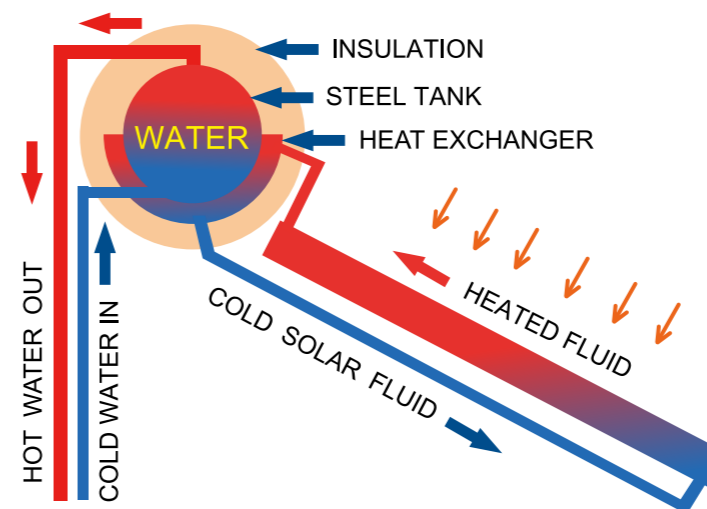


## Specifications:

- Potable inner tank: Steel with enamel coating
- Storage inner tank: SUS204-2B or SUS316L
- Out tank: Galvanized steel
- Insulation: High density PU foam
- Frame: Galvanized steel/ Stainless steel/Aluminum alloy
- Solar collector: Blue or black absorber solar collector

## The main features of an indirect solar water heater include:

- **Separate Tanks:** The system typically comprises two separate tanks—one for potable water and another for the heat transfer fluid—to prevent any contamination.
- **Safety and quality:** Use a heat exchanger to transfer heat from the solar collectors to the potable water indirectly, ensuring safety and quality.
- **Thermal Siphon System:** No need for a pump or controller.
- **Durability:** Constructed from high-quality materials for durability and longevity, requiring minimal maintenance over its lifespan.



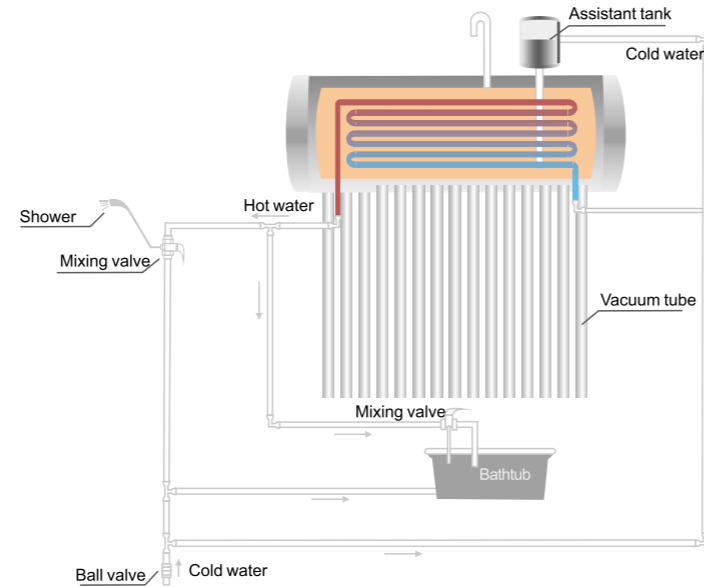
The indirect solar water heater operates as a thermal siphon system, eliminating the need for a pump or controller. The heat transfer fluid naturally flows into the solar collector and ascends to the fluid tank as it absorbs heat. Eventually, the heat energy is transferred to the potable water inside the dedicated tank without direct contact.

# PRE-HEATED SOLAR WATER HEATER



## Model: PHP

- Inner tank: SUS304-2B stainless steel
- Out tank: Stainless steel / Color steel / PVDF
- Insulation: PU foam (high pressure foaming)
- Vacuum tube: Borosilicate glass 3.3 Φ58-1800
- Support Frame: galvanized steel / aluminum alloy / stainless steel
- Heat exchanger: stainless steel flexible pipe / copper pipe
- Assistant tank: 5L / 8L / 20L



As cold water travels through the coil heat exchanger inside the water tank, it rapidly heats up and flows out with high pressure, providing an immediate supply of hot water. This process guarantees a pleasurable shower experience. The water contained within the tank serves exclusively for energy storage, leading to the system being termed a preheating solar water heater.

## Main features

- Fresh hot water: the hot water are always fresh. do not use the storage water.
- Pressurized System: water flows out with pressure
- High Efficiency: high efficient solar vacuum tube
- More affordable: Compare to heat pipe pressure system, it has a more affordable price.
- Eco-Friendly: renewable solar energy to heat water

MODEL	Absorbing Area(m <sup>2</sup> )	Vacuum tube			Tank Capacity (Liter)	Loading Qty(sets)	
		Diameter (mm)	Length (mm)	NO: (pcs)		40HQ	20GP
ENSUN-PHP120	0.96	58	1800	12	120	170	68
ENSUN-PHP150	1.2	58	1800	15	150	141	55
ENSUN-PHP180	1.44	58	1800	18	180	118	48
ENSUN-PHP200	1.6	58	1800	20	200	108	42
ENSUN-PHP240	1.92	58	1800	24	240	90	36
ENSUN-PHP300	2.40	58	1800	30	300	72	28

# PV SOLAR WATER HEATER

## Tank

Model	Dimension	Thickness	El.Heater	Voltage	CBM
100L	Ø470-L1210	1.0 mm	1200W	90V	0.37
150L	Ø470-L1590	1.0 mm	1200W	90V	0.5
200L	Ø500-L1840	1.2 mm	2500W	180V	0.57
300L	Ø570-L2020	1.2 mm	3500W	270V	0.81
400L	Ø700-L1760	1.5 mm	8000W	360V	0.96
500L	Ø700-L2060	1.5 mm	8000W	360V	1.17



## Material Specifications

Component	Specification
Inner tank	Stainless steel 316L;thickness 1.0-1.5mm / Duplex 2205 thickness 1.0mm
Out tank	Galvanized steel 0.4mm
Insulation	PU foam(Bayer,Germany),50mm thickness,density:35kg/m <sup>3</sup>
Cold/Hot water connector	G1/2"Female
Working pressure	0.6Mpa
Spare part	G1/2" Check and Pressure valve、 2pcs of G1/2"male、 Thermometer

## Controller

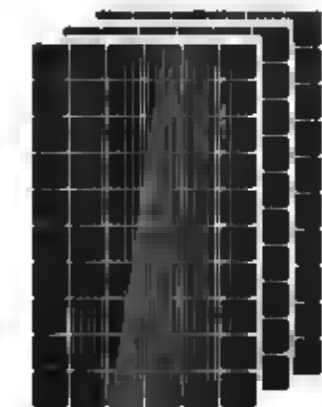
Rated Voltage input:80V to 400V

CBM:0.015



## Rated panel to the tank

Model	PV panel
100L	550W 2panel in seres
150L	550W 2panel in seres
200L	550W 4panel in seres
300L	550W 6panel in seres
400L	550W 8panel in seres
500L	550W 8panel in seres



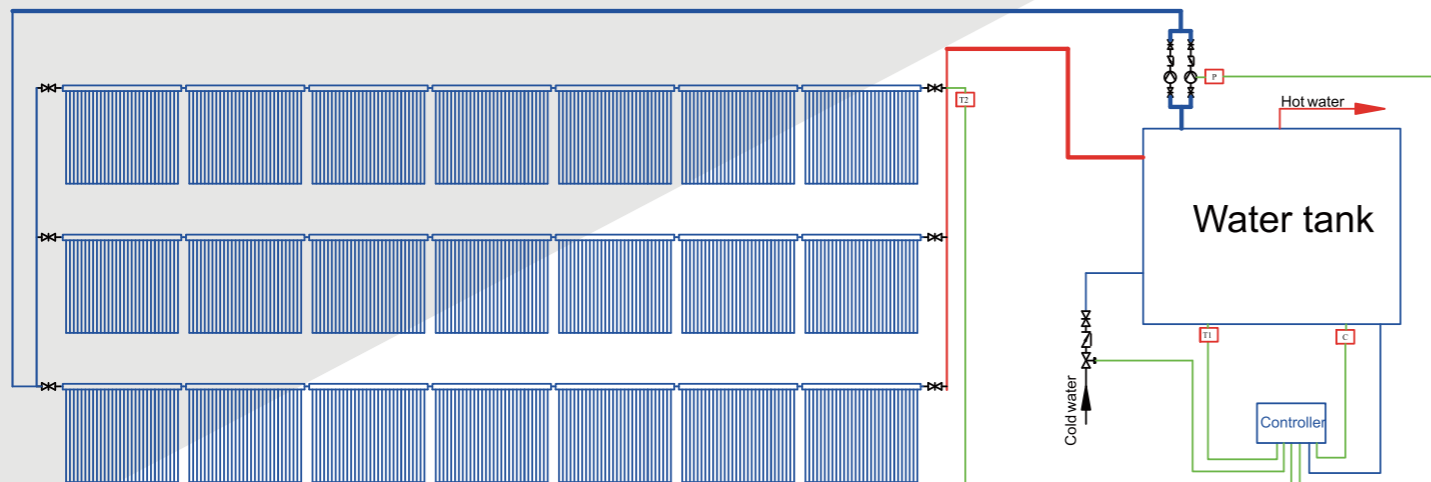
# SOLAR WATER HEATING PROJECT



Heat pipe solar collectors are commonly used in large-scale heating projects, catering to various areas such as room heating, shower centers and industrial settings.

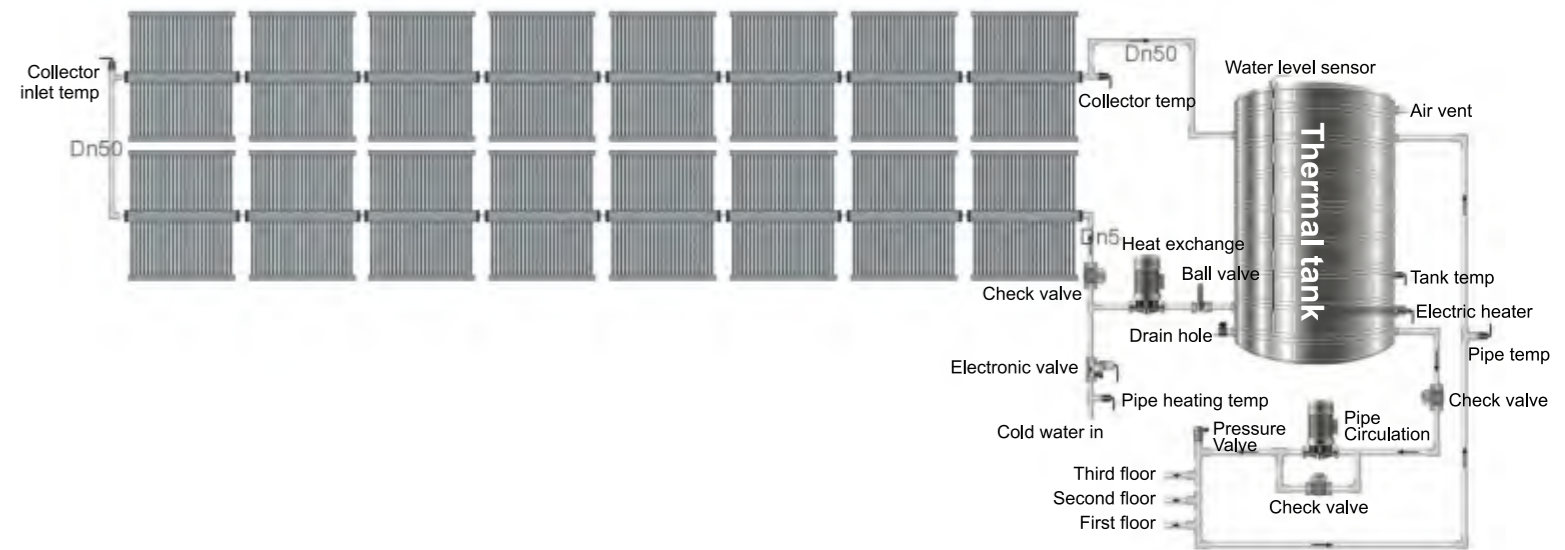
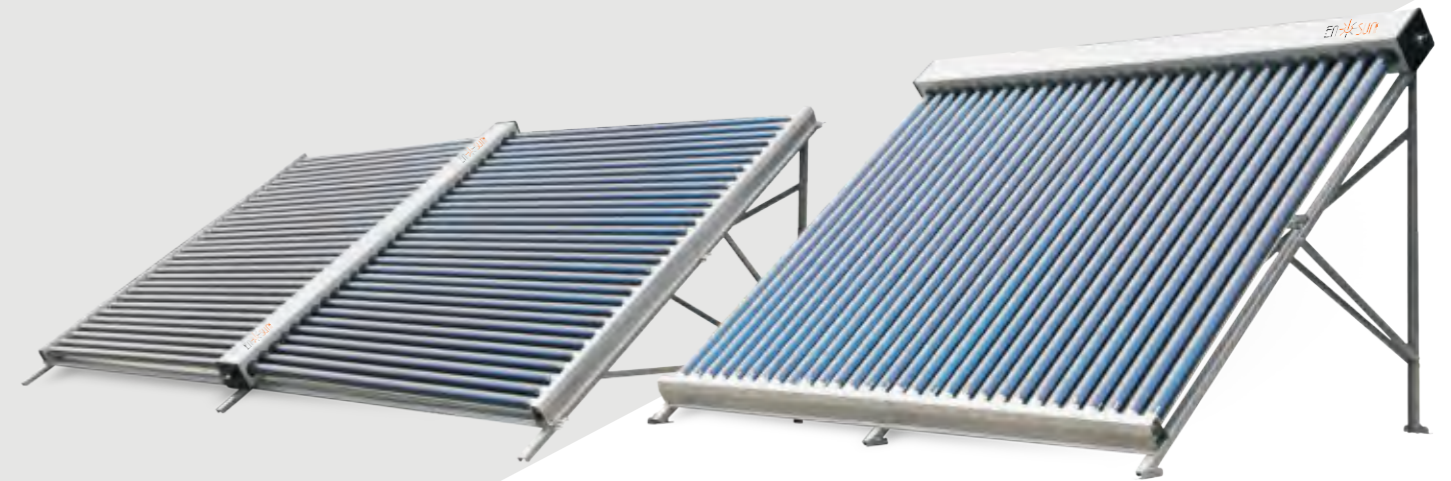
ENSUN's heat pipe solar collector heating projects typically consist of a well-balanced assembly of solar collectors, storage tanks, circulation systems with controllers, heat exchangers, and more.

The entire system operates automatically, harnessing sunlight without cost. When solar collectors gather heat energy, the heat transfer fluid flows through the manifold pipes, transmitting the energy to the storage tank via heat exchanger coils. Serving as an energy reservoir, the storage tank then distributes this heat energy for room heating or other heating applications.



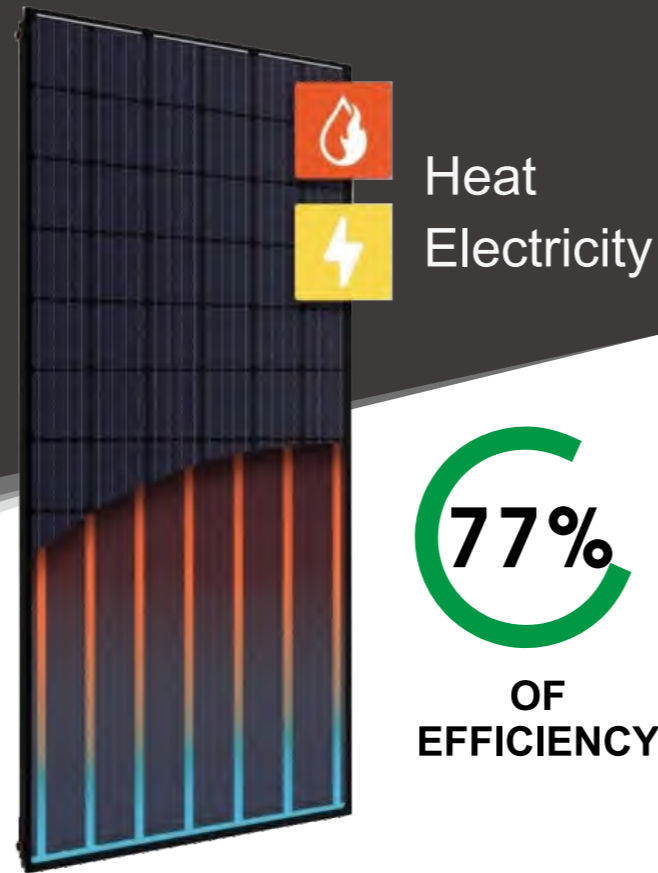
# NON PRESSURE SOLARCOLLECTOR

A non-pressure solar collector is a thermosiphon-based system where cold water directly flows into vacuum tubes and is heated by solar energy. This system is highly cost-effective for large-scale hot water consumption and is often paired with a large storage tank. The heated water is then pumped into the storage tank for later use.



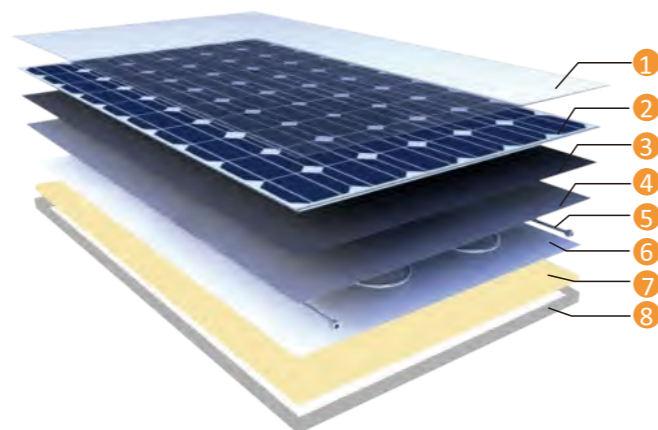
ENSUN hybrid solar panels are designed for simultaneous generation of electricity and hot water.

This solar panel is the combination of PV module and thermal solar collector and in brief is called PV-T panel.



## KEY FEATURES

- ☀ Saving the roof area by combination of electric and thermal.
- ☀ Raising up 10%-15% efficiency of electricity output.
- ☀ Internal cooling circulation extend the lifespan.
- ☀ Hot water output 40-85 celsius degrees.
- ☀ A simple low cost, low maintenance energy solution able to facilitate the world's zero-carbon strategy.
- ☀ High wind&snow load strength.
- ☀ Application widely. Payback fast for energy investment.



- ① Tempered glass
- ② Solar cells
- ③ EVA
- ④ Seal board
- ⑤ Heat conduct pipe
- ⑥ Heat exchange plate
- ⑦ Insulation
- ⑧ Alloy frame

Specification / Type	PVT-430W	PVT-450W	PVT-550W	PVT-580W	PVT-600W	PVT-670W
Dimensions	1722*1134*41mm	2094*1038*41mm	2279*1134*41mm	2278*1134*41mm	2172*1303*41mm	2384*1303*41mm
Weight	26.5kgs	30kgs	35kgs	38.5kgs	38kgs	41kgs
Gross area	1.95mm <sup>2</sup>	2.37mm <sup>2</sup>	2.58mm <sup>2</sup>	2.58mm <sup>2</sup>	2.83mm <sup>2</sup>	3.1mm <sup>2</sup>
Number of cells	60(6x10)	144(6*12*2)	144(6*12*2)	144(6*12*2)	120(6*10*2)	132(6*11*2)
Cell dimensions(mm)	158,75x158,75	166x166	182x182	182x182	210x210	210x210
Nominal Power(Wp)	430W	450W	550W	580W	600W	670W
Glazing	PV glass	PV glass	PV glass	PV glass	PV glass	PV glass
Absorber Surface(PV)	Mono	Mono	Mono	Mono	Mono	Mono
Absorber Surface(T)	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Safety Class	II	II	II	II	II	II
Power tolerance, current tolerance, and voltage tolerance	±3%	±3%	±3%	±3%	±3%	±3%
Volume of heat transfer fluid	0.9L	1.0L	1.3L	1.3L	1.5L	1.5L
Imp(A) Nominal Current	13.06A	10.98A	13.11A	13.62A	17.44A	18.43A
Isc(A) Short Circuit Current(±5%)	13.94A	11.42A	14.00A	14.37A	18.52A	17.42A
Vmp(A) Nominal Voltage	32.98V	41.00V	41.96V	42.59V	34.40V	38.48V
Voc(V) Open Circuit Current(±5%)	39.26V	49.50V	49.90V	51.47V	41.50V	46.15V
Welding Type	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic
Absorber Tube Diameter	9.52mm	9.52mm	9.52mm	9.52mm	9.52mm	9.52mm
Absorber Tube Thickness	0.7mm	0.7mm	0.7mm	0.7mm	0.7mm	0.7mm
Manifold Tube Diameter	N/A	N/A	N/A	N/A	N/A	N/A
Manifold Tube Thickness	N/A	N/A	N/A	N/A	N/A	N/A
Tube Number(absorber and manifold)	8	8	10	10	12	12
Tube Distance	100mm	100mm	100mm	100mm	100mm	100mm
Max. Operation Pressure	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa
Test Pressure	1.0MPa	1.0MPa	1.0MPa	1.0MPa	1.0MPa	1.0MPa
Maximum operating temperature	90°C	90°C	90°C	90°C	90°C	90°C
pressure drop	552Pa when flow rate 338l/h					
Permissible negative mechanical load	1500Pa	1500Pa	1500Pa	1500Pa	1500Pa	1500Pa
Permissible negative mechanical load	1500Pa	1500Pa	1500Pa	1500Pa	1500Pa	1500Pa
Impact resistance	D-33.4mm steel ball drop from 2meter without breakage					
Climate class for testing	Class B					

# FLAT PLATE SOLAR COLLECTOR



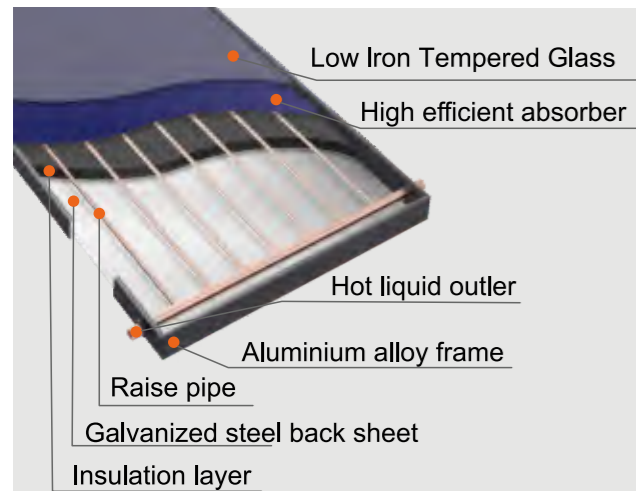
## Model: FPC-black

- Absorber: Black coating (special technology)
- Absorptance:  $\geq 92\%$
- Emittance:  $\leq 8\%$
- Glass: Low iron tempered glass, thickness 3.2mm
- Insulation layer: Glasswool
- Working pressure: 6 bars
- Flow pipe: Red copper (main pipe 22mm, sub pipe 8mm)
- Frame: Aluminum alloy
- Back board: Color steel /Aluminum sheet/ Stainles steel sheet



## Model: FPC-blue

- Absorber: Blue titanium
- Absorptance:  $\geq 95\%$
- Emittance:  $\leq 5\%$
- Glass: Low iron tempered glass, thickness 3.2mm
- Insulation layer: Glasswool
- Working pressure: 6 bars
- Flow pipe: Red copper (main pipe 22mm, sub pipe 8mm)
- Frame: Aluminum alloy
- Back board: Color steel /Aluminum sheet/ Stainles steel sheet



A flat plate solar collector is a device for heating purposes. It consists of an absorber plate which is coated with black or blue conductive material. As sunlight strikes the absorber plate, it heats up, transferring thermal energy to the heat transfer fluid circulating within the collector. This heated fluid can then be used for various applications, including space heating, water heating, or powering absorption chillers for cooling.

## Main features


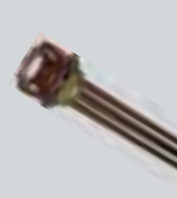
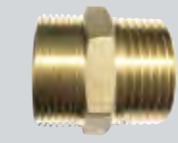









- Certified with Solar Keymark according to EN12975 standards
- Seamlessly integrates with architectural designs
- Ideal solution for large-scale solar heat projects

Model	Dimensions(mm)	Gross Area(m <sup>2</sup> )	Packing size(mm)	Reference weight(kgs)
FPC-1.5	1500*1000*80	1.5	1610*1100*85	23
FPC-2.0	2000*1000*80	2	2010*1100*85	29
FPC-2.5	2000*1250*80	2.5	2010*1350*85	36
FPC-3.0	2000*1500*80	3	2010*1600*85	43

# SOLAR ACCESSORIES

SR 881	Single pipe group pump station	SR 21H	Double pipe group pump station
	Power supply:110V/220V Collector temp.measuring range:-10~200°C Tank temp.measuring range:0~110°C Water proof grade:IP40 Max.working pressure:6 Bar Input:1xPt1000,2xNTC10K Output:1xcirculation pump,1xelectrical heater Application:Split solar water heater		Power supply:110V/220V Collector temp.measuring range:-10~200°C Tank temp.measuring range:0~110°C Water proof grade:IP43 Max.working pressure:6 Bar Input:1xPt1000,3xNTC10K Output:2xcirculation pump,1xelectrical heater Application:Split solar water heater
RS 11H	Single pipe group pump station	0180240605	Expansion vessel
	Power supply:110V/220V Collector temp.measuring range:-10~200°C Tank temp.measuring range:0~115°C Water proof grade:IP42 Max.working pressure:10 Bar Input:2xPt1000,7xNTC10K Output:3xcirculation pump,1xelectrical heater Application:Split solar water heater		Capacity:18/24/60 L Max.working pressure:10 Bar Temperature range:-10~90°C Pre-charge:2 Bar Connection size:3/4 inch
RS 15/6	Circulation pump	ENSUN15G-15	Automatic Booster Pump
	Brand:Wilo Power Supply:220V 50Hz Output Power:16~37W Head:3~6m Displacement:1.5~2.5t/h Connection size:15mm Weight:2.1Kg		Brand:Ensun Power Supply:220V 50Hz Output Power:120W r/m:2860 Head:15m Flow Rate:25L/min
SR 81	Intelligent controller	SR 609C	Intelligent controller
	Power supply:110V/220V Collector temp.measuring range:-10~200°C Tank temp.measuring range:0~110°C Main functions: 1.Temperature difference control 2.Timing heating 3.Collector low temperature protection 4.Tank re-cooling function 5.Manual heating Application:Split solar water heater		Power supply:110V/220V Suitable power of electrical heater,≤2000W Tank temp.measuring range:0~100°C Main functions: 1.Manual heating 2.Temperature display 3.Timing heating at three time sections 4.Memory protection when power is failure 5.Trouble indication of sensor Application:Compact pressurized solar water heater Pre-heated solar water heater
SR 501	Intelligent controller	TK-8A	Intelligent controller
	Power supply:110V/220V Suitable power of electrical heater,≤2000W Temperature range of measurement:0~99°C Electromagnetic valve:DC12V/AC220V, Main functions: 1.Water temperature/water level display 2.Water level pre-set 3.Manual water loading 4.Timing heating Application:Non-pressurized solar water heater		Power supply:110V/220V Collector temp.measuring range:-10~200°C Tank temp.measuring range:0~110°C Main functions: 1.Temperature difference control 2.Timing heating 3.Collector low temperature protection 4.Tank re-cooling function 5.Manual heating Application:Split solar water heater
TK-7Y	Assistant tank	Feeder SS	Assistant tank
	Power supply:110V/220V Suitable power of electrical heater,≤2000W Tank temp.measuring range:0~100°C Main functions: 1.Time display 2.Temperature display 3.Temperature preset 4.Time heating 5.Manual heating 6.Power off memory Application:Compact pressurized solar water heater Pre-heated solar water heater		Inner tank:SUS304-2B stainless steel Outer tank:color steel / Stainless steel / PVDF Insulation layer:PU foam Capacity:5L-20L Application:Non-pressurized solar water heater Pre-heated solar water heater

Vacuum tube type	Magnesium rod	Screw type	Magnesium rod
	Measurement: Φ20×230mm Application: Non-pressurized solar water heater		Measurement: Φ22×300mm, Φ28×600mm Connection size: 3/4 inch, 1 inch Application: Pressurized solar water heater
Hook 01	Roof hook	Hook 02	Roof hook
	Material: SUS304-2B stainless steel, Galvanized steel Thickness: 4mm Application: Solar collector slope roof mount		Material: SUS304-2B stainless steel Thickness: 4mm Advantage: Adjustable Application: Solar collector slope roof mount
Twin pipe	Twin way pre-insulated solar hose	Connector	Solar collector connector
	Connection size: 3/4 inch Corrugated pipe: SUS304-2B stainless steel Jacketing material: UV resistant EPDM Insulation thickness: 13mm / 20mm Temperature sensor: 1 way silicone cable Application: Split solar water heater		Connection size: 3/4 inch component: SUS304-2B stainless steel corrugated pipe, brass nut Application: Solar collector
1/2 3/4	Nut, gasket and clip washer	Φ8x80mm	Sensor sleeve
	Connection size: 3/4 inch Component: Brass nut, PTFE gasket, stainless steel clip washer Application: Twin way pre-insulated solar hose		Material: Brass Connection size: 1/2 inch Measurement: Φ8×80mm Application: Pressurized solar water heater
Air Vent 1/2	Automatic air vent valve	AKE PT	T/P valve
	Material: Brass Connection size: 1/2 inch Max. working temperature: 180°C ; Max. working pressure: 10 Bar Max. percentage of glycol: 50% Application: Split solar water heater		Material: Brass Connection size: 3/4 inch Working pressure: 6 Bar Working temperature: 90 °C Application: Pressurized solar water heater
One-way	Check valve	3-way	Reducing Tee
	Material: Brass Connection size: 3/4 inch		Material: Brass Connection size: 3/4x1/2x3/4 inch

Incoloy 800/316L	Electric heater	Copper	Thermostat electric heater
	Rated voltage: 220V Rated power: 1500W, 2500W Connection size: 1 inch Material: Incoloy 800/316L		Rated voltage: 220V Rated power: 1500W, 2500W Connection size: 1.25 inch Material: copper
3/4-3/4	Equal male straight	DN22-DN22	Coupling
	Material: Brass Connection size: 3/4x3/4 inch		Material: Brass Connection size: DN22xDN22mm
DN22-3/4	Adaptor	3/4"	Plug
	Material: Brass Connection size: DN22mmx3/4 inch		Material: Brass Connection size: 3/4 inch
-30~200	Antifreezing liquid	NP58-500-5	Mini non-pressure solar water heater
	Frozen point: -30 °C Boiling point: 105°C Working temperature: -30°C ~ 200 °C Package: 10 L/Barrel Odor: Without peculiar smell Toxicological characteristics: Nontoxic grade Application: Split solar water heater		Vacuum tube: Φ58×500mm Tube quantity: 4 pcs Inner tank: SUS304-2B stainless steel Outer tank: Color steel Insulation layer: PU foam Bracket: Galvanized steel
HSC58-500-5	Mini heat pipe solar collector	USC58-500-5	Mini U pipe solar collector
	Vacuum tube: Φ58×500mm Tube quantity: 5 pcs Header pipe: Red copper Heat pipe: Red copper Insulation layer: Rock wool Manifold casing: Aluminum alloy Heat transfer fin: United Aluminium sheet		Vacuum tube: Φ58×500mm Tube quantity: 5 pcs Header pipe: Red copper U pipe: Red copper Insulation layer: Rock wool Manifold casing: Aluminum alloy Heat transfer fin: United Aluminium sheet
A06	Filling and flushing valve	SR 802	Relay
	Material: Brass Connection size: 3/4x3/4x3/4x3/4 inch Application: Split solar water heater		Suitable power: ≤ 4000W Water proof grade: IP43 Shell Material: ABS plastic