LOW PRESSURE SOLAR GEYSERS

Installation guide

Important! READ FIRST!

1. **The VENT pipe must be OPEN,** else the tank will burst when water boils.
2. **Fill tubes with water before inserting.** Cold water in hot tubes will shatter tubes.
3. **Lubricate glass tubes with soapy water before inserting.** Grease, Vaseline, oil, etc. will dissolve the silicon seals
4. **The vent must be upright, at the top of the tank.** Else it will blow out excess water when it boils.

Do not use any valve or restriction on the vent pipe. This will void any guarantee.

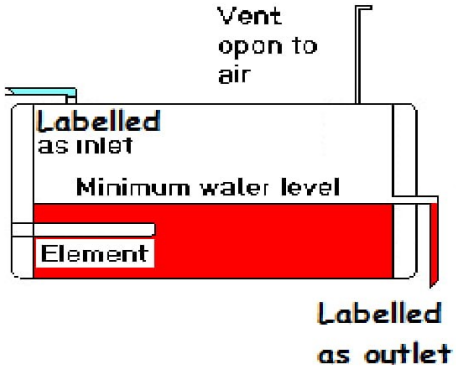
When connecting inlets and outlets, remember that the stainless steel tank is only 0,41mm (Green series 0.31mm) thick. Do not over tighten.

Tips when installing:

- Tubes facing north will give optimal performance.
- Install the system as high as you can.
- When installing on a 26° pitch roof: Do not install the rear upright leg and hook the stand over the apex of he roof.
- Make sure the vent is **open** and at the **top** of the tank.
- Tiled roofs: Do not install the rear upright leg. A wire or strapping through one of the three holes, under the tile and fastened to the brandering will prevent sliding.
- Put a metal bar (or the rear upright leg, which will be free when installed on a 26 ° roof) under the feet of the stand to prevent dents into the corrugated iron. If there is any danger of sliding, the feet can be fastened to the roof with a bolt and nut. (Please keep in mind, if you do not use the uninstalled leg the weight of the tank can crack or even break the tile.)
- If an electric element is not installed, the element hole can be reduced to 22mm and used as an outlet.

Electric heating element:

- A standard 38mm boss element, also available from local hardware stores, is used.
- Can be controlled with a standard thermostat or programmable SR609C controller.
- Do not use a washer, seal the thread instead.



Glass tubes:

- Take care not to break the small nipple at the mirror end of the tube. While holding the tube, keep the nipple on your foot: it is safer.
- To insert the glass tubes, wet the open side of the glass tube with water and dishwasher liquid.
- Insert the tube in to the hole, using a screw in motion. Take care not to make the angle between the stand and the tube too big, as it may cause the tube to break. Pull the tube back to fit into the hole in the stand.
- If dry, the tubes heat up to 250°C, Cold water into hot tubes will shatter tubes.
  - If installing tubes during the daytime, fill the glass tubes with water immediately after taking them out of the box.
  - Install tubes without water, only lubrication, and wait until dark, when the tubes are cold, before filling the tank.

Anode:

- The magnesium anode will rust first, before the stainless steel tank.
- Yearly inspection of the anode, and replacement when necessary, will make the geyser last longer.

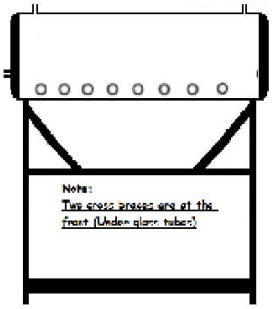
- The anode has a green plastic connector which fits into a glass tube, and is inserted into the tank together with the glass tube. Make a mark to remember on which tube the anode is fitted.

Vent:

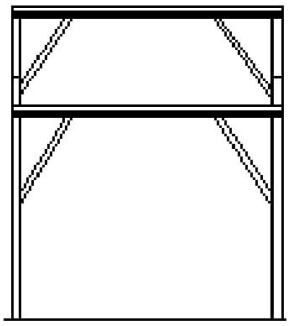
- The vent pipe is connected to the inner tank with a silicon washer.
- Use a spanner or pliers to hold the pipe in place when extending the vent to the correct hight.
- Be careful not to force the vent pipe into or out of the tank, or not to turn the pipe axially. If this happens, it will feel as if the pipe breaks loose, and you will be able to turn the pipe axially. It will not leak, because only the bond between the metal pipe and the polyurethane insulating foam breaks.
- A long or heavy vent pipe can damage the washer and cause leaking.

Installation pictures for stands:

FRONT VIEW
WITHOUT GLASS TUBES



Rear view
installed on flat roof

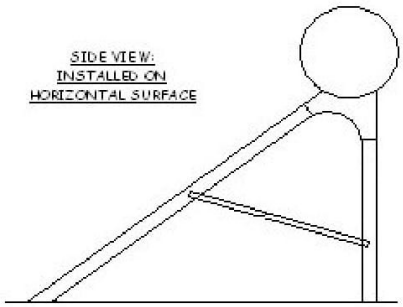


Vertical leg

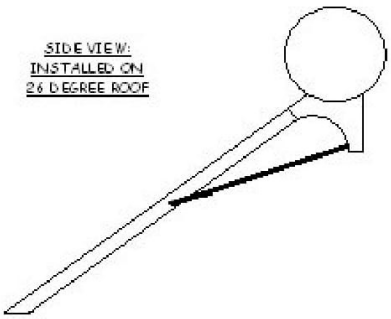
REAR VIEW:
INSTALLATION ON PITCHED ROOF

Note: 1) long cross braces are at rear
2) Holes for cross braces do not always correpond. You may have to drill holes.

SIDE VIEW:
INSTALLED ON
HORIZONTAL SURFACE

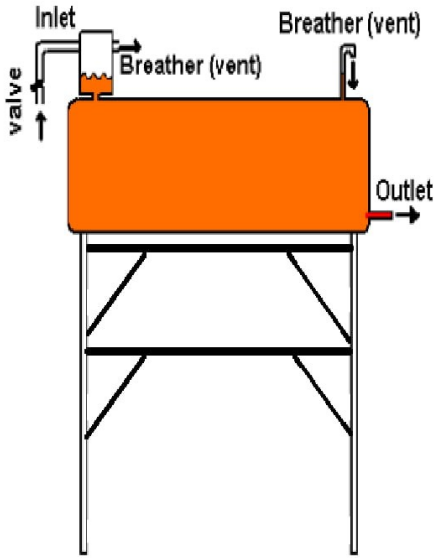


SIDE VIEW:
INSTALLED ON
26 DEGREE ROOF



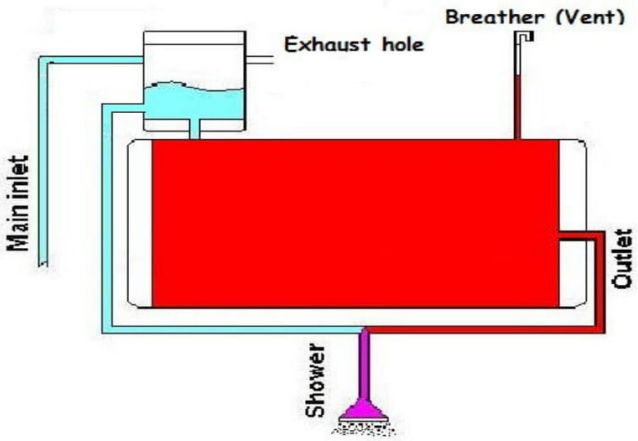
Float valve auxiliary tank:

Advantages:	Disadvantages:
Automatic filling	Cold water enters geyser tank when hot water is used.
Good with incoming pressure fluctuations.	Float valve can stick and leak when dirty.
Very easy installation	

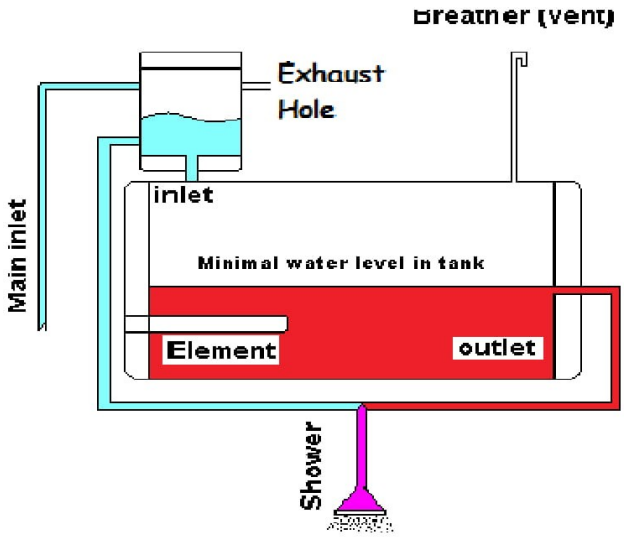


- With high pressure cold water and low pressure hot water, the hot water will be pushed back at the mixer valve (shower).
- Pressures can be balanced at the mixer using
  - a 100kPa Latco valve on the cold water to the shower, or
  - connecting the lower outlet hole on the auxiliary tank to the cold water.

Without element

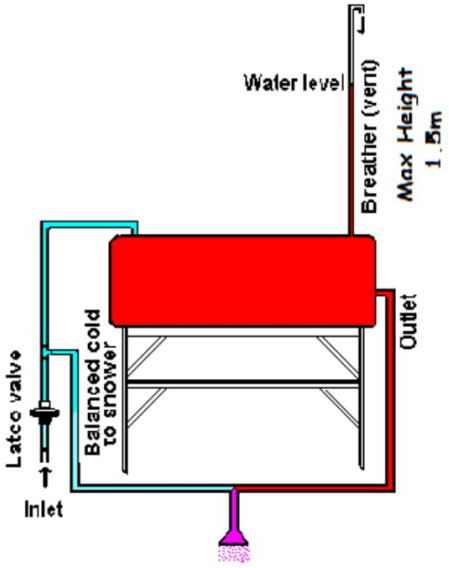


With element



100kPa Latco Valve:

- Vent pipe must not be longer than 1,5 metres.
- Adjust Latco valve until water runs out, then ½ turn back.
- Results are best when Latco valve is 1 to 1.5 m under geyser tank.

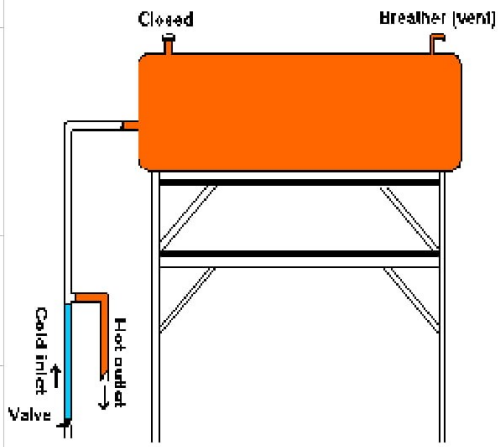


Advantages:	Disadvantages:
Automatic filling	Cold water enters geyser tank when hot water is used.
Good when incoming pressure is stable (like municipal pressure)	Valve is not UV stabilised. Use in ceiling or paint the valve with water based paint.
Easier to balance cold and hot water pressures.	When water boils, water in pipe shoots out or leaks over tank.

Manual filling: Manual valve and T-piece

· Incoming pressure: Any

Advantages:	Disadvantages:
Cold water does not enter when hot water is used.	Balance cold water pressure with 100kPa Latco Valve at mixer if cold water pressure is too high.
Good way to limit water usage.	Must be done by hand, every morning after water has been used.
Cheap.	In and out pipe is the same. Tank can run dry.

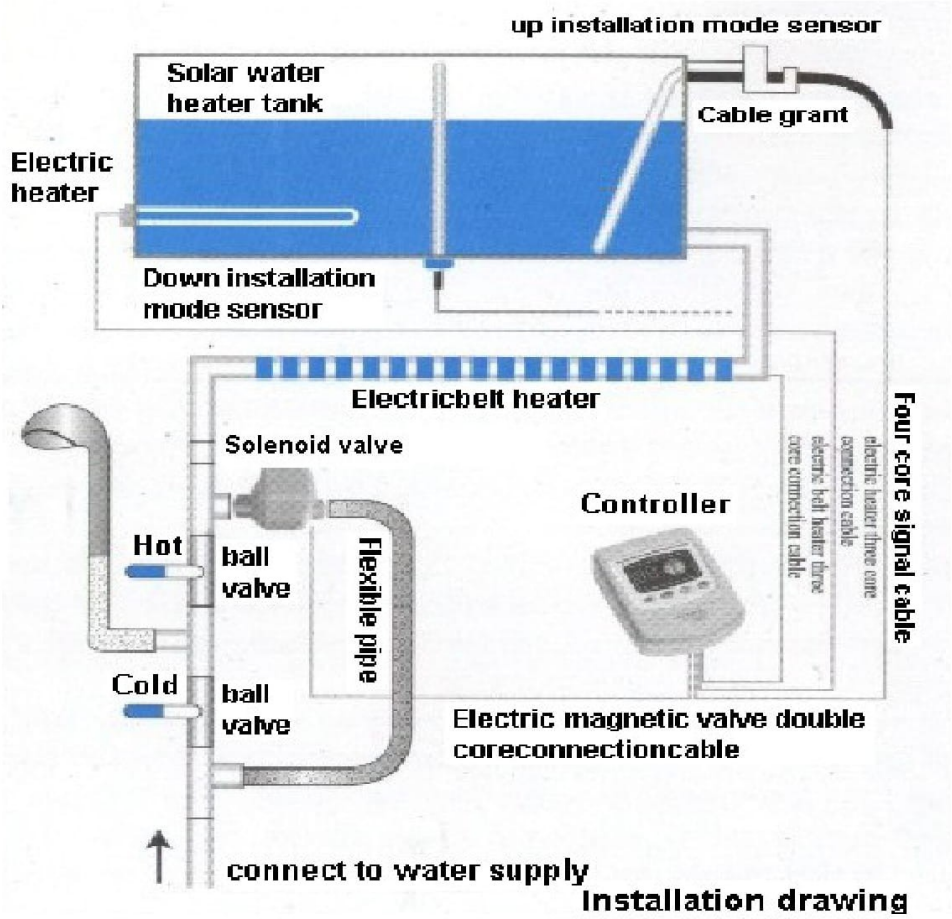


Electronic filling: TK-8 solenoid valve controllers.

· Incoming pressure: Any

Advantages:	Disadvantages:
Can be programmed to fill in different ways.	Installers and users often do not read the manual properly, resulting in various complaints.

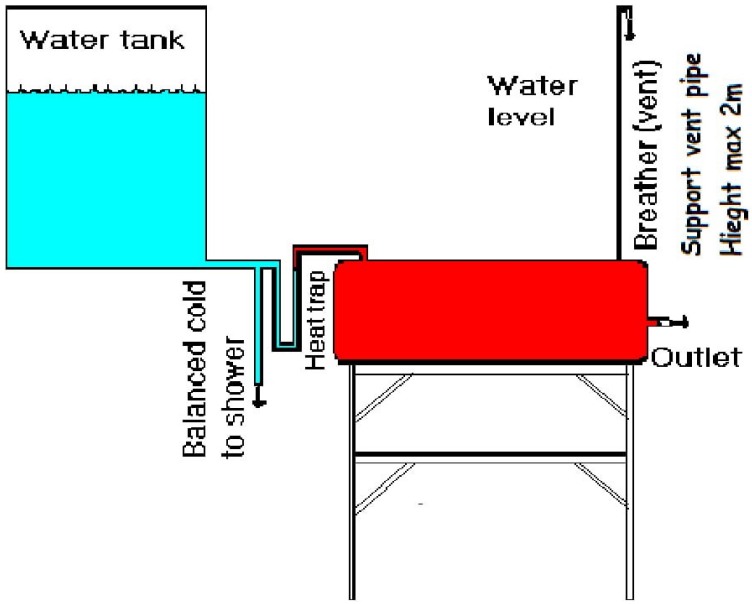
Can control the heating element and the solenoid valve	Pressures are balanced with an anti scald (tempering) valve
Fully automatic after programming.	



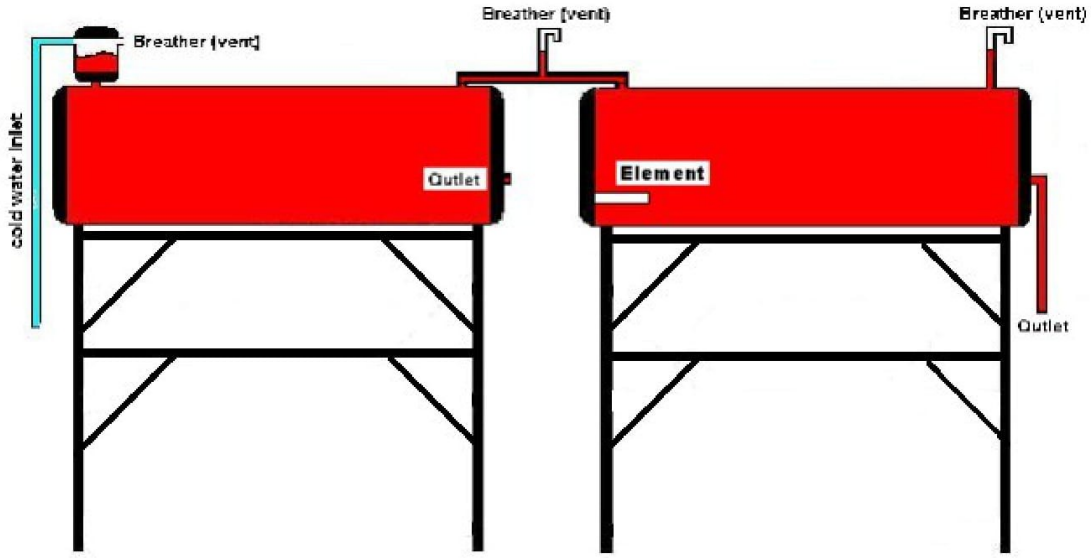
JoJo type tanks, water level less than 2m above TOP of geyser tank:

- Vent pipe must **not be longer than 2 metres**.

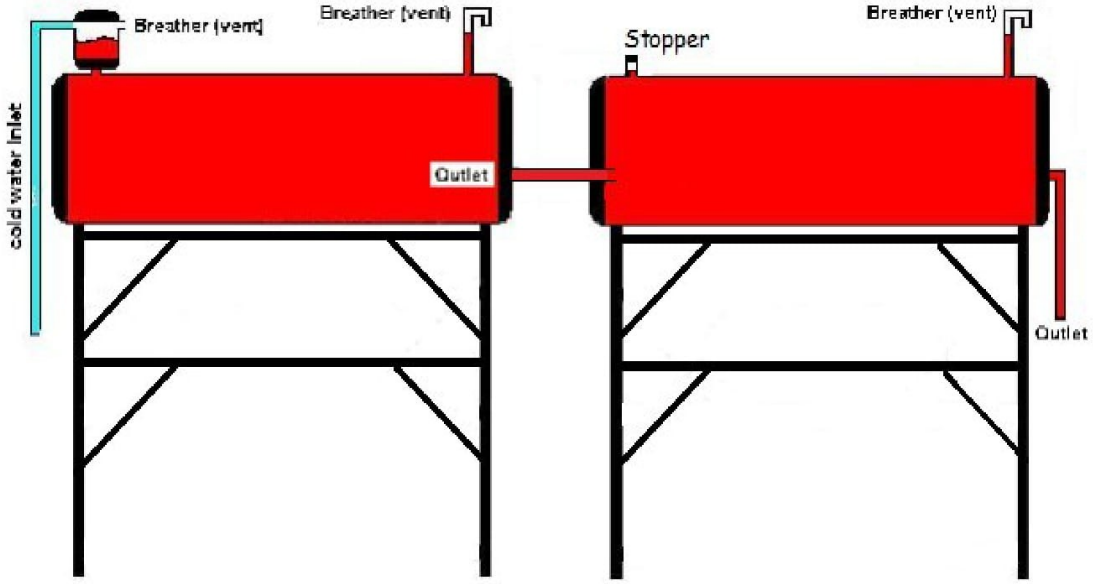
Advantages:	Disadvantages:
Hot water can be available after water supply tank has run dry.	Installers who try to make the vent pipe longer than 2 metres, then the tank starts leaking from pressure, or damaged vent silicon seals
Outlet can be put at top of tank, but as vent must be open	
Hot and cold water pressure perfectly balanced.	



Series connection with electric element.



Series connection without electric element.



Stand installation for flat roof

Front view

Side view

Rear view

26 Degree picth roof

Side view

Side view

Rear view

1) Drill new holes for the Cross bars

Front view