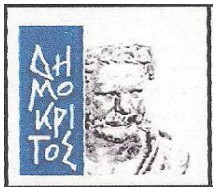
THERMIC
Solar Systems

INSTALLATION AND INSTRUCTIONS MANUAL



BUREAU VERITAS
Certification

THERMIC

1. general installation instructions

Before the installation of the solar unit please read all the information and instructions in the present manual.

In accordance with the final user of the unit please consider all the details that will ensure safe and proper installation. Such details are the selection of position, the orientation, the layout of the pipes, the suitable surface etc.

The position must not be shaded during the whole year by trees or other obstacles.

The installation should comply with the local electrical and plumbing regulations.

For optimal efficiency the unit should face South for the North hemisphere and vice versa for the South Hemisphere. In case this is not absolutely possible it can be positioned 30^{o} to the East if the greater demand for hot water is before 14:00 or it can be positioned 30^{o} to the West if the greater demand for hot water is after 14:00.
In both cases the loss of thermal gain will not be greater than 6% annually.

If the unit is to be placed on a roof with inclination angle less than 15^{o} or more than 30^{o} then a special equipment other than the standard support frame must be used. This special equipment is similar to the one used in areas that suffer storms extremely strong wind and hurricanes (Windy Set)

For tilted roof installation it is absolutely essential that the frame should be positioned ensuring that the water tank is exactly over a horizontal post and never between two posts.

If the surface on which the unit will be installed is not compatible with the standard equipment provided then a different equipment should be used.

This equipment should be suggested, chosen and installed by the installer in accordance with the final user.

When the unit is to be installed on a tilted roof the brackets must be tighten down with suitable bolts that ensure a proper and safe installation.

In areas of high snowfall extra care must be shown that the snow is not trapped behind the water tank and that the standard frame is capable withstanding the expected weight of snow.

The same care must apply to areas that suffer heavy storms, extremely strong wind and hurricanes. In such areas use the Windy Set.

Both the pipes of the solar unit and the pipes of cold and hot water to the building must be properly insulated.

After the installation of the unit clean-up the surrounding area. Fill the guarantee form and mail it to the manufacturer or the local distributor.

The manufacturer is not responsible in any way for damages caused to the product or others due to wrong installation.

corrosion protection

The unit is protected against corrosion with anode magnesium rod . The rod is installed on the electric resistance. The magnesium anode rod must be checked periodically and replaced accordingly and in any case no longer than two years time.

attention: Water or steam may escape from the pressure relief valve.
This is to be considered as normal operation for protection of the system from overheating or high pressure.
The installer must attach a drain tube (not provided) of proper diameter to the nozzle of the valve and guide it to the building drain system.

NOTE: In case the local regulations demand to avoid the temperature of the draw-off water exceeding 60°C it is necessary to be installed a thermostatic mixing valve which limits the temperature to 60°C (not provided)

NOTE: The working pressure of the water supply must be between 2,5 and 6 bars.
In case it is more than 6 bars it is necessary to apply expansion chamber.

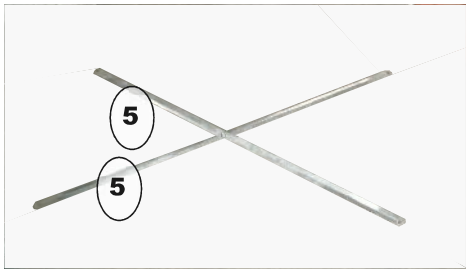
Always make sure that there are no leaks at the connections and the piping of the building is protected against rain or moisture.
The pipes have external thermal insulation. Make sure that the insulation is covering the pipe completely and it is not warn or ripped

2. Packing and handling

**THE COLLECTORS ARE PACKED IN CARTON BOXES. HANDLE WITH CARE. MIND THE GLASS SURFACE. ALWAYS STORE IN UPRIGHT POSITION.
DO NOT STACK COLLECTORS ONE ON TOP OF OTHER.
STORE IN A DRY PLACE AWAY OF ANY MOISTURE.
REMOVE PACKING ONLY IMMEDIATELY BEFORE FINAL INSTALLATION.**

**BOILERS ARE PACKED INDIVIDUALLY.
ON BOTH ENDS ARE PROTECTED WITH POLYSTYRENE COVERS AND THEY ARE TOTALLY WRAPPED WITH TRANSPARENT HEAT-CONSTRICTING FILM
HANDLE WITH CARE. MIND THE SURFACE FOR SCRATCHES.
DO NOT STACK BOILERS MORE THAN THREE ON TOP OF OTHER.
STORE IN A DRY PLACE AWAY OF ANY MOISTURE.
REMOVE PACKING ONLY IMMEDIATELY BEFORE FINAL INSTALLATION.**

3. installation procedure



Assemble the two brackets number 5 as an **X** using the bolt and nut provided through the middle hole. Don't tighten the bolt for the moment (photo 1).

photo 1

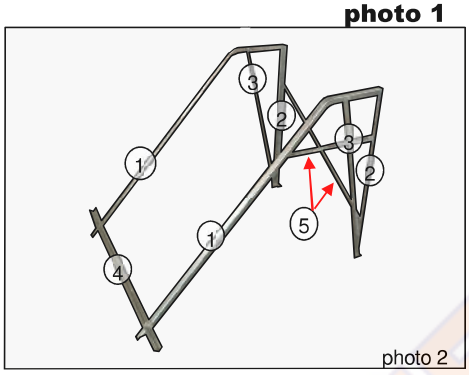


photo 2

Assemble the supporting frame as shown in photo 2. Begin with brackets number 1, 2 and 3 making two identical frames. Tighten the screws. Place the two frames upright and connect them with the **X** formatted by the number 5 brackets. Place bracket number 4 and tighten the screws.

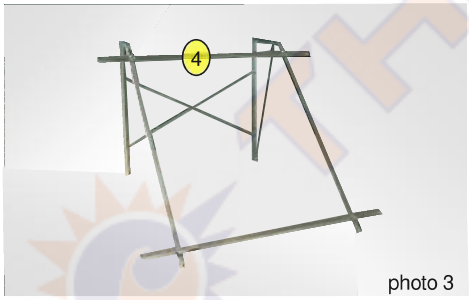


photo 3

Place the upper bracket number 4 without tighten the bolts for the moment. (photo 3).

photo 4

Place the collectors on the supporting frame as shown (photo 4).

photo 5

Secure the collectors on the frame using the bolts, but do not tighten so you can adjust them on the frame and move them to connect. (photo 5).

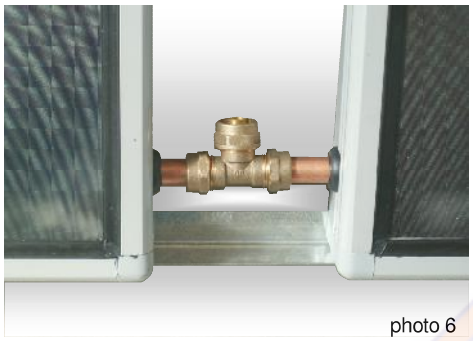


photo 6

Using the T-shaped connectors provided connect the two collectors between them both on bottom and upper side. Make sure the pipes are well inside the connector (roughly 2,5 cm) in order to avoid any leaks (photo 6).

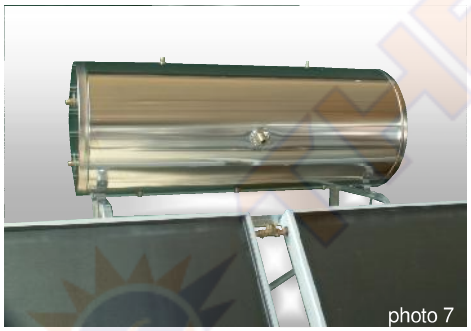
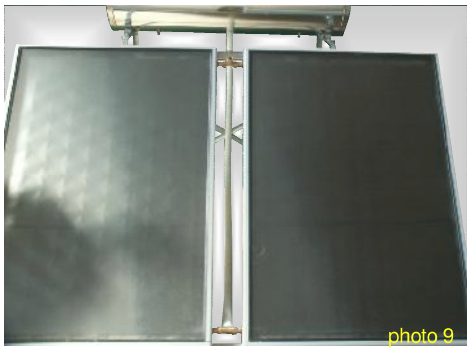


photo 7

Place the boiler on top of the supporting frame as shown (photo 7).

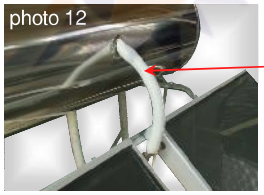
photo 8

Secure the boiler on the frame using the bolts and the large washers. Also for your convenience don't tighten the bolts at this stage (photo 8).



Connect the T-shaped connector at the lower side of the collectors to the outlet of the boiler marked accordingly (photo 9).
Use the pipe provided. Please note that the installer have to cut the pipe to the proper length.

Make sure that the connections are made using the fittings as shown in the photo 10.
Remember to cover the pipe with the insulation.



Repeat the same procedure to connect the T-shaped connector at the upper side of the collectors to the inlet of the boiler marked accordingly (photos 11 and 12).
The insulation should cover the connectors also.

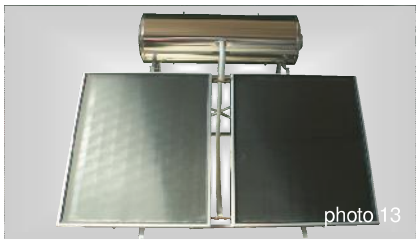


photo 13


photo 14

Make a final check that the collectors and water tank are aligned and evenly positioned on the frame (the device should look as in photo 13), and TIGHTEN ALL BOLTS (photo 14).

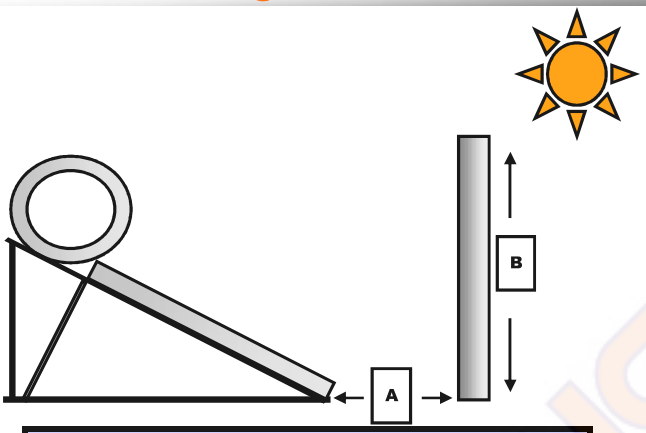
ALWAYS USE A BUBBLE-LEVEL INSTRUMENT TO MAKE SURE THE UNIT IS HORIZONTAL


photo 15

Screw the non return valve at the input on the lower side of the water tank marked: "cold water input" (photo 15). It is essential to install before the valve a spherical switch (not included in the installation kit). Connect the hot water outlet to building's plumbing system. After that you can connect the unit with the water supply of the building and fill up the water tank.

NOTE: The working pressure of the water supply must be between 2,5 and 6 bars.

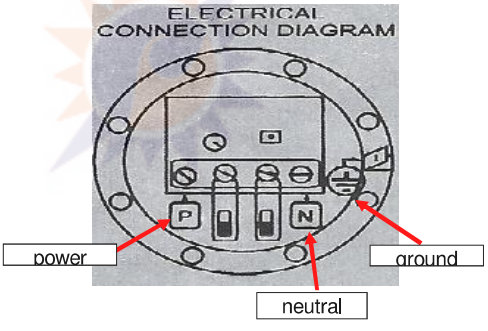
4. Shading Obstacle Chart

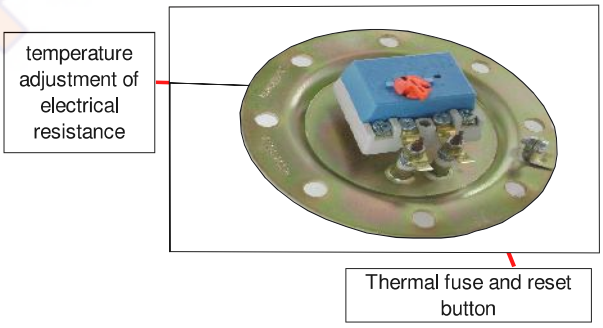


installation position's latitude	distance between collector/s and obstacle
0°- 25°	A=1,0 x B
25°- 35°	A=1,5 x B
35°- 45°	A=2,0 x B
45°- 50°	A=2,5 x B
50° or more	A=3,0 x B

photo 16

5. Electrical connections and controls.





Notice:

Solar energy is the only power is necessary for the system for water heating. However the system is equipped also with an electric resistance. This is to be considered as just an emergency heater and must be used when solar energy is not sufficient (cloudy or low sunlight days). In any case do not use the electric power as the prime power source.

6. Final check

when the installation and filling is concluded refer to the following check-list
to ensure proper installation

- Final check for leaks of water or thermal fluid
- Electrical connection check
- Safety pressure valves operation and leaks
- Proper orientation
- Check for any shading obstacles
- Safe anchoring of the unit
- Insulation of the pipes
- Remove packing, protective films etc.
- Clean up of the surrounding area
- Filling of the guaranty papers

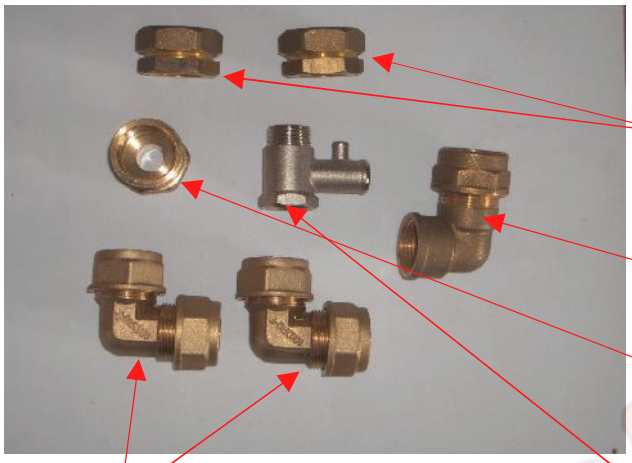
COMMISSIONING OF THE SYSTEM

After installation and final check:

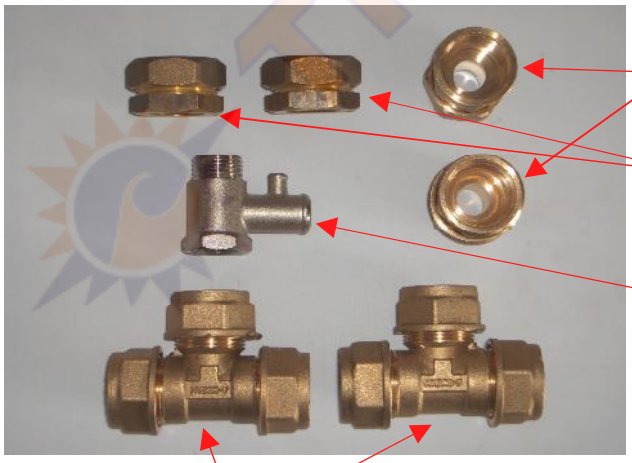
Hand the guaranty papers and the instructions manual to the user.
Make clear that the user has to read the instructions manual before the use of the system.
Indicate clearly to the user the safety valves.
Brief the user about the maintenance program of the system.
Familiarize the user with the correct use of the emergency heater

7. list and photo of the installation kit contents

single collector system



double collector system



8. THERMOSIPHONIC SYSTEM - Instructions and maintenance.

General instructions and maintenance

- The system will reach optimum performance two days after installation.
- We recommend to inspect the glass cover of the collectors periodically ,clean them in case there is dust or snow or anything else that might interfere the solar rays, see any cracks on the surface and replace it as soon as possible if you see any possible damage.
- Check the antifreeze liquid of the circuit at least once per year and add the necessary quantity to fill the system.
- Check at least once per year the non return valve, check if all bolts and nuts are well tightened and generally check the stability of the support frame.
- If you decide to leave the house for a long period ,cover the collectors ,it is essential for the well being of the circuit.
- Check periodically for any leaks ,any bended tubes ,air bubbles trapped in the system, check if all tube connections are in the proper exits and inlets.

Electrical resistance

- Check for obvious damage of the electrical element with thermostat.
- Check the wiring connection of the resistance and the thermostat.
- Check if the thermostat is placed in the proper temperature ,temperature should not exceed 75° C. The factory adjustment is 65° C.
- Check if main supply reaches the element.
- Always turn the power off before you start repairing the electrical parts of the system.

9. Replacement of magnesium anode.

1. Cut off the electric supply
2. Drain the water from the boiler
3. Remove the protective cover
4. Disconnect the ground-negative and power
5. Remove the resistance unscrewing the holding nuts
6. Replace the magnesium rod on the flange
7. Reposition the resistance with the sealing rubber ring
8. Fill the boiler with water from the building supply while having open any hot water output in the establishment.
9. Check for any leaks in the system
10. Reconnect the electrical connections
11. Check the secure attachment and adjustment of thermostat on the resistance
12. Reposition the protective cover
13. Supply the unit again with electric power

Lightning protection

The collectors should always be connected (the metallic parts) through a copper conductor 16mm with the lightning conductor system, if there is any ,if not the collectors should be connected with any conductor system using the same copper conductor from the collectors.
The conductor shouldn't go through the inner space of the house and it should be Installed by a certified electrician.
Collectors are installed on top of a metallic support base and the installer should check if the collector is attached with a secure manner, checking all the bolts and screws if they are well placed.

Always call a certified installer to do the proper maintenance of the system, in case there is an electrical issue please call a certified electrician.

Technical specifications of storage tanks

- External casing : Stainless steel metal sheet antimagnetic 304
- Tank's insulation : Polyurethane foam 45-50 mm
- Inner Cylinder's material : Steel DCP metal sheet 2.5mm
- Cylinder's internal Protection : Double layer enamel approved for use with potable water
- Additional protection : Magnesium anode rod
- Electric resistance : Flange enamelled with copper electric resistance
- Thermostat : Bipolar of four contacts
- Power rate : 2kW

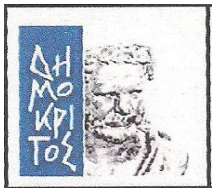
Technical specifications of the collector

1. External frame : Aluminium profile electrostatically powder-painted
2. Back side : Galvanized metal sheet - 0,5 mm
3. Back insulation : Glass wool 20 mm
4. Side insulation : Glass-wool of 20 mm
5. Absorber : Aluminium fins with selective titanium coating laser welded to copper pipes
6. Absorber's tubes : Copper pipes ∅ 15mm & ∅ 22mm (risers and headers)
7. Front cover : Solar tempered glass 4mm
8. Water-tightness : EPDM rubber / black silicone

THERMIC

THERMIC

26o km Old National Road ATHENS-THIVA
19600 MANDRA GREECE
TEL: 210-2464090 210-5555523
FAX: 210-2465865 210-5555668
e-mail: info@thermicsol.com
web: www.thermicsol.com



BUREAU VERITAS
Certification