supreme
PRODUCTS
Make Life Better!



World's best technology
for serving hot water

FPC Solar water heater

Installation, Maintenance and User manual

This manual contains all the necessary instructions regarding the installation, operation and maintenance of the product.

About Supreme Solar

Established in the year 2004 in Bangalore, Supreme Solar has grown from a modest customer base to a trusted brand in domestic water heater market across the country.

We introduce ourselves as a manufacturer of Solar Thermal Systems for domestic and Industrial applications. Our company is approved by Ministry of New and Renewable Energy (MNRE) - Government of India, New Delhi and we are one of their channel partners eligible for Capital Subsidy under JNNSM Scheme. Our company is ISO 9001 and ISO 14001 certified - giving added confidence to our customers on our passion for process and standardization.

We have our own Research Team, which is constantly researching on improvements in the systems to benefit our customers. We have more than 3000 Dealer-Distributor network across India.

SOLAR WATER HEATER SERIES / supreme PRODUCTS Make Life Better!



BUSINESS OPPORTUNITIES

We are one of the leading manufacturer of Solar water heater, Established in 2004. We have plans to establish our exceeding products to market; we are looking for franchise all over India.

India's largest SOLAR WATER HEATER Manufacturing company

BENGALURU

Renewable Energy is Green, Clean & Sustainable Energy

MNRE Government of India Ministry of New and Renewable Energy Renewable Energy is Green, Clean and Sustainable

CARE Ratings

ISO 9001:2015 COMPANY

NABCB ISO 9001:2015 CERTIFIED

KREDL

SMERA SME Rating Agency of India Ltd.

एन. एस. आई. सी. NSIC ISO 9001 : 2015

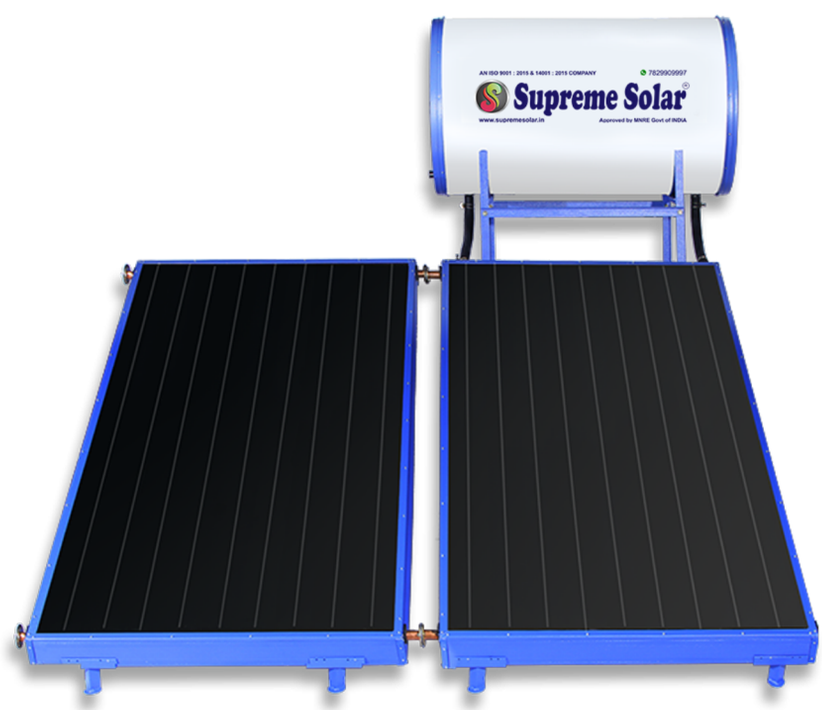
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DOMESTIC HOT WATER REQUIREMENTS

According to the statistics, the average consumption of a family varies from 35 to 50 litres per day per person. Adding the consumption of the washing machine and the dishwasher - if they are connected to the water heater - it is necessary to add about 20 litres of water more for each of them (for one wash) per day. So, for example, a family of four, with average consumption is 40 litres of hot water per person, needs 165L water heater. By adding the household appliances connected to the water heater, the needs then increase to at least 40 liters per day. In order to get the most out of the operation of the water heater, hot water should be used mainly during the day, so that the system can constantly produce hot water during the hours of sunshine, thus maintaining its maximum yield.

HOW DOES A SOLAR WATER HEATER WORKS?

The Solar water Heater is based on the principle of black body absorption and Thermosyphon Principle. The black Surface of collector absorbs the heat from the Sun's rays and transfers it to the water passing through the pipes of the collector. Hot water being lighter, rises to the insulated storage tank and an equal amount of cold water replaces this hot water. This cycle repeats as long as the sun shines, resulting in all the water getting heated for distribution through pipes to the required usage point.



SUPREME SOLAR SYSTEMS

Our system is an ecological proposal and an effective self-contained energy saving solution with high efficiency and ease of installation. They are made with excellent materials according to international specifications and have all the certifications and technical opinions that confirm their quality. They are aesthetic systems superior with simple installation and quick to implement in harmony with the architecture of the buildings and thus provide free hot water almost all year round. Even in areas with low sunlight, they provide water preheating, which significantly contributes to reducing conventional energy consumption. The use of solar systems in thermosiphon or forced circulation makes it possible to achieve an energy saving of 70-100%, since the operating time of the burner or electrical resistance decreases depending on the sunshine in the region concerned and the size of the system, with a simultaneous reduction in carbon dioxide emissions.

supreme
PRODUCTS
Make Life Better!

we are

Number One
SOLAR WATER HEATER
Manufacturer In India since 2004

HIGH
Quality
Materials



Reduce Your Electricity Bill By Using

Each package includes all the necessary equipment as follows:

1. The water storage tank
2. The Collectors
3. Support Base, Attachments and Accessories

The water storage tank is placed between two round polystyrene foam lids which are tightened to the tank with stretch wrap.

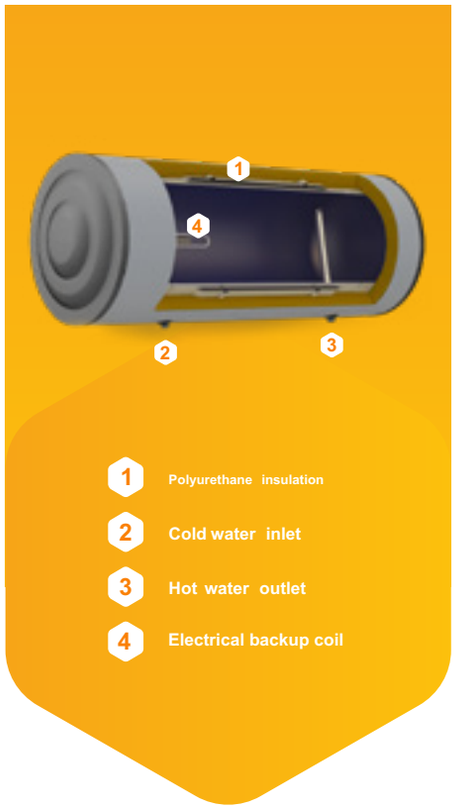
The accessories is packed in a cardboard box.

All individual parts of the support system with connection accessories and other accessories are packed in a separate carton.

The accessories for each system are listed in the table below:

ACCESSORIES IN THE BOX			
Items and Name			
	Aluminium dummy		Anode Rod
	Open Flange		Air relief valve
	Heating coil & Thermostat		PRD Hose Pipe
	EPDM Open Gasket		M6 fasteners
	EPDM Dummy Gasket		Threaded Flange
	Pressure relief valve		Screws

Technical characteristics
horizontal solar tank



Coating of the inner tank: Glasslined coating

Internal tank corrosion protection:

1. Glasslined coating completely safe and keeping the hard water clean and hygienic

2. Magnesium anode 3 cm in diameter and 50 cm long.

Welding: Plasma welded(Co2)

Insulation: High density expanded polyurethane (48Kgs/m)

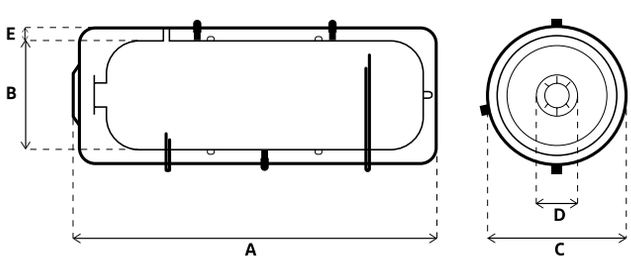
Inner Vessel Maximum Working/ Test Pressure:

1.5 bar - 5 bar (10 min)

Maximum service temperature: 75°C

Siding : GI With Powder Coated, Resistance to chemical attack and corrosion in a humid environment

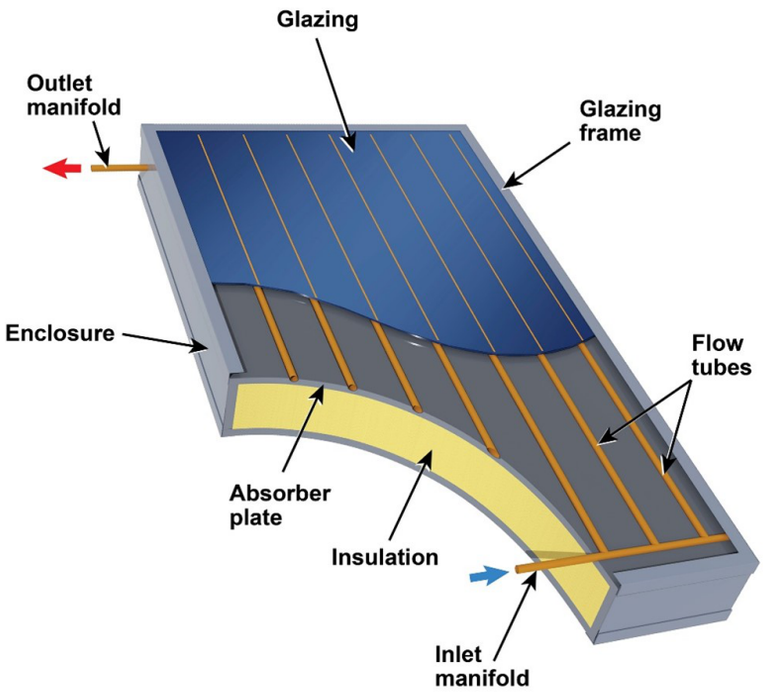
Dimensions and capacities
horizontal solar tank





SI.NO	PARTICULARS	SPECIFICATION
1	Inner Tank	1.2mm C.R.C.A sheet with co2 welding inside coated with prime guard coating /2.5mm for pressurized systems.
2	Connecting Pipes	SS.
3	Insulation:	50 mm thick PUF
4	Outer Cladding:	pre-coated laminated sheet(color:Half white)/ Mirror finish
5	End Caps:	GI with PP coating.
6	Support Structure:	Mild steel with powder coating.

Technical characteristics of the collector





SI.NO	PARTICULARS	SPECIFICATION
1	Section	1.2mm thick Aluminium
2	Back Sheet	0.46 mm thick Aluminium
3	Insulation	Fiber Glass Wool
4	Foil	0.05 mm thick Aluminium
5	Flat Plate Collector(9 fins)	Ultrasonic welded with Nalsum coating.
6	Copper pipe	24 SWG,Aluminium strip 0.20 mm
7	Header pipe	Copper 24 SWG
8	Glazing	1000 * 2000 * 4 mm clear toughend glass
9	Glass beeding	E.P.D.M Rubber
10	Fasteners	High-Grade Steel
11	Grommets	E.P.D.M Rubber
12	Flanges	Brass
13	Finishing	Powder Coating
14	Collector size(without cartonbox)	2030*1030*115mm.

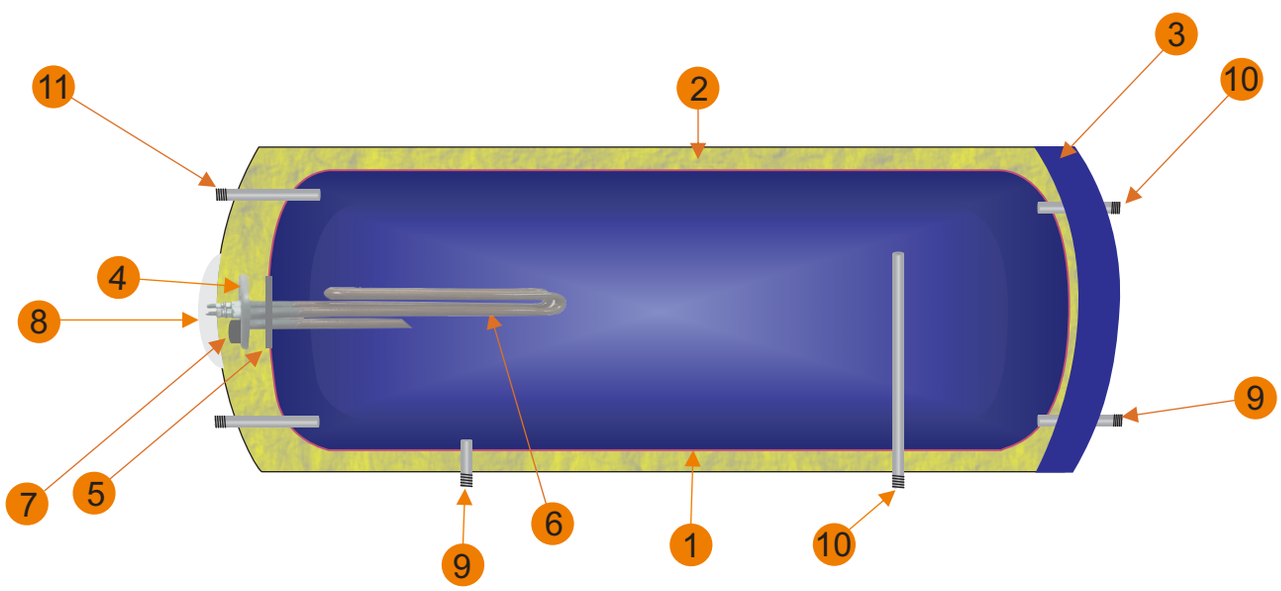
WATER STORAGE TANK SPECIFICATIONS

STEEL- ENAMEL

1.Storage tank: Made of 2.5mm thick enamel steel with glass lined/ porcelain enamel coating technology, baked at 850°C temperature. Enamelling is carried out in our state-of-the-art in-house production facility. Each tank is checked before its release, thus ensuring a superior quality of enamel.

2.Thermal insulation: Eco-friendly high-density polyurethane foam (PUF) that minimizes heat loss while maintaining hot water temperature

3.Siding: Aluminium with powder coating.



4.Wide rubber protected round flange: Clever and innovative design, to easily remove limescale and directly access the electrical components.

5.Foot seal: Of EPDM, in non-toxic silicone material, which prevents contact between water and the flange which it protects against electrolysis and corrosion, specially manufactured, in accordance with generally accepted specifications for heat resistance.

6.Electrical resistance: At the rate of charge in accordance with the standards of the country of destination. (Optional item that allows electric current to be used as a back-up power source). All electrical components are CE marked in accordance with EN 60335-1 and EN 60335-2-21 standards.

7.Automatic regulated thermostat: bipolar protection with auxiliary fuse. All electrical components are CE marked in accordance with EN 60335-1 and EN 60335-2-21 standards.

8.Protective cover: Designed to ensure the correct ventilation and sealing of the electrical part against bad weather.

9.Cold water inlet: Male thread tube with 3/4” BSP brass end for even water stratification, and 10 bar safety valve for pressure relief.

10.Hot water outlet: 3/4” BSP tube male threaded end.

11.Hot water inlet from panel: 3/4” BSP tube male threaded end.

000.Connection position of the 3 bar safety valve: 3/4” BSP tube male threaded end.

GENERAL INSTALLATION RULES

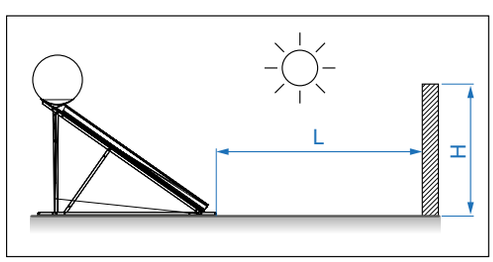
WARNING: **The installation facility** must comply with local and national regulations concerning water and electrical installations (plumbing, electricity, hygiene, town planning and others).

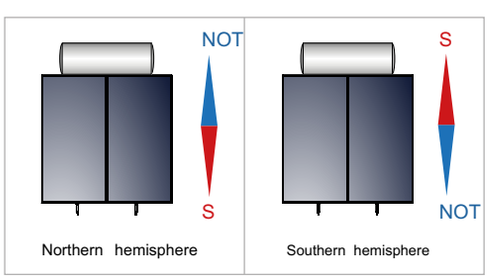
The solar water heater must be unpacked on the installation site to protect the device against knocks during transport. During installation, the collector windows must remain covered until the tank is filled with sanitary water in order to prevent the heat transfer. It is also necessary to eliminate the protective plastic caps by the connection of the water storage tank.

Installation Position - Shade: Before the installation of solar collectors, the correct choice of location (in agreement with the customer) and the control of the surface necessary for the installation of the device (taking into account its resistance static to support the weight of the system) are to be defined.

On sloping roofs, the storage tank should not be placed between two beams but plumb with one of them. The position chosen for the installation of the solar water heater should not be shaded by obstacles such as trees, buildings and the like during the whole year to reassure in order to obtain at least 4 hours of unobstructed exposure of the surface and harness maximum sunshine (noon).

LATITUDE	DISTANCE BETWEENOBSTACLEAND SENSOR(L)
0_{oh}- 25_{oh}	1.0 x H
26_{oh}- 35_{oh}	1.5 x H
36_{oh}- 45_{oh}	2.0 x H
46_{oh}- 50_{oh}	2.5 x H
> 50_{oh}	3.0 x H





Orientation-Optimal Angle: A fundamental factor for optimum performance of the system is the choice of inclination and the time during which the maximum gain will be achieved. The solar system should be placed so that the collector surface is oriented to geographic south, for the northern hemisphere (north and longitude for the southern hemisphere), i.e., looking always towards the equator.

Deviation from the orientation means a decrease in system performance. If a deviation from the correct orientation cannot be avoided, then system performance should be corrected by increasing the collector area, after further study and evaluation of the specific conditions. Due to the angle of incidence of solar radiation which varies with time and system location, the angle of the collectors should be approximately equal to the latitude of the installation location. From this angle, the maximum annual energy gain is derived.

Installation features: In case there is no compatibility between the surface where the solar water heater will be installed (inclined or flat) and the standard equipment supplied with the system another type of equipment should be used. The responsibility for the chosen equipment will be on the installer and in no case on the company, it is up to the installer to propose and install the various necessary equipment, which must be previously agreed with the customer.

Special weather conditions: In areas affected by heavy rains and snowstorms, be careful to clear snow continuously. For this case and for regions where rain, strong winds, rains, cyclones, hurricanes, the system must be installed on the roof as stable as possible and must be tightened with additional metal bands. In areas where the above conditions exist and there is hail with a diameter of more than 20mm, solar water heater insurance is recommended. In any case, keeping the solar water heater on the support base system with more metal strips is recommended.

Piping: The routing of the pipes and the wiring must be agreed between the installer and the customer, in order to ensure correct installation of the solar system in accordance with the local rules concerning water and electrical installations. The tubes connecting the water storage tank with the collector and the piping from/to the solar water heater must be insulated in such a way that they can withstand temperatures covering the range from -30°C to 120°C . UV protection should be used for insulation.

INSTALLATION POSITION

Installation is only permitted on roofs and flat surfaces of adequate load-bearing capacity. Before proceeding with the installation, make sure that the roof and / or the construction has sufficient bearing capacity in terms of bearing capacity, always according to the maximum loads expected at the point of installation. If the installation site is an area with a particularly high risk of wind and snow, the system as a whole must be checked statically by a qualified person, for example, a specialist engineer. In special cases, reinforcing or stronger constructions may be required.

Collector		
INSTALLATION MODE	WIND LOAD [km/ h] / [kN/ m_2]	SNOW LOAD [kN/ m_2]
Inclined surface - Angle of inclination: 15° – 75°	151 / 0.5	0.67
Flat surface - Angle of inclination: 35°	151 / 0.5	0.67

The system can be installed only in regions with low wind and low snow loads than those mentioned above.

SPACE REQUIREMENTS FOR ROOFTOP INSTALLATION

TILED ROOF

When installing on the roof, pay particular attention to the following:

The minimum distances from the ends of the roof are:
- On the side: distance equal to the width of two tiles
- From the top of the roof: distance equal to three sets of tiles

The minimum distance limit of 0.8m must necessarily be respected, so that the sensors and mounting accessories are not exposed to winds whose power increases at the perimeter of the edges of the roof.

SPACE REQUIREMENTS FOR LOOSE FIXING

FLAT ROOF

The system should be installed at least 1.5m from the edge of the roof, in order to:

Allow access around the system for maintenance purposes.
The collector and the fixing system must not be exposed to strong winds which are developed at the ends of the roof.
Allow snow removal.

LABELING

Solar water heaters are identified using two stickers, one of which is placed on the collector and the other on the solar tank. The characteristics of the system are shown on these stickers. This information is important for reasons of product traceability.

solar water heater
SUPREME
xxxlt/ xm^2

Absorb area: XXXm^2
Aperture area: XXXm^2
Nominal capacity: XXXlt
design pressure: XXXKPa

Permissible operating pressure of the collector heat transfer medium: XXXKPa
Electrical Power: XXXW
Storage Tank **S/N**: ????????
Date of manufacture: ????????

MADE IN INDIA
Supreme Solar project pvt ltd
5209999xxxxxx



Supreme XXXX

Type: Flat plate collector
Dimensions: (L x W x H) (mm): XXXXx XXXXx XX
Overall area (m_2): XXXAbsorb area (m_2): XXXTotal weight of collector (kg): XXXVolume of heat
Absorber coating: XXX

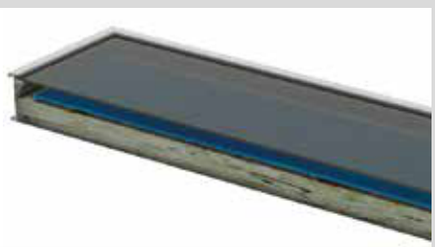
Standstill temperature: XXX°C
Max. operating pressure: 1.0 MPa (10 bar)
Transparent cover: Tempered solar glass

License No: XXX
S/N: XXX
Date: XX/XXX

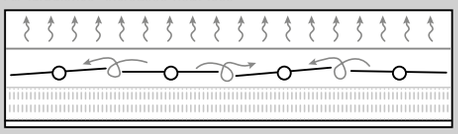
MADE IN INDIA
GLN:5209999000861



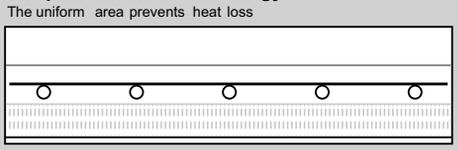




Standard absorber type with fins.
Air turbulence increases heat loss



Unique absorber technology.
The uniform area prevents heat loss



SUPPORTBASE

Support base system, in galvanized steel, for surface installation plane Where inclined.

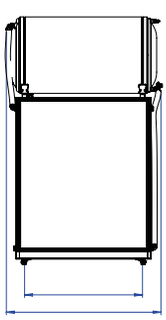
FLAT SURFACE

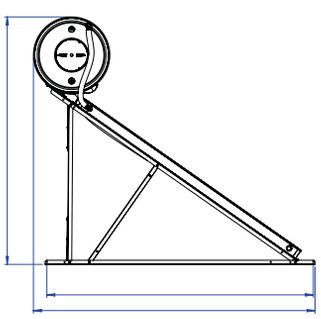


INCLINED SURFACE

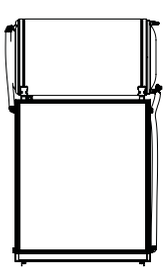


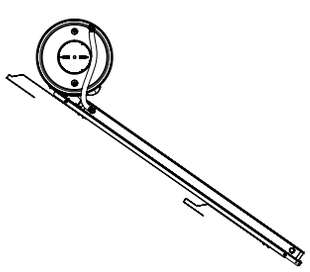
FLAT SURFACE





INCLINED SURFACE





GENERAL PREVENTION MEASURES

Comply with the applicable accident prevention instructions and safety rules, during installation of solar systems and piping.

Keep the work area clean and free of objects that prevent work from being carried out.

Keep children, pets and unauthorized persons away from tools and installation site. This applies particularly in the case of buildings undergoing residential renovation.

During maintenance, repair, conversion and in the event of changes to the installation, remove electrical devices and secure the installations and electrical tools against unintentional activation.

Use only components intended for this system. The use of other accessories or improper tools can cause accidents.

Conditions relating to personnel.

The installation of our Solar Thermal systems is carried out only by specialized companies, authorized and by qualified personnel.

Work on electrical installations or pipelines is only authorized for specialists and qualified technicians.

Work uniforms

Wear protective goggles, suitable work uniform, protective shoes, protective helmet and a special net for long hair.

Do not wear loose clothing or jewelry because they can get caught in moving parts.

Wear a hard hat during installation work that is overhead or at head level.

Installation of the water storage tank

For transport, setting up and installation, use lifting devices corresponding to the dimensions and the weight of the tank.

Protect the enamel coating of the tank against knocks during transport and installation.

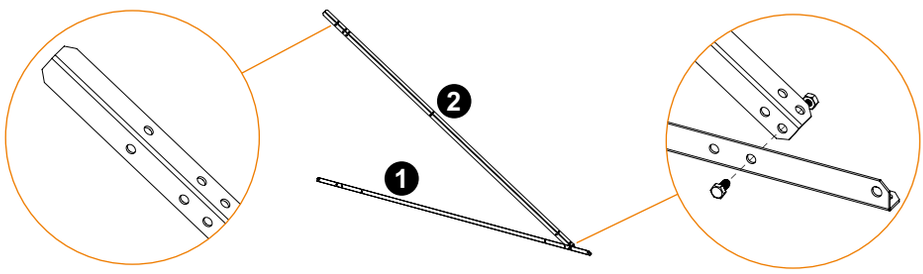
Due to the weight of the storage tank, there is a risk of accidents. Please ensure that the load bearing capacity of the ground at the installation site is sufficient when the storage tank is full.

PROTECTION AGAINST LIGHTNING

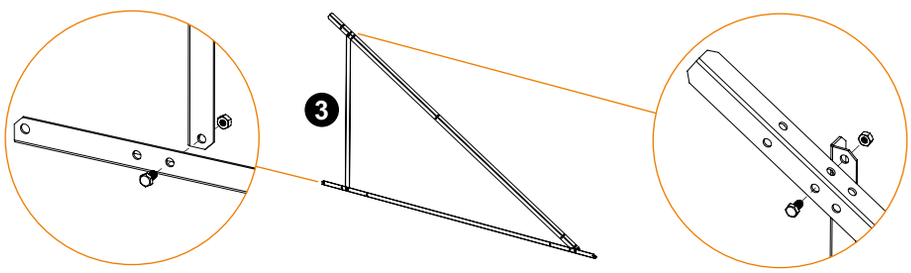
The metal construction complies with the general requirements of the LOT 1197 standard and the specific lightning protection requirements of the LOT 1412 standard which takes into account environmental conditions as well as altitude.

MOUNTING SUPPORT BASE ON FLAT SURFACES

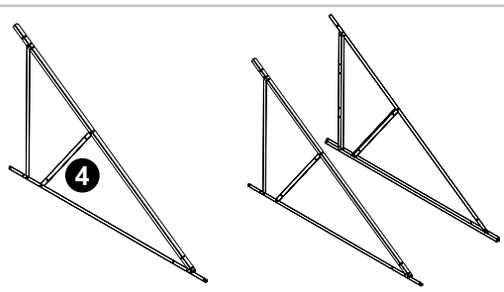
1.screw piece **1** a piece **2** using the M8 screws and nuts provided in the package.



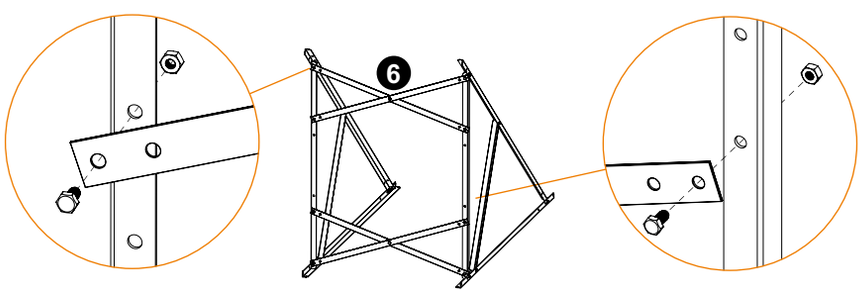
2.Screw the vertical piece **3** to the parts above.



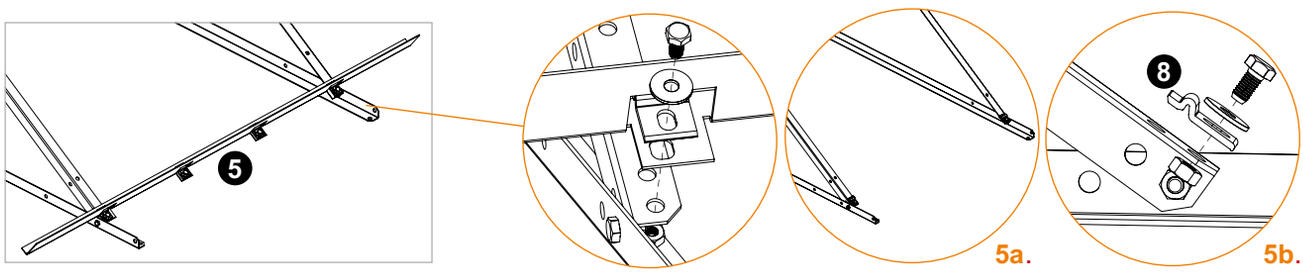
3.Screw the piece **4** diagonally to the above parts and tighten all the screws. Repeat steps 1, 2 & 3 for the other pairs of pieces.



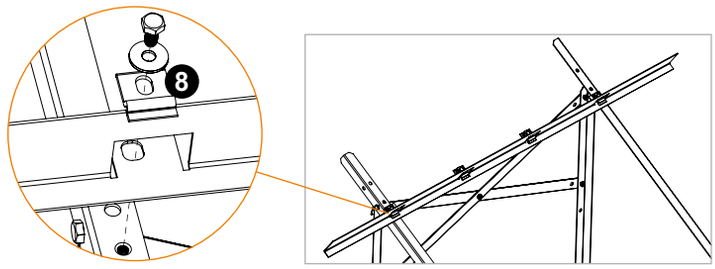
4.Place the parts **6** of the cross drawing and tighten the screws.



5. In the case of the model of two collectors, place the part5 of the support of the collector on the lower part and in the interstices of the parts where the four washers are placed8mechanical fixing of the collector without tightening the M8 screws with the nuts. In the case of the model of a collector, the use of the room5 is not necessary. The collector will be fixed with the 2 washers 8 fixing mechanisms as described in bubbles 5a and 5b.



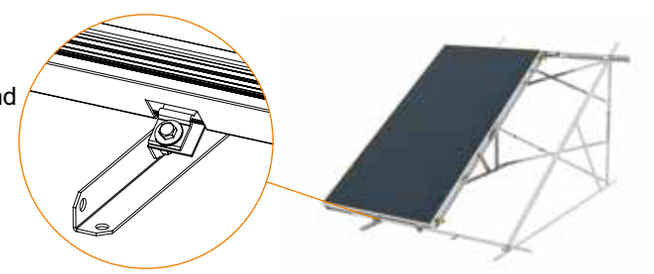
6. Repeat the operation for the upper part.



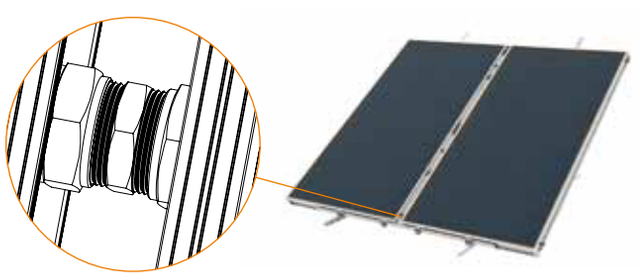
7. If installing a system of three collector, place the 2 additional support bases of the system of a sensor, install them in the same way, one to the left and one to the right of the support base already installed . On these three support bases, place the three collector according to the following instructions. Use the Ø22x Ø22 mechanical tightening caps to connect the collector and tighten them.



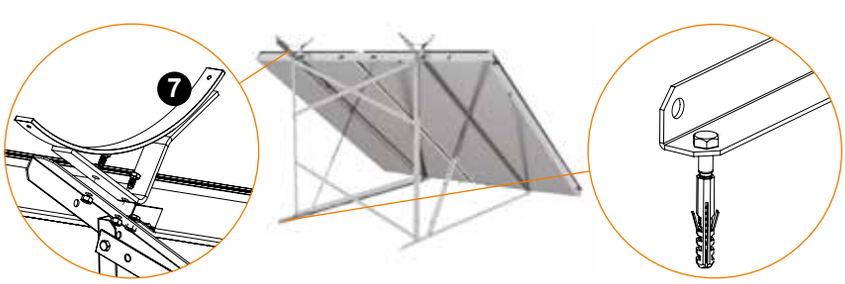
8. In the case of two collector first place the left one by lifting the upper and lower collector fixing washers.**8** When the collector is placed below, lightly tighten the M8 screws and the nuts with the mechanical collector fixing washers **8**to hold it temporarily and center it easily with the system. Place the Ø22 mechanical tightening plugs on the edges of the collector.

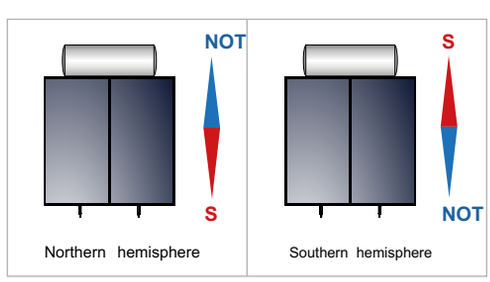


9. Rejoin the second collector and tighten the fittings.

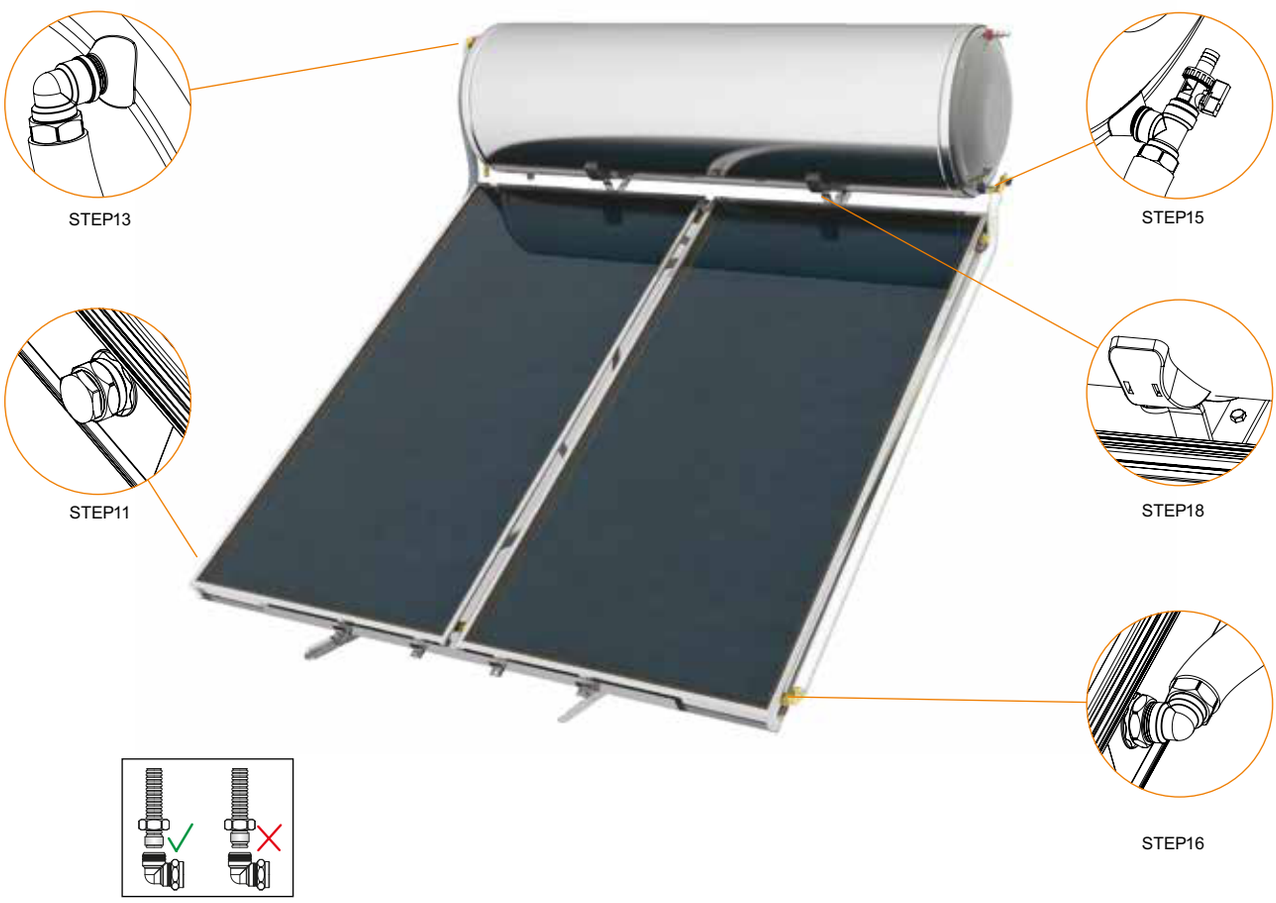


10. Screw on the two supports **7**from the storage tank. Tighten all the screws on the base. Tighten all the screws on the base. Correctly orient the base with the collector. Secure the base using 4 D10 plugs and nuts (M8x60).





11. Center the position of the water storage tank on the collector. Rotate the water storage tank (if necessary) so that the domestic cold (bottom) and hot (top) water intakes are vertical. Screw the water storage tank onto the base using the screws provided in the packaging. Be careful, the device must be correctly leveled and not tilted. Use a level.



12. Place the small flexible tube at the special corner connection 3/4”xDN16 INOX* on the side of the storage tank where the resistance is located and at the socket marked “hot water inlet”.

13. Join the other end to the socket at the top left of the sensor using the Ø22xDN16 STAINLESS STEEL corner fitting, having previously passed the tube through the insulating tube.

14. Place the T-piece with the fill valve to the socket on the right side of the balloon where it is marked “sensor return”. Place the large flexible tube with the special connection to the T-piece of the safety group on the right side of the water storage tank.

15. Place the other end in the socket at the bottom right of the sensor using the DN16 Ø22x INOX* corner fitting, first passing the tube through the insulating tube. Tighten all fittings in the system as well as all screws on the base. Make the hydraulic connection, fill the closed circuit and complete the electrical connection as described in the relevant sections. Check for possible leaks.

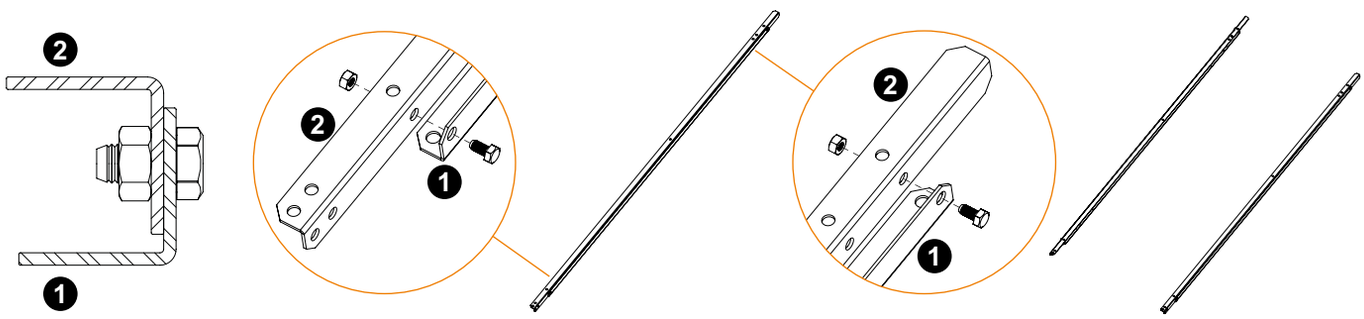
16. After placing the sensors at a position parallel to each other, attach them to the underside of the bracket by tightening the fixing washers.

17. Mount the water storage tank covering the base support.

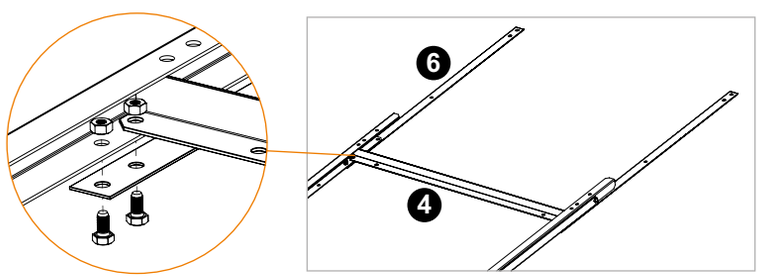
MOUNTING SUPPORT BASE ON INCLINED SURFACES

WARNING! After installation, check that the surface of the collector has an inclination angle to the horizontal position of ±5° of the geographical latitude.

1. Screw the piece **1** a piece **2**, using the M8 screws and nuts included in the package. Repeat for the second pair.



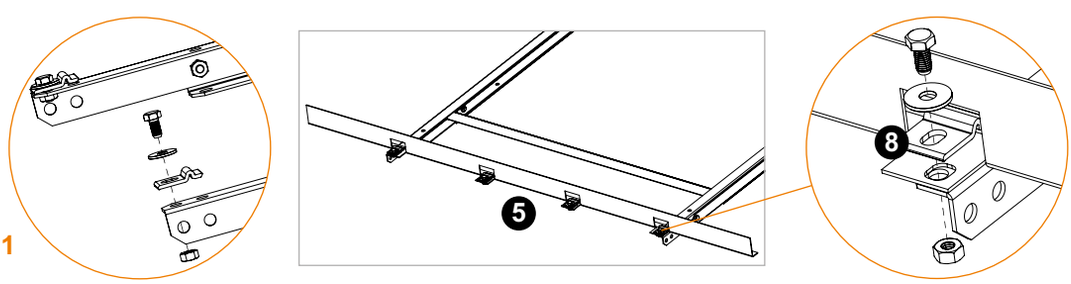
2. square share **4** between the two Π shape parts constructed in the former step 1 in order for the frame to be formed. Screw straight parts **6** (which will be used for the mounting of the support base to the tiles) to the bottom part. Repeat for the rest of the parts.



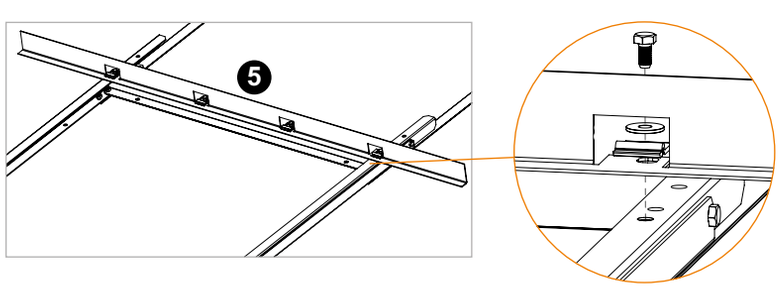
3. In the case of the two-collector model, place the part of the collector support **5** on the lower part and in the interstices of the parts where the four washers are placed **8** fixing the sensor without tightening the M8 screws with the nuts.

In the case of the model of a collector, the use of the room **5** is not necessary. The collector will be fixed with the 2 washers **8** fixing as described in bubble 3.1.

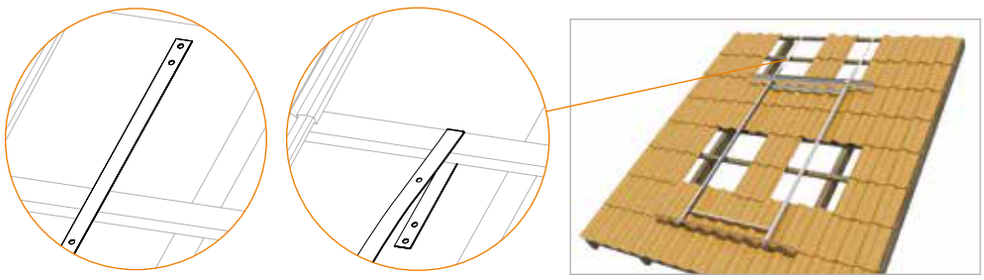
3.1



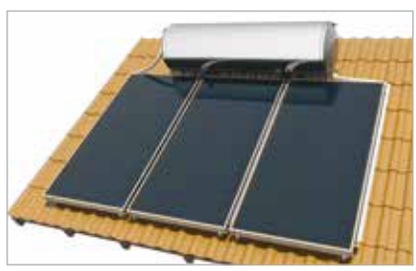
4. Repeat for the top part.



5. Fold the parts by hand **6** of step 2 covering the beams of the tiled roof. Drill and fasten up with bolts. Use level so that the base is horizontally placed.



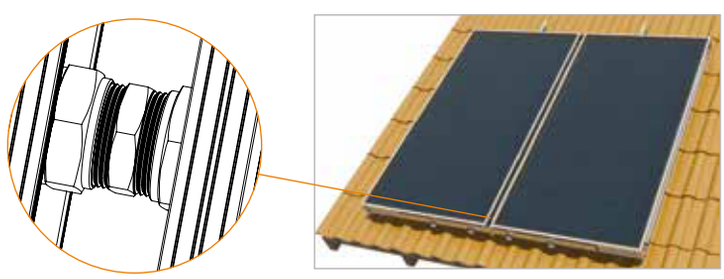
6. If installing a system of three collector, place the 2 additional support bases of the system of a collector, install them in the same way, one to the left and one to the right of the support base already installed . On these three support bases, place the three collector according to the following instructions. Use the Ø22x Ø22 mechanical tightening caps to connect the collector and tighten them.



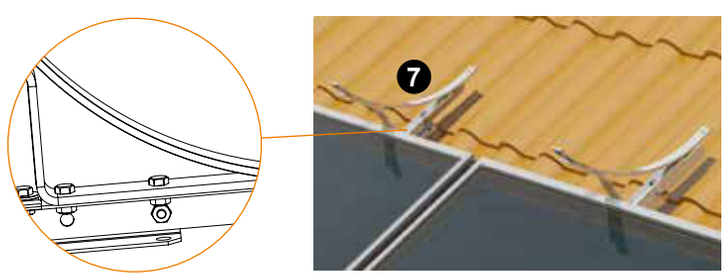
7. In the case of two collector, first place the left one by lifting the upper and lower collector fixing washers **8** When the collector is placed below, lightly tighten the M8 screws and the nuts with the mechanical collector fixing washers **8** to hold it temporarily and center it easily with the system. Place the Ø22 mechanical tightening plugs on the edges of the collector.

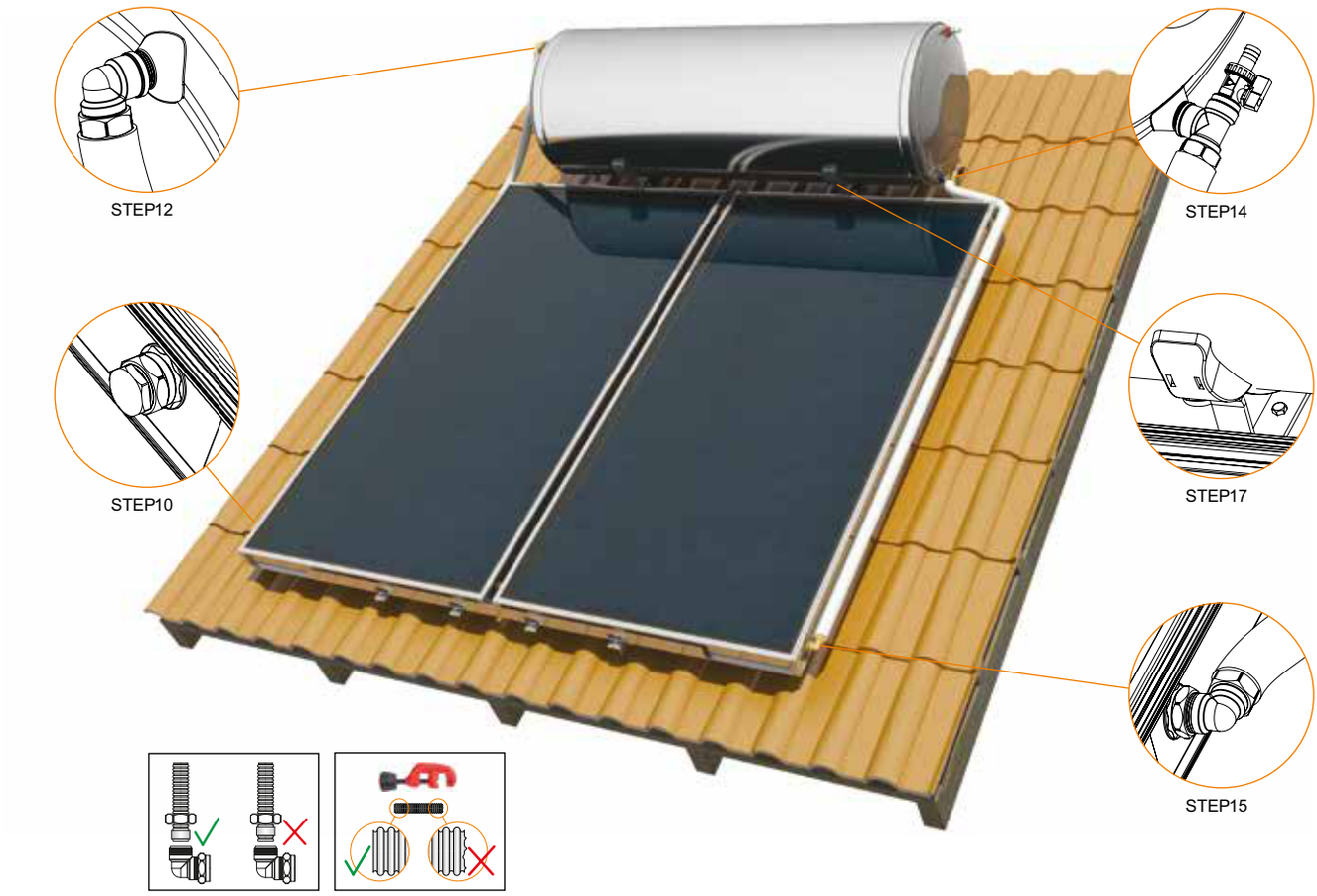


8. Rejoin the second collector and tighten the connections*.



9. Screw on the two supports **7** from the storage tank. Tighten all the screws on the base.





10. Place and tighten the Ø22 mechanical tightening plugs on the upper right part and on the lower part of the sensor(s)*. Place the water storage
tank on the support with its electrical components on the left, when looking at the water storage tank from the front.

11. Center the position of the water storage tank on the sensor. Rotate the water storage tank (if necessary) so that the domestic cold (bottom)
and hot (top) water intakes are vertical. Screw the water storage tank onto the base using the screws provided in the packaging. Be careful,
the device must be correctly leveled and not tilted. Use a level.

12. Place the small flexible tube to the special connection 3/4”xDN16 INOX* on the side of the storage tank where the resistance is located and
at the socket marked “hot water inlet”.

13. Join the other end to the socket at the top left of the sensor using the Ø22xDN16 INOX* corner fitting,

14. Place the T-piece with the fill valve to the socket on the right side of the balloon where it is marked “sensor return”. Place the large flexible
tube with the special connection to the T-piece of the safety group on the right side of the water storage tank.

15. Place the other end in the socket at the bottom right of the sensor using the Ø22xDN16 STAINLESS STEEL* corner fitting, first passing the
tube through the insulating tube. Tighten all fittings in the system as well as all screws on the base. Make the hydraulic connection, fill the
closed circuit and complete the electrical connection as described in the relevant sections. Check for possible leaks.

16. After placing the sensors at a position parallel to each other, attach them to the underside of the bracket by tightening the fixing washers 8.

17. Mount the water storage tank covering the base support 9.

HYDRAULIC CONNECTION

CONNECTING THE SYSTEM TO THE COLD AND HOT WATER NETWORK

The “COLD WATER IN” and “HOT WATER OUT” sockets, colored blue and red, are respectively located on the side of the storage tank.

WARNING! Connections to hot and cold water pipes must be made with nuts and not by welding.

1. The safety valve (10 bar) is screwed on “Cold water inlet”, followed by a mini brass ball valve. The cold water pipe is then connected to the mini valve with an insulating plastic pipe. (D.1).

   NOTE:*The safety valve must have a drain pipe connected to its outlet. This pipe should run at ground level where the hot water discharge is safe and clear of all paved areas. Do not seal or block the ends of this drain hose or the faucet outlet. Drinking water can be drained from this hose during high radiation situations.*

2. The "HOT WATER OUTLET" is then connected to the hot water pipe of the consumer network through a plastic insulating pipe. (The use of plastic pipes is recommended, to minimize electrocorrosion).

3. Filling the storage tank WITH WATER: Open the mini valve and a hot water tap. When water starts flowing from the hot water tap, it means the tank is full and the tap can be turned off.

4. Place a thermostatic mixing valve on the solar water heater, regulated at 38°C to avoid scalding from hot water.



D.1



D.2



D.3

CLOSED CIRCUIT FILLING

WARNING! Before starting to fill the closed circuit with the antifreeze liquid, the water storage tank must be completely filled with water.

1. Connect the water network to the specially designed filling connection on the right of the water storage tank (D.2) and fill approximately half of the closed circuit. Add water to the antifreeze liquid by putting double the amount of water in an empty pot. Disconnect the water network from the filler connector and empty the anti-freeze solution liquid that has been prepared using a funnel. Reconnect the water network and completely fill the closed circuit.

   WARNING! *The last filling step must be carried out with a controlled flow rate, since in the overflow of a closed circuit (3.5 bar safety valve connection point) the fluid can reach high temperatures, which can mean risk of skin burns.*

2. When the closed circuit is completely filled, tighten the 3 bar safety valve in position (D.3) and disconnect the supply network from the special filling installation.

3. Uncover the collector and clean the glass by removing all information stickers.

4. Check for leaks and ensure that all connections to collectors and the water storage tank, as well as cold and hot water pipes to the system are properly insulated, to prevent heat loss and protect them from freezing.

5. After installation is complete, the unit should be left for 24 hours in load test, without any use of hot water, so that the closed circuit can operate a full charge.

ELECTRICAL CONNECTION

DESCRIPTION OF ELECTRICALCOMPONENTS (heating element- thermostat- accessories)

ELECTRICALDIAGRAM – GENERALRULES

The emergency heating system should only be used for emergency heating

The electrical installation of the solar water heater must be carried out only by qualified electricians, in accordance with the national regulations in force, the rules and the conditions which apply to the buildings where the installation is carried out.

The heating element (resistance) must not be switched on when there is no water in the storage tank. In such a case, the heating element (resistance) warranty does not apply.



D.1



D.2



D.3



D.4

NOTE:*The heating element (resistance) depends on the local regulations of the country of destination.*

1. Remove the screws from the protective cover that covers the electrical components (D.1).
2. A 3x4mm² electrical cable (for a 4kW heating element) is required to connect the heating element to the electrical network (D.2).
3. Pass the end of the cable through the cable gland to the electrical components.
4. Connect the black wire (phase) to connector L and the blue wire (neutral) to the connector on the thermostat N. Connect the yellow wire (earth) to the small M4 screw on the heating element (resistor) marked with the symbol of earth (D.3).
5. The thermostat has been wired to the heating element at the factory. Set the thermostat to 60°C.

   Warning! The thermostat must be well adapted to the heating element (D.1).
6. Close the electrical component cover (D.4).
7. Switch off the central circuit breaker of the network.
8. Connect the other end of the cable to the electrical panel using a two- pole circuit breaker with the disconnection at a minimum distance between the contacts of at least 3mm. The rating of the circuit breaker must be suitable for the heating element used.

Warning! A safety relay against electric shock is absolutely necessary.

NOTE:*Hot water load per day (40°C) which can be met by the system without any solar energy contribution (only through 24h operation of 2kW heating element) according to EN 12976 5.10 - 2:2000 is 1000lt maximum .*

Drawing 1

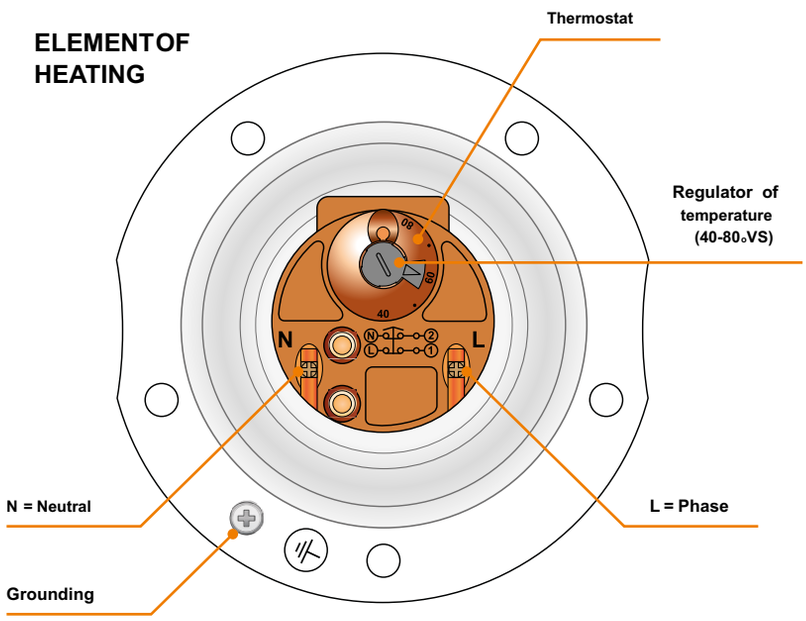
ELECTRICAL COMPONENTS (Heating Element - Thermostat)

AUTOMATIC THERMOSTAT AUXILIARY THERMOELECTRIC CUT-OUT

This is triggered when the internal temperature of the water storage tank exceeds 95°C. The thermostat becomes inoperative to protect the unit from overheating.

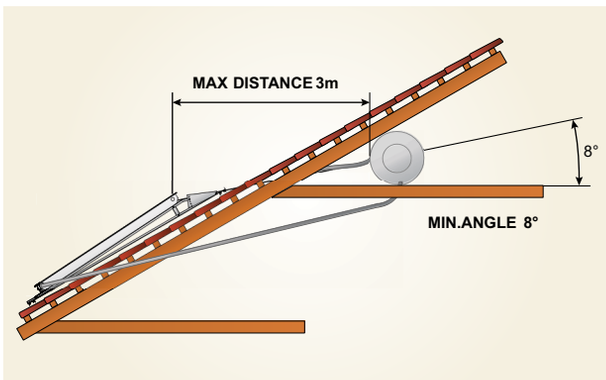
RESET THE THERMOELECTRIC CUTOUT

Turn the temperature controller until the thermoelectric fuse button appears and press it. As long as the fuse is returned to its normal position (depressed), the thermostat can operate at
new.



INSTALLATION OF THE SYSTEM ON A TILED ROOF WITH THE WATER STORAGE TANK UNDER THE ROOF (Natural circulation operation)

For optimal operation of the system using natural circulation, the minimum and maximum distances and angles for the pipes must be respected. The maximum distance between the collector outlet and the water storage tank inlet must not exceed 3m. The angle of the pipe connecting these 2 points must not be less than 8°.



BOILER EXCHANGER CONNECTION

This concerns triple action solar systems equipped with a boiler exchanger. The exchanger must be placed in front of electrical appliances.

HYDRAULIC CONNECTION

The central heating system to which the solar system will be connected must be equipped with:

- Solar system isolation valves.
- Automatic drains at the highest point of the piping and must be very well insulated.
- Corner pipes properly connected so as not to trap air in the circuit.
- Connections to the heat exchanger must be made with fittings.

More precisely: To connect the solar system heat exchangers to the central water system storage tank, follow the steps below:

1. Connect the connectors to inlet E and to outlet O of the exchanger.
2. Place a shut-off valve of the appropriate diameter.
3. Place the automatic air vents D both on the water supply and on the return from the tank to the boiler.
4. Insulate all connecting pipes with at least 9mm insulating material.
5. Set the automatic filling valve AF, 1 / 2 bar above the static height H (eg for a height of 15m it should be set at 2 bar).
6. Fill the system with water and check for leaks.

Circulator

Central water storage tank

Expansion tank

POSSIBLE PROBLEMS - SOLUTIONS

THE SOLAR WATER STORAGE TANK DOES NOT DELIVER A SATISFACTORY AMOUNT OF HOT WATER BY SOLAR ENERGY

In this case, do the following:

1. Take weather conditions into consideration.
2. Avoid high hot water consumption overnight.
3. Check if your hot water needs are not higher than the capacity of the system.
4. Ensure that your solar water heater is not shaded by any kind of obstacles.
5. Check that the system is level.
6. Carefully check all connections for tightness and tighten or replace all connections that are not watertight.
7. Check the building's plumbing and faucets for the possibility of a slow leak.
8. Ensure the hot water supply is not mixing with a water supply cold.
9. Ensure that the connecting pipes are not bent.
10. Check the level of antifreeze liquid and add if necessary.
11. Ensure there is no trapped air in the water storage tank or sensors.

If after all the above checks you are still not satisfied with the performance of your solar system, then please contact your local representative or the company's technical department.

THE WATER STORAGE TANK DOES NOT SUPPLY HOT WATER WHEN THE ELECTRIC HEATER IS USED.

The following tasks should only be performed by a qualified electrician.

1. Turn off the power supply and open the electrical component cover.
2. Check the cable connection between the thermostat and the heating element.
3. Check the temperature at which the thermostat is set, so that it is not less than that that it is necessary for consumption.
4. Check the heating element.
5. Check the central electrical connection.
6. Turn on the electrical current and measure the voltage across the heating element.
7. Check the thermoelectric cut-out of the thermostat, which must be pressed. If not, turn the thermostat regulator to the thermoelectric fuse button appears. Press the one. Once it has been reset, the thermostat can work again.

MAINTENANCE SERVICE

Your solar water heater should be serviced every two years by an authorized representative or company technician. These periodic checks are necessary for the guarantee of the solar water heater. The inspection covers the entire system and more specifically:

1. Flange
2. Safety valve
3. The heating element - thermostat
4. Fittings
5. Piping
6. Insulation - Joints
7. Transparent cover (sunglass)
8. The support system
9. Replacing the anode and checking the closed circuit liquid.



It is recommended that the water storage tank be inspected and cleaned every five years.

Especially for the replacement of the anode bar proceed as follows:

1. Switch off the power supply.
2. Empty the water from the water storage tank.
3. Remove the electrical protection cover.
4. Disconnect the three electrical cables.
5. Remove the electric heating element by removing the M8 screws.
6. Remove the magnesium anode from the heater element flange.
7. Screw in the new anode.
8. Replace the heating element with the rubber gasket.
9. Turn on the water supply and a hot water tap until the water storage tank is fill.
10. Check for water leaks.
11. Reconnect the electrical components to their designated outlets.
12. Check that the thermostat is firmly attached to the heating element.
13. Replace the electrical component cover.
14. Reconnect the power supply.

For solar tanks with a coil, a periodic check by a qualified technician is recommended.

ATTENTION !

- Any intervention - work on the solar water heater must be carried out only by specialized technicians and where
- the electrical components are concerned, only by qualified and authorized electricians.

- All solar water heater maintenance data must be mentioned on the cards on the warranty document (duration
- of warranty).

- In areas where extreme weather conditions are common (hailstorms, storms, tornadoes, etc.), it is
- recommended that the device is insured.

PRE- INSTALLATION TASKS

Before using the system, make a final check. Open all valves and check for leaks. Repeat the inspection after 30 minutes. Check that the system is filed with water and antifreeze liquid according to the company's instructions. In case of any failure condition a specialized technician should be called in. After its installation, the solar water heater requires about 2 days after the end of the assembly to reach a performance of the higher level. For this reason, the use of hot water the first two days after installation is not recommended, even if there is strong sunlight. Periodic maintenance ensures the longevity and superior performance of the system.

- On-site monitoring of the device is recommended twice a year and have the collector panes checked for damage (breakage), leaks in the connection pipes to the water and supply network, inspection of tube insulation and collector purity of the collectors.

- If the collector glass breaks, it must be replaced immediately.

- Cleaning the windows by washing is recommended during hours of low sunlight to avoid expansion caused by the difference in temperature, and it is necessary to peel off the information stickers.

- In the event of deterioration of attachments, screws, dowels, pipes etc., they must be replaced at the expense of the customer.

- The level of the liquid in the closed circuit must be correct, otherwise antifreeze liquid must be added to ensure efficient operation of the device.

- In cases where there is no hot water withdrawal for a long time (summer vacation, for example), covering the collector surface is advisable with an opaque cover in order to avoid overheating, which could trigger the thermoelectric cut-out of the thermostat and break the electrical circuit.

- During the development of high pressures at the storage tank, it is possible to activate the safety valve and let water escape. This is normal operation and its purpose is to protect the solar water heater from pressure. If the water circuit pressure exceeds 4 atm., the adaptation of a pressure reducer, pressure- expansion tank required.

- Do not switch on the electrical resistance in the following cases:

A) In the event of a water cut in the water network.

B) In the event of frost, when the connection pipes are frozen and the water flow from the solar water heater at the taps is not possible.

Warning! The use of a tap with thermostatic regulation up to 38°C on the domestic hot water supply is mandatory to avoid burns which can be caused by water stored at high temperature in the solar water heater .

We remain at your disposal for any further information. We can assure you that you have made the best choice. Thank you for choosing our products, we appreciate your trust.

LIST OF CONTROLS

INSTRUCTIONS FOR THE INSTALLER

After the completion of the installation, the installer with the help of the checklist below, must check all the points that are noted and mark in the corresponding column with a √.

LISTING	CHECKED
COLLECTORS AND PIPING (EXTERIOR)	
Is the installation and fixing of the support base in accordance with the instructions and local regulations in force?	
Is the collector place clean?	
Is there moisture inside the collector?	
Are the plumbing connections correct?	
Is the thermal insulation resistant to ultraviolet (UV) rays?	
Are the pipes well insulated?	
Is the installation on roofs in accordance with the local regulations in force?	
HYDRAULIC CONNECTIONS	
Are there leaks in the closed circuit connections or in the heat exchanger of the tubes?	
Are the safety valves properly installed?	
Is there a thermostatic mixer?	
ELECTRICAL CONNECTIONS	
Is the electrical resistance connected correctly? (if it exists)	
Was the electrical connection carried out in accordance with the local regulations in force? (insulation, earth, etc.)	
IN GENERAL	
Is the guarantee duly filed and returned to the customer?	
Have instructions for use been provided to the customer?	
Is the appropriate choice of model made according to the customer's needs?	
Was the customer informed of other options that exist for the production of domestic hot water?	

Installer sheet

Last name ....

Address..... .....

Telephone ....

Distributor sheet

Last name ....

Address..... .....

Telephone ....

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