



# THE SUNPAYS

SINCE 2007



Retrofit Manifold Kit User Manual

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## 1. Retrofit Manifold Kit Technical Specifications

### Available models:

#### Retrofit Manifold Systems

10 Tube Retrofit Manifold Kit

12 Tube Retrofit Manifold Kit

16 Tube Retrofit Manifold Kit

18 Tube Retrofit Manifold Kit

24 Tube Retrofit Manifold Kit

### Guarantee:

#### Retrofit Manifold Kit

5 Years

### Evacuated Tubes:

- This is a standard 1800 mm length x 58 mm diameter x 2 mm thick glass tube. These tubes are designed to withstand 38 mm diameter hailstones.
- Heat transfer into the high-pressure tanks is done with copper heat pipes. Heat pipes utilize a liquid which boils and condenses, thus causing an effective heat transfer cycle.
- There is no water inside a high-pressure vacuum tube. Thin aluminium plates and a copper heat pipe transfer the heat from the hot black inner vacuum tube to the tank.

### Pressure:

Delivers your normal municipal pressure. Municipal water supply is usually between 1bar and 5bar (depending on location and time of day).

The retrofit manifold system consists of the following items:

- A high-pressure manifold (header)
- Vacuum tubes for high pressure water systems
- Mounting frame
- Air release valve
- 10W solar panel
- 12V re-circulation pump

The system can be connected to your existing electrical geyser. Water is automatically circulated during the day from the existing geyser to the solar collector and back to the geyser.

### Guide:

The following guide can be used to match the manifold kit with your existing geyser size:

- 100L Existing Geyser -> 10 or 12 Tube Manifold
- 150L Existing Geyser -> 16 or 18 Tube Manifold
- 200L Existing Geyser -> 24 Tube Manifold

### Optional electric backup system:

Electrical geysers have a standard 32 mm screw-in South African electric element with pocket. It can be controlled with either a thermostat or an SR609 programmable controller.

### SR609 smart controller:

The SR609 is a programmable electronic control panel. The features include:

- The display of the water temperature inside the manifold that is measured by a probe that fits inside the manifold frame.
- It can be set to heat the water in the tank electrically in three cycles of time and temperatures.
- Default: if the water is cooler than 54°C between 4 and 5 am, the water will be heated to 60°C. The same happens between 5 and 10 pm again.
- A manual button raises the temperature up to the programmed temperature (usually 60°C), whenever needed.
- There is a battery backup, so it will not forget its settings.

## 2. Notes on retrofitting electric geysers with solar manifold collectors:

### Installation

- On the cold-water side, before the geyser inlet, a non-return valve must be installed.
- A T-piece is installed between the non-return valve and the cold-water inlet. The open end of the T-piece is connected to the hot side of the manifold on the roof.
- The cold side of the manifold gets connected to a T-piece on the hot water(outlet) side of the electric geyser.
- The pump is installed in the pipe between the hot (outlet) side of the geyser and the cold side of the manifold, as close as possible to the T-piece, to minimize the chances of getting air in the pump.
- The pump gets connected directly to the solar panel, red wire to red wire and black to black.
- Direction of flow is from the geyser hot side (outlet), through the manifold, to the geyser cold side. If the flow is reversed, the water will bypass the tank when the pump is on, and a little bit of warm water will be available before only cold water will run from the tap.
- If you use sponge lagging, paint it with water based acrylic roof paint. The sponge is usually not UV stabilised and will perish quickly when exposed to open sunlight.

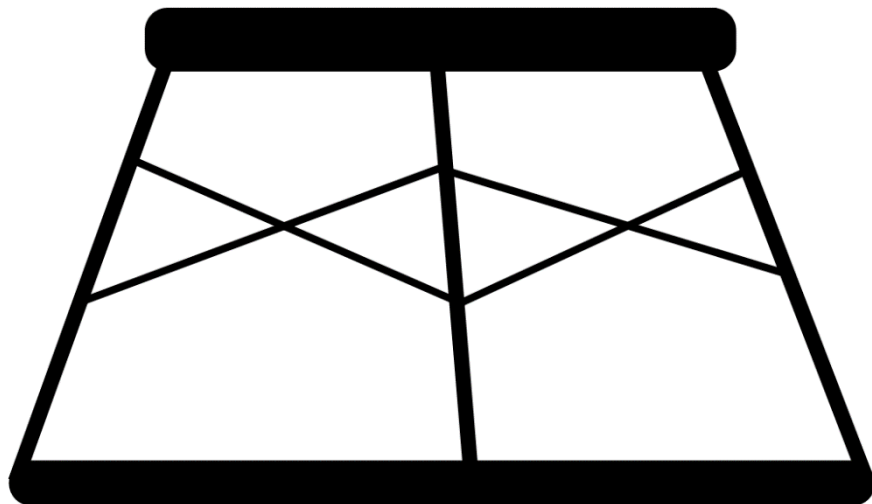
### Pump

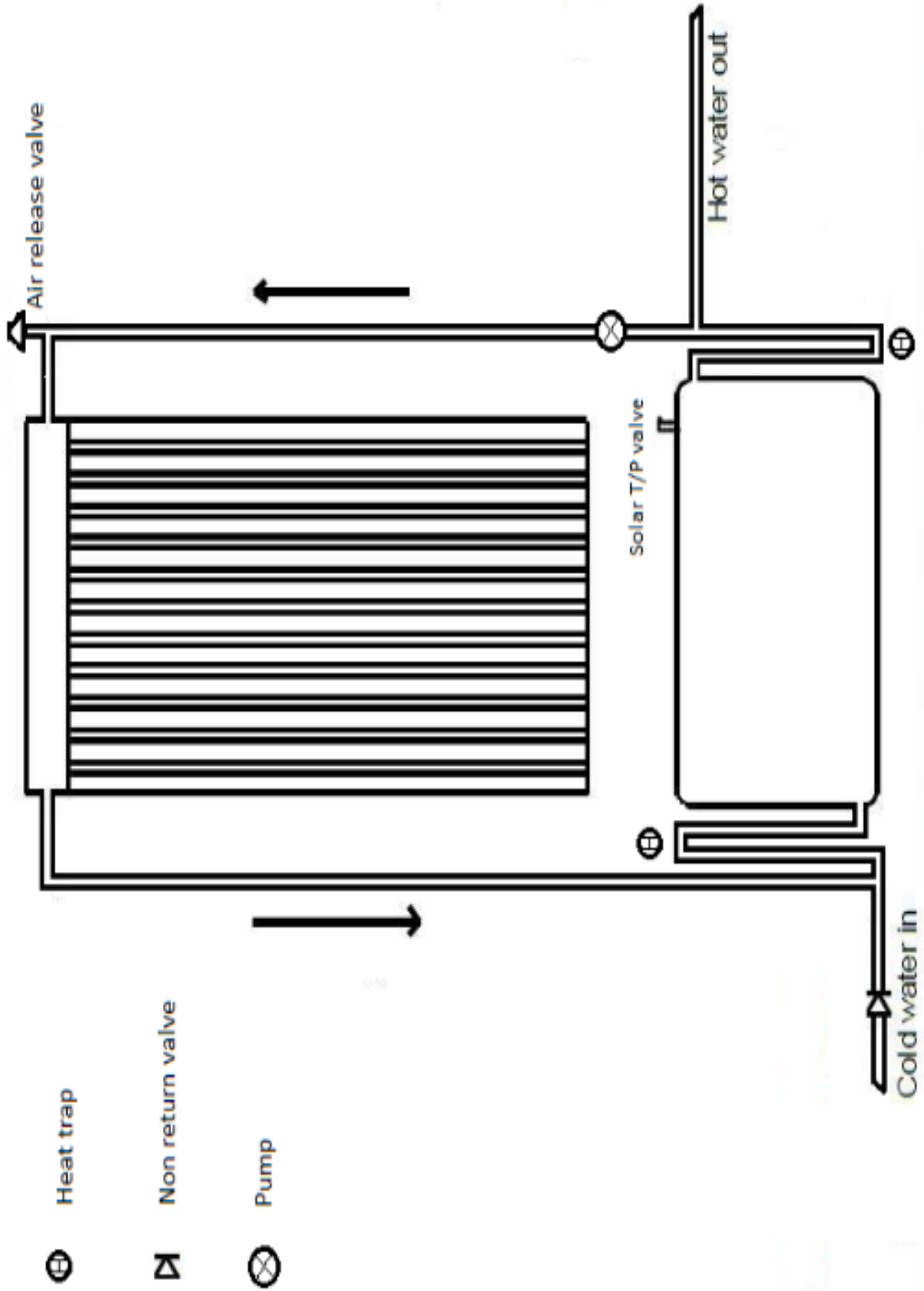
- The pump has built in protection against air and overheating. If there is air or steam in the pump, it will either make a noise, or more probably, stop altogether.
- When connecting the pump, use tools to hold the brass thread. Do not hold the black body, as the plastic will break.

### Safety valves

- A high temperature air release valve, to be fitted as high as possible on the manifold, is necessary to prevent airlocks or steam build up.
- Make sure that the geyser's T/P valve (Temperature and Pressure valve) is of a kind that will open repeatedly, and not once only. If this valve does not work correctly, you will probably have water on the ceiling from burst pipes or tanks in the not-too-distant future.

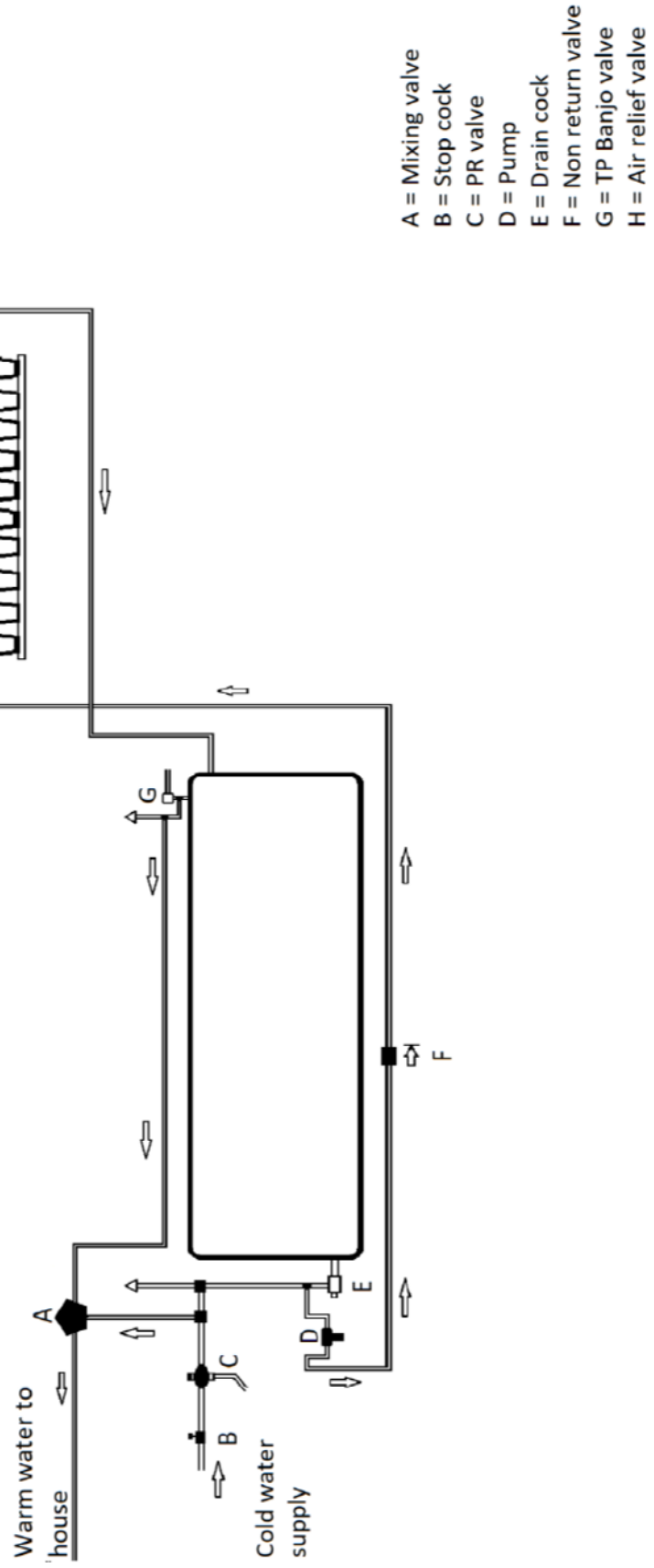
### 3. Manifold Installation





ALTERNATIVE INSTALLATION ( SANS )

Manifold Diagram



- A = Mixing valve
- B = Stop cock
- C = PR valve
- D = Pump
- E = Drain cock
- F = Non return valve
- G = TP Banjo valve
- H = Air relief valve