



ITS solar Installation manual 100L Low Pressure Unit



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Introduction:

This instruction manual is for the 100-litre unit. The 100-litre unit is recommended for 1-2 persons. If more hot water is needed, two or more can be connected together. Assembling the unit is not difficult, but it is recommended that this manual must be studied properly before tackling the job.



The proper location for the system

The correct position for the unit is very important for efficient operation.

Points to consider when choosing a location:

- ***The distance from the unit to the bathroom and the kitchen***
The water usage in the bathroom is usually the most followed by the kitchen. To save warm and cold water it is important to place the unit as close to these two rooms in the house as possible.
Long piping between the water heater and the taps results in the water to run for a long time before the hot water reaches the tap.
- ***High buildings or trees that may cause shadows on the heater***
Solar water heaters work much more efficiently if they get sunlight the whole day and care must be taken when planning the best position.
- ***The direction and angle of the system***
The ideal direction for the unit is true north. This can easily be calculated by pointing the unit directly at the sun at noon. A few degrees either way will not seriously affect the working.
The horizontal angle must be between 20 and 45 degrees. Depending on the angle of the roof that the unit is mounted on, the rear frame can be used or discarded.

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- ***The strength of the roof that must support the unit***
The weight of the 100-liter unit when full is about 140kg.
Care must be taken to ensure that the roof can support this weight.
Where the unit is to be placed on a metal roof we recommend that two pieces of wood is first put down and then the unit on top of the wood to spread the weight more evenly.
- ***The warm water outlet is not pressurized and the system must be placed high enough to ensure a high enough gravity flow. It is adequate to place the unit on the roof of the house but if a higher pressure is required it can be placed higher on a stand.***
- ***Modern single lever taps must be avoided, as these need a high pressure for sufficient flow.***
- ***Where showers are used, it is best to put a **pressure regulator** in the cold water supply to equalise the hot and cold water pressure.***
- ***After deciding on the best place for the unit it must be completely assembled on the ground and then mounted on the roof.***
- ***It is advised to add a thermostatic mixing valve on the hot water outlet to avoid scolding by extremely hot water***



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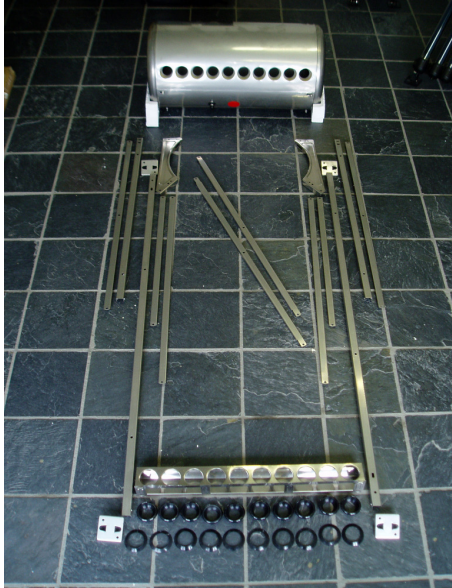
Assembling the unit

The unit is shipped in three cartons. The large one houses the tank, a second one has the glass tubes, a third one houses the frame and fittings.

Step 1

The Frame - All the components in the frame box:

***** Picture displays all components in the set excluding the glass tubes *****



In the stand part box, it includes as follows:

- 1 bottom holder,
- 2 front supports,
- 2 short side supports,
- 2 long side supports,
- 2 back supports,
- 2 scissor supports,
- 2 tank supports,
- 1 set of black plastic decorating ring,
- 1 box of bolt,
- 4 feet bases

- 1. Attach the back horizontal pieces
- 2. The bottom tube support and the feet must be attached next
- 3. The tank is fitted on the frame as shown.

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Inserting the vacuum tubes.

The easiest method of inserting the vacuum tubes is to lubricate them properly before insertion. For this a bucket of water is filled halfway with water in which a few squirts of dishwashing liquid is dissolved.



Figure 1

Dip the open end of the tube in the bucket (Figure 1) and put the black rubber dust seal over the tube (Figure 2)



Figure 2



Figure 3

Dip the top end of the tube in the bucket again
and starting from the one side of the tank push
the tube in the first hole in the tank –
see above picture(figure 3)
Push the tube in deeper than necessary
to clear the bottom foot piece



Figure 4

Push the tube down until it fits snugly into the Stainless steel
Plastic tube holders as shown
above

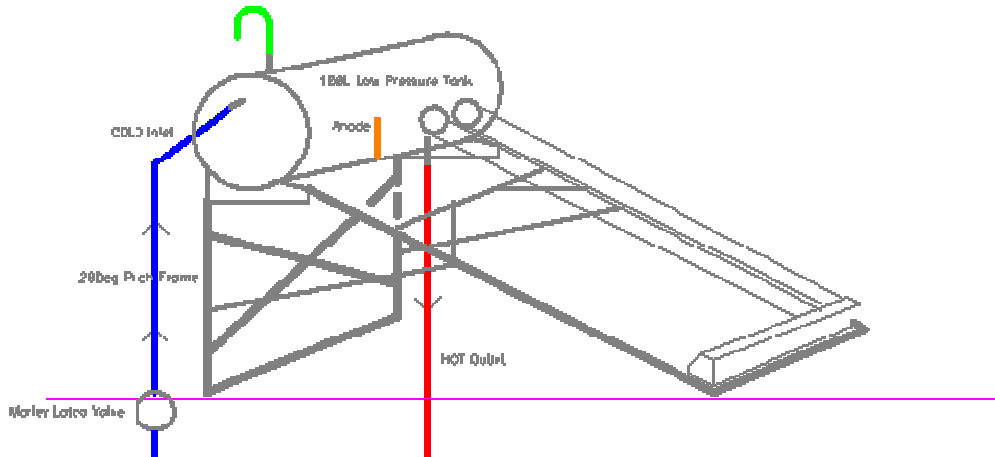
**** Do this with all the tubes and push the black rubber seals up against the tank****

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Diagram:



Connecting the water supply:

- *This solar heater is a low-pressure open to vent unit.*
- *It is therefore important to ensure never to connect this unit directly to the municipal water supply or any other pressure source.*
- *The outlet of the tank must be high enough to ensure a reasonably strong water flow. A minimum of two meters is recommended for a reasonable flow.*
- *A vertical vent pipe can be fitted to slightly increase the pressure that is open to the atmosphere.
Adding a 1m high vertical vent pipe will affectively increase the outlet water pressure by 0.1Bar*

CAUTION

If the unit stands in the sun without water, the inside of the tubes can reach a temperature of 200 degrees.

If it is now filled with cold water it may cause the tubes to crack. It is therefore advisable to fill the tank initially early in the morning or late in the afternoon when the sun is weak!

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Use:

- ***The hot water system needs two sunny days initially to reach its optimum operating temperature.***

The temperature of the water in the tank depends upon the amount of hot water used and the weather conditions. The unit needs sunshine – UV Rays – and not heat to operate efficiently. It will be warmer on a clear cold day than on a cloudy warm day.

- ***If no water is used in summer it is possible for the temperature in the system to reach boiling point. This will cause steaming and water to overflow from the exhaust or ball valve tank. This will not damage the system but it is better to cover the tubes partially if no water is going to be used for an extended period.***

Guarantee:

For the Guarantee and technical details on system, please follow the below link to our website under section "downloads"

<http://www.its-solar.com/downloads/>

