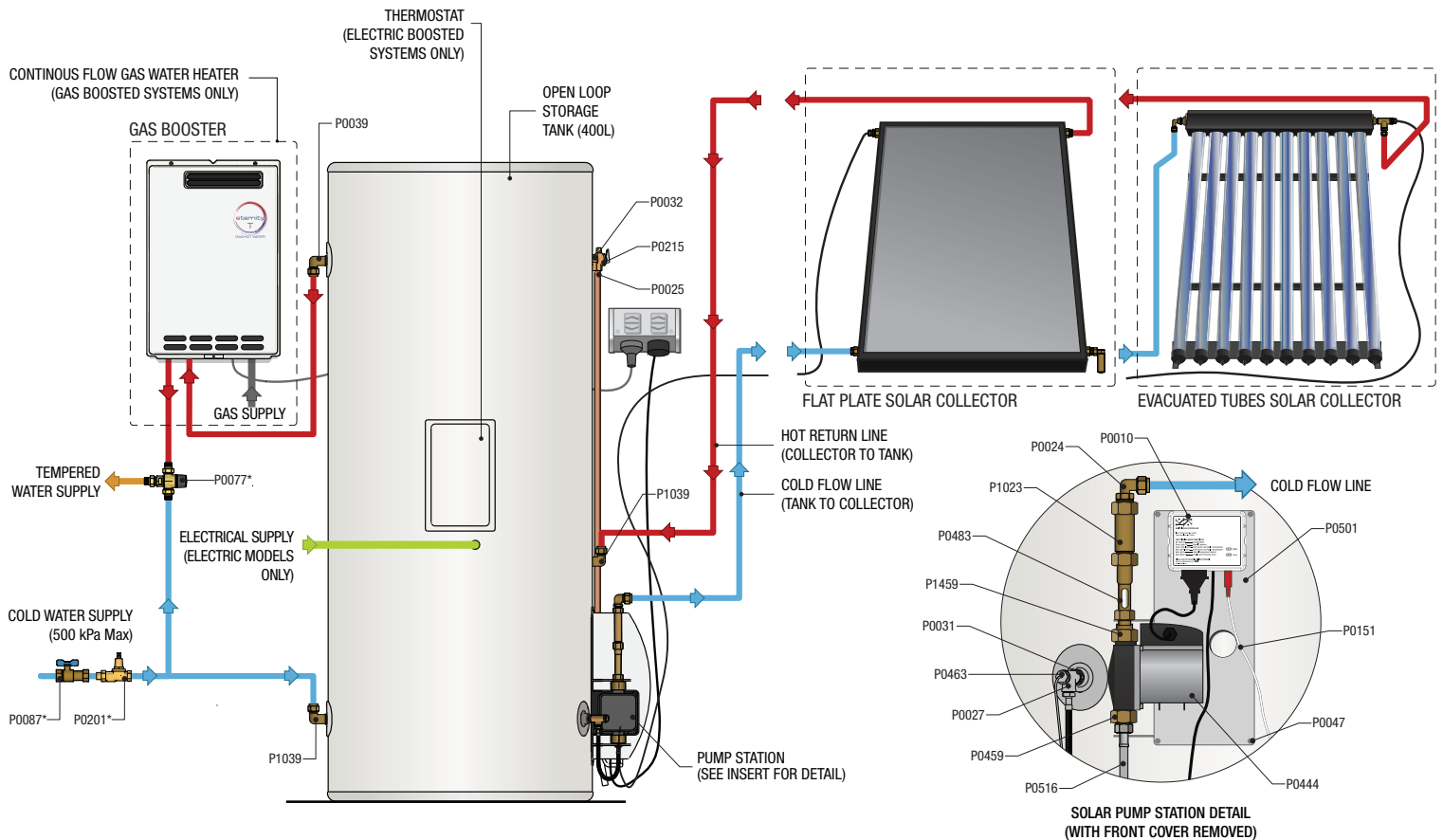


Pumped (Split) Systems: 400 Litre Gas/Electric - Open Loop System

Tank & System Overview



NOTE: System schematic is indicative only

Part Kits & Components

Parts not included in standard kits (* to be supplied by installer):

Part#	Qty Req'd	Component Name
P0087	1	Duo valve
P0201	1	Pressure limiting valve
P0077	1	Tempering valve

Standard components / kits included with the solar thermal collector systems:

400L Gas - Open Loop System	400L Electric - Open Loop System
1 x 400L Tank	1 x 400L Tank
1 x Tank Connecting Kit (K4220)	1 x Tank Connecting Kit (K4220)
1 x Gas Booster	-

Tank Connection Kit (K4220)

Part#	Qty	Component Name
P0010	1	Solar Controller Open Loop
P0024	1	Elbow 15mm MI-Conetite
P0025	1	Union 15mm MI-Conetite
P0027	1	15mm Brass Tee
P0031	1	Hex Nipple 20mm MI - 15mm MI
P0032	1	Reducer 20-15mm Brass Bush
P0039	1	Elbow 20mm MI-15mm Conetite Reducing
P0047	6	Self Tapping Screw
P0151	1	Tank Sensor (Cold)

Connection kit (Continued)

P0215	1	PTR valve
P0444	1	Pump Grundfos 15-20CIL Solar
P0459	1	Pump Union 25mm Suit 15-20CIL (Bottom)
P0463	1	Tank Sensor Probe 15mm
P0483	1	Valve Flow Control AW
P0501	1	Pump Station Housing
P0516	1	Flexihose mm M/F Pump Station
P1023	1	Extension Union - 100mm 15mm MI - 15mm FI
P1039	2	Elbow 20mm MI - 15mm Conetite w/ Non Return
P1459	1	Pump Union 25mm Suit 15-20CIL Non Return (Top)

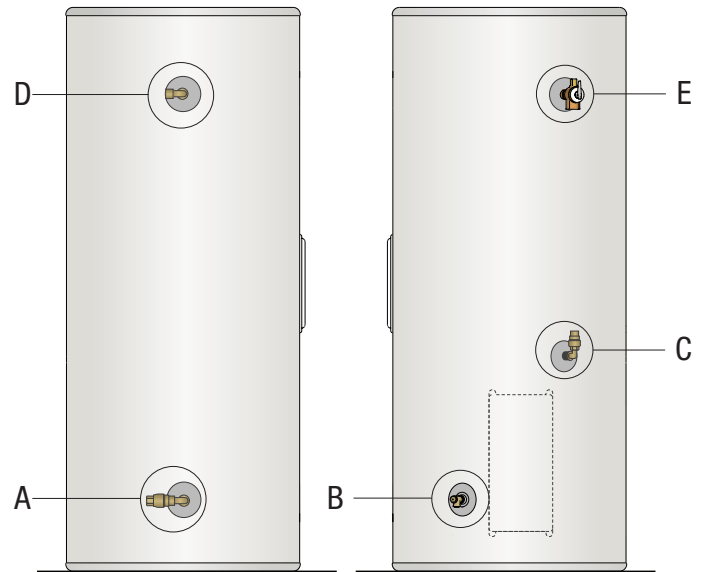
INSTALLATION SHALL CONFORM TO THE PLUMBING CODE OF AUSTRALIA (PCA)

WARNING – THIS APPLIANCE MAY DELIVER WATER AT HIGH TEMPERATURE. REFER TO THE PLUMBING CODE OF AUSTRALIA (PCA), LOCAL REQUIREMENTS AND INSTALLATION INSTRUCTIONS TO DETERMINE IF ADDITIONAL DELIVERY TEMPERATURE CONTROL IS REQUIRED.

Tank Connection Points

IMPORTANT! Due to the high temperatures generated, the use of standard Teflon is unsuitable. Use only a jointing system that is rated for high temperatures i.e. Hemp and TOT thread sealant, High Density Teflon used with Loctite 569 (Hydraulic Sealant), or Loctite 55 pipe sealing cord.

NOTE: The cold water inlet, cold flow and hot return lines require an approved isolating non-return valve. In some locations regulations require a pressure relief valve be fitted to the cold water supply. All hot water pipes must be insulated



Tank Connections Table

The table below indicates all brass fittings & connections required for Tanks

Connection Location	Fit	Image
A: Cold Water Connection	Elbow 20mm MI - 15mm Conetite Non Return	
B: Solar Cold Flow Connection	Hex Nipple 20mm MI - 15mm MI	
	Brass Tee 15mm	
	Flexihose connection	
	Sensor Connector - 15mm MI	
C: Solar Hot Return Connection	Elbow 20mm MI - 15mm Conetite Non Return	
D: Hot outlet Connection	Elbow 20mm MI - 15mm Conetite	
E: PTR Connection	Reducing Bush 20mm MI - 15mm FI	
	PTR valve	
	Union 15mm MI-Conetite	

IMPORTANT! Ensure all connections are tight and leak-free

Solar Hot Water Storage Tank Positioning

To obtain maximum performance the solar storage tank should be positioned as close as possible to the most commonly used outlets. The solar storage tank may be installed:

- Externally on a level concrete / suitable plinth, such as a concrete ripple slab or a Polyslab (Fig 1)
- Internally, provided the following is adhered to:
 - Storage tank must not be installed in the roof space and must be accessible without the use of a ladder or scaffold
 - Must not be installed where property damage could occur as a result of water leakage
 - Must be installed with an approved safe tray, drained in accordance with AS3500.4 and must adhere to any additional local regulations

Tank Plumbing

1. Install all brass fittings using the appropriate jointing methods to each of the tank connectors
2. Connect all plumbing pipes, including the cold inlet, cold flow, hot return, hot outlet and PTR drain as per the system schematic (page 1)

Solar Pump Station Installation (Open Loop)

1. Position the base plate including the pre-assembled solar pump station which includes the solar controller, pump and flow control valve onto the tank to the right of the solar flow outlet connector just below the solar return inlet connector (Fig 2)
2. Ensuring the controller is located at the top and the base plate is plumb, fix the base plate to the tank using 4 x 20mm tek screws provided (Fig 3)
3. Fit the brass plug of the tank sensor fitting & the sensor lead into the brass tee on the solar cold flow tank connector and seal and secure the sensor lead in place (Fig 4)
4. Then plug the other end of the sensor lead into the "Tank" socket under the controller (Fig 6)
5. Connect the flexihose from the pump assembly to the lower connection on the brass tee (Fig 5)
6. Connect the collector sensor wire to the "Panel" socket under the controller (Fig 6)
7. Once tank is filled with water plug the pump power lead into GPO outlet on the base of the controller (Fig 6)
8. Plug the controller power lead into the mains GPO and turn ON
9. If the temperature at the collector is 7°C or greater than the tank, the "Tank" LED light on the controller will illuminate "green" (Fig 6)
10. If the temperature of the collector and tank is equal, no lights will be ON but the system is connected
11. Then fit the pump station cover.

NOTE: The solar controller is rated IP20 and must be protected from environmental exposure with a cover

NOTE: If the power cable is damaged the controller should be replaced, not repaired.

Installing the gas booster (Gas models only)

1. Locate the mounting position for the gas booster (ideally in the closest proximity to the most used hot water outlet of the home)
2. Fix the booster to the wall as per the manufacturer manual
3. Connect up the water inlet line (from the hot outlet of the solar system)
4. Connect up the hot water line to the home
5. Connect up the gas line

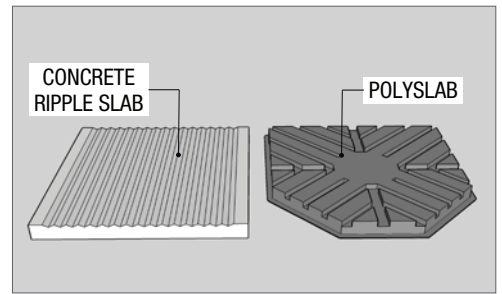


Fig 1

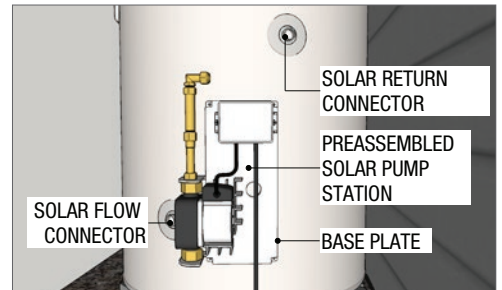


Fig 2

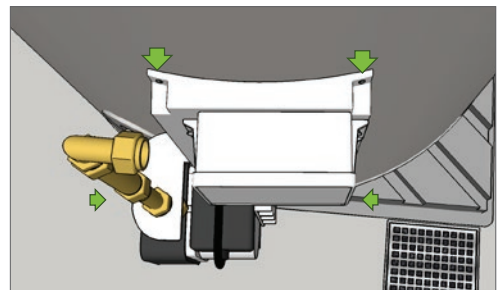


Fig 3

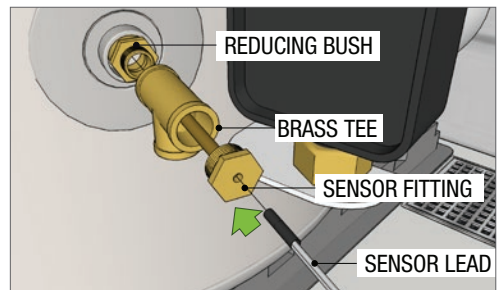


Fig 4

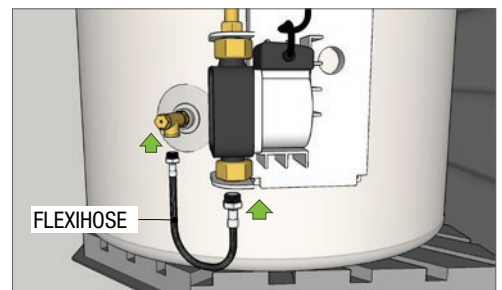


Fig 5

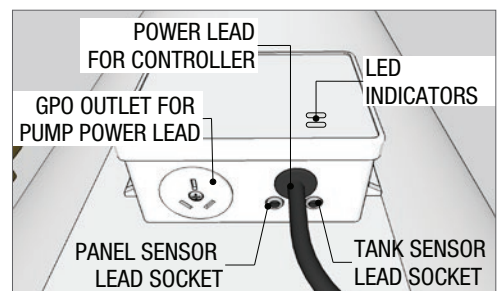


Fig 6

Filling and Commissioning an Open Loop system

Do not turn on the gas booster / electrical element until system is full

Filling the storage tank cylinder & purging air (Fig 7 & 8)

1. Ensure the tank has been positioned properly and the plumbing connections are completed as per the relevant instructions
2. OPEN the mains cold water valve (1) to the tank making sure the pressure / temperature relief (PTR) valve (2) is OPEN
3. When water flows from the PTR valve, CLOSE the PTR valve
4. Draw water through the tank by OPENING a hot water tap in the house and OPENING the cold water supply valve (1) to the tank
5. Wait until water comes out of the hot water tap
6. Leave water running until air is bled (i.e. no more bubbles or spitting) then turn OFF the hot water tap in the house
7. Plug pump power lead into the bottom of the solar controller (3)
8. Plug the solar controller lead into the GPO (4), and switch ON

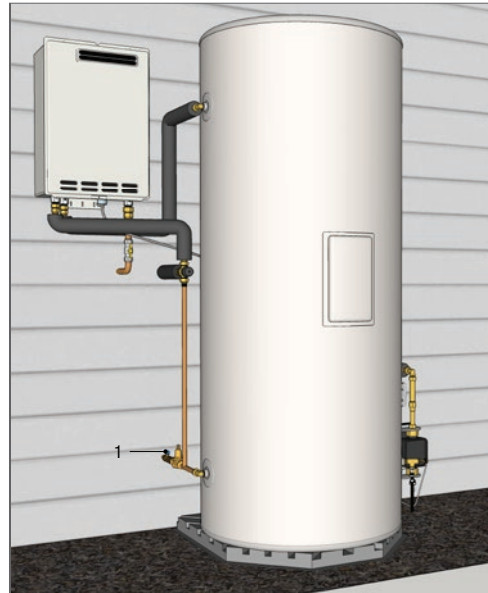


Fig 7

Filling the solar loop & purging the remaining air (Fig 7)

9. Loosen the nut immediately before the non-return valve on the collector return line (5). *Note: Non return valve may be built in or as a separate non return valve (Shown as built in).*
10. Allow water to drip until no further air is detected (i.e. no bubbles)
11. Re-tighten the nut on the non-return valve (5)
12. Check the system for leakage by pressure testing all fittings to a minimum of 800 kPa. If any leaks are detected, rectify them immediately, and then the tank is prepared for use

At time of commissioning the flow meter should be set, when the pump is running, to 0.75 l/min for single panels and 1.75 l/min for 2 - 3 panel systems. The flow rate can be adjusted using the slotted screw at the top of the flow meter with a blade screwdriver (Fig 9)
NOTE: Ball valve must be open to allow flow. Failure to do so may lead to pump failure.

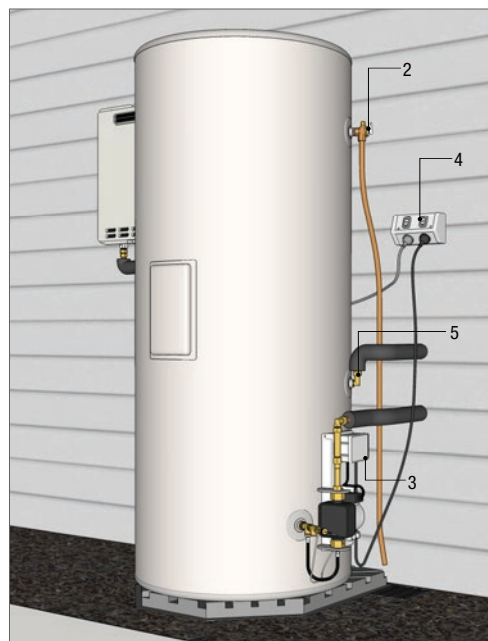


Fig 8

Activating gas booster (Gas models only)

13. Plug in the power lead for the gas booster into the GPO and ensure it is switched ON (Fig 10)
14. OPEN the gas supply valve to the gas booster (Fig 10)
15. Turn ON the hot water tap inside the house to check if the booster is working
16. Test the water temperature to ensure temperature is rising
17. Set the tempering valve as per local authority / regulations

Activating the electric element (Electric models only)

18. Ensure all electrical wiring is properly configured and thermostat is calibrated (*refer to following page for instruction*)
19. Locate the switchboard and check that the hot water electric isolating switch is set to the 'ON' position. (This is usually indicated by the label 'Hot water' or 'Water heater')
20. At the tank location turn the isolating switch to the ON position.

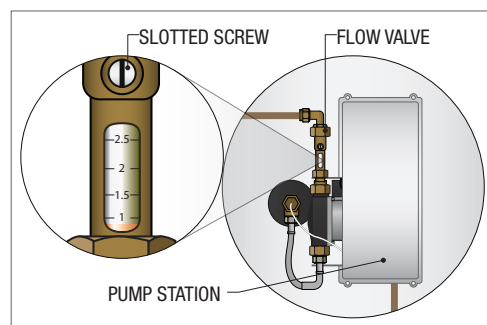


Fig 9

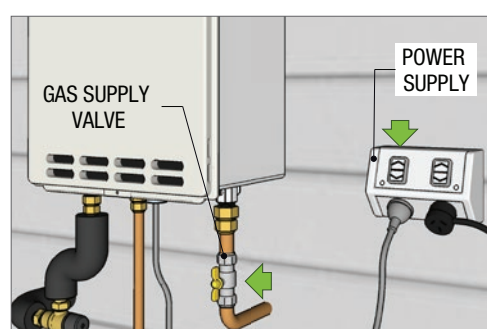
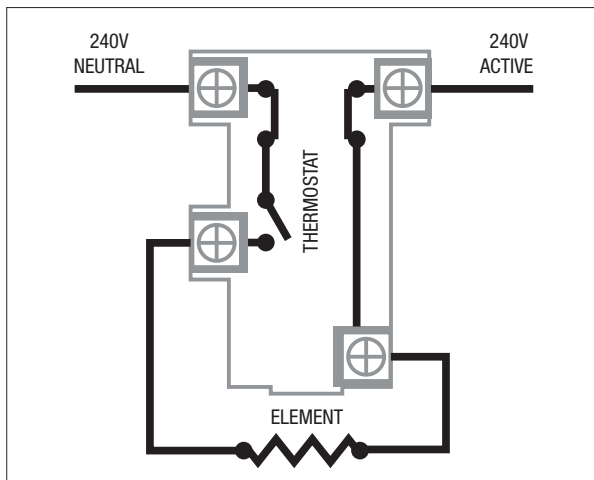


Fig 10

**ELECTRICAL WARNING**

All Electrical Connections must be made by a licensed Electrician



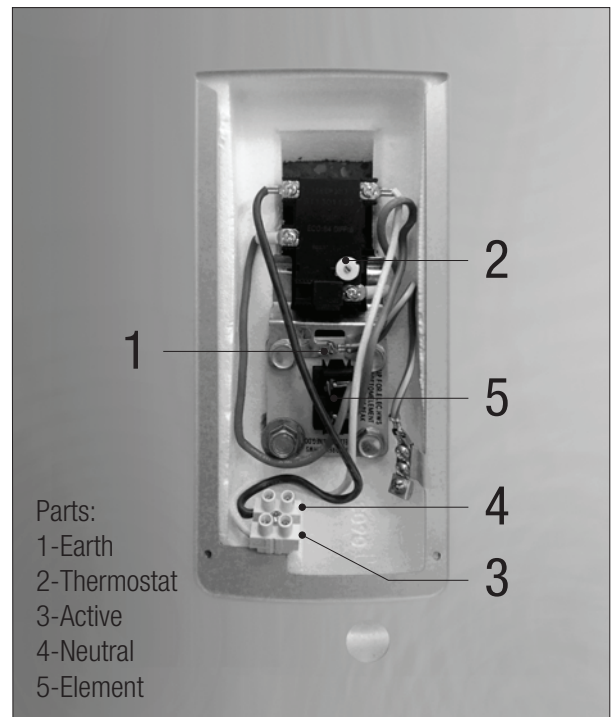
Wiring Schematic (240 VAC Phase 1)

Thermostat Wiring

- Electrically isolate thermostat from mains supply before disconnection. Failure to do so may result in an electric shock
- Wiring penetration should be made through a suitable grommet below the thermostat cover. Ensure cable entry remains water tight
- All wiring must conform to AS3100 and must be performed by a licensed electrical contractor in accordance with all relevant standards
- Ensure all wiring is clear of element terminals to eliminate heat damage to wiring
- Temperature calibration should be tested at time of commissioning

Troubleshooting Tips

- No power to thermostat – check supply with multimeter, check off peak supply is operating correctly and time clock is set correctly
- No power to element – check reset button to right of dial, dial thermostat up until click is heard, measure voltage at element terminals. If no click is heard disconnect thermostat and remove from tank. Change temperature dial on thermostat, click should be heard at approximate air temperature. If not re-calibrate



Tank Electrical Connections
400 Litre Tanks (Side of Tank)

Calibration Instructions

- Check temperature of probe – check as per sensor testing procedure chart using multimeter or take tank temperature from water released at PTR (ensure thermostat is situated in tank)
- Remove housing from thermostat – disconnect all power to thermostat and remove black housing cover from top of thermostat
- Calibrate thermostat – adjust thumbscrew to the middle of where thermostat clicks on and off
- Replace housing – Set temperature dial to temperature of probe and replace housing
- Check calibration – turn dial past position to ensure that thermostat clicks on and off
- Set temperature – set tank temperature to 60-65°C
- Reconnect power – Reconnect power supply to thermostat and reseal cover

Note: All thermostats should be calibrated at time of installation to avoid repeat service calls.



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