

Installer's Guide

IMPORTANT INFORMATION

For an easier installation, please read this document before you begin.
On completion, sign and leave with owner.

Electric Boosted Solar Water Heater

Models:	2F136S	2S136ED
	2F136SD	3S136ED
	3F136S	4S136ED
	3F136SD	
	4F136S	
	4F136SD	

Installation by a licensed tradesperson and in accordance with:

- AS/NZS 3500.4 "National Plumbing & Drainage Code Hot Water Supply Systems – Acceptable Solutions"
- Adherence to local authority and OH&S regulations
- Victorian PIC Requirements

For advice, repairs and service, call:

1300 365 115 (Australia)

0800 729 389 (New Zealand)



Carefully remove all packaging and transit protection from the heater before installation. Dispose of the packaging responsibly using re-cycling facilities where they exist.



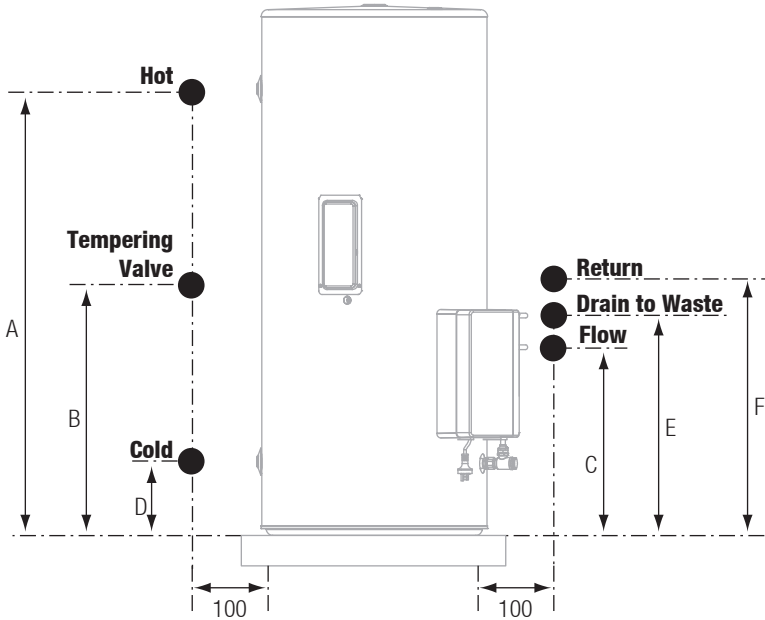
Specifications and materials may change without notice.

Effective for electric boosted solar water heaters manufactured and sold after 1 January 2012.

Installer's Guide

Rough In Diagram	1	Flashing	17
Model Numbers	2	Temperature Sensor	18
Safety Audit	3	Only if installing models	20
Removal of Existing Tank	4	Non Return Valve	21
Placement of New Tank	4	PTR Valve and Drain Down Line	22
Water Connections	5	GPO	23
Pipes – Important Points	6	Tempering Valve	24
Collectors – Alignment and Inclination	8	Commissioning the System	24
Collectors – Important Points	9	Commissioning Checklist	25
Collectors – Attaching to Roof	10	Installation Declaration	26
Collectors – Attaching Fittings	12	Components	27
4 Way Union Assembly	15	Exploded Diagrams	28
Anti-Frost Valve	16		

Rough In Diagram



● Approximate location of pipework. A tolerance of 25mm is acceptable to dimensions shown in table below.

Note: Ensure pipes protrude horizontally from wall, and leave enough length of pipe to allow easy connections.

		250 L	315 L	400 L
	Tank Height	1444	1754	1704
	Overall diameter	617	617	705
A	Hot water outlet	1211	1521	1445
B	Tempered water outlet (mid-way between A and D)	624	779	742
C	Flow to solar collectors	507	507	531
D	Cold water inlet	195	195	219
E	Drain to waste	592	592	616
F	Return from solar collectors	628	838	642

Electric Boosted Solar Installer's Guide

Model Numbers

- Below is a list of model numbers:

Model Number	Capacity (L)	Panel Management
2F136S	250	No
2F136SD	250	Yes
2S136ED	250	Yes
3F136S	315	No
3F136SD	315	Yes
3S136ED	315	Yes
4F136S	400	No
4F136SD	400	Yes
4S136ED	400	Yes

Read This Document First

Step 1

- This *Installer's Guide* and the *Owner's Manual* (also included in the product carton) contain important information about installation and use of this water heater.



Note: For an easier installation, please read this document before you begin.

Installer's Guide

Safety Audit

Step 2

- Arrive at site, park vehicle as close as allowable to installation, and conduct a safety audit, also known as Work Method Statements (WMS) or Job Site Analysis (JSA).
- Prior to working at heights, it is the responsibility of the installer to ensure that all practices are compliant with any relevant OH&S legislation.



Note: Do not commence a job where the risks cannot be controlled.

- Refer to local working at heights regulations. **NSW Ref: “Safe Work on Roofs – Part 2 Residential” Code of Practice 2004, Work Cover NSW.**

Electric Boosted Solar Installer's Guide

Removal of Existing Tank

Step 3

- The existing tank (if applicable) should be drained and removed in a responsible manner.



Note: Do not drain on to grass or garden beds.

Placement of New Tank

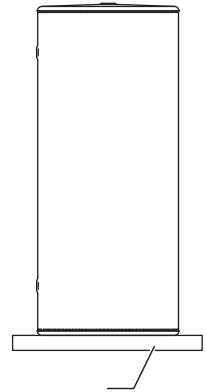
Step 4

- Safely position new storage tank on a level surface in accordance with all plumbing and building regulations.



Note: We recommend a plinth be installed under the water heater where the water heater is subjected to wet conditions.

- Refer to the section called **"Rough In Diagram"** on page 1 for detailed information on position of plumbing.



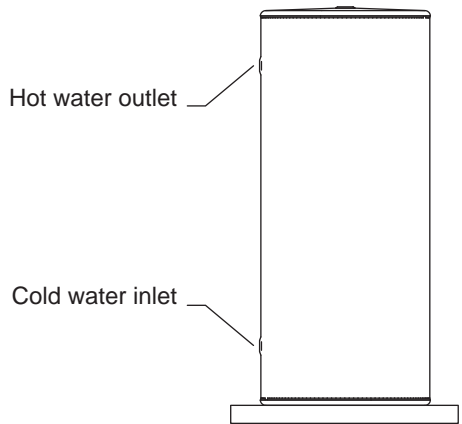
Install a plinth under the water heater where the water heater is subjected to wet conditions

Installer's Guide

Water Connections

Step 5

- Using correct plumbing methods, connect the cold water pipe to the storage tank.
- According to local regulations and the plumbing code, fit any and all valves that are necessary e.g. tempering valves, pressure limiting valves, line strainer, duo valves, cold water expansion valves etc.
- We recommend the use of new valves for all Installation. Refer to plumbing code and/or local requirements.
- The hot water line should be connected to the hot water outlet.



Installer's Guide

Pipes – Important Points

Step 6



Critical: Due to the high temperature imposed by solar heated water, all solar system pipes and fittings must be DR brass and copper, including collector compression fittings (as supplied). No plastic pipes or fittings.

- Flow and return lines must be installed as direct as possible between tank and collector.
- Pipes **must be fully insulated** with UV stabilized insulation suitable for solar working temperatures. We recommend Armaflex DuoSolar / Solar insulation, minimum 13mm thick (refer to local regulations).

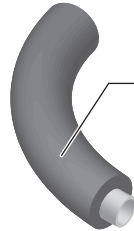


Note: Warranty will be void if this minimum insulation requirement is not used.

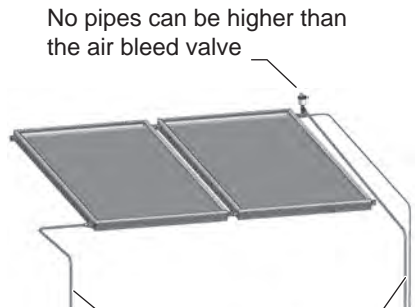
- It is **critical** to stop any chance of an air lock developing, so ensure that:
 - no pipework is higher than the automatic air vent valve



Pipes must be DR brass and copper. Refer to AS/NZS 3500.4.



Pipes must be fully insulated with UV stabilized insulation suitable for solar working temperatures, minimum 13mm thick (refer to local regulations)

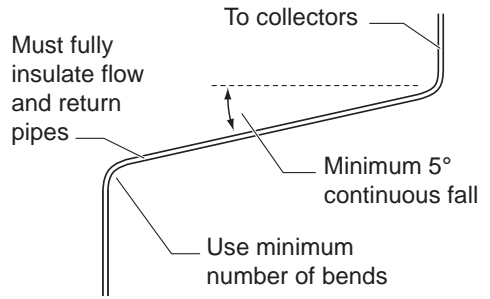


No pipes can be higher than the air bleed valve

Pipes must have no high points that allow air to be trapped

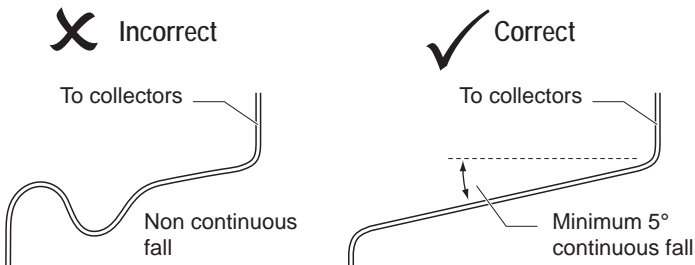
Electric Boosted Solar Installer's Guide

- flow and return pipes from the solar collectors to the water storage tank have a minimum of 5° continuous fall
- pipes have no high points that allow air to be trapped
- the minimum number of bends in the pipes are used.
- Flow and return lines should be neatly installed and hidden inside the roof cavity if possible.
- Take care when running flow and return lines through the roof, cladding and the eaves.



Note: Where roof and the eaves are made from asbestos, specialised handling and advice is necessary.

Ensure flow and return pipes from the solar collectors to the water storage tank have a minimum of 5° continuous fall



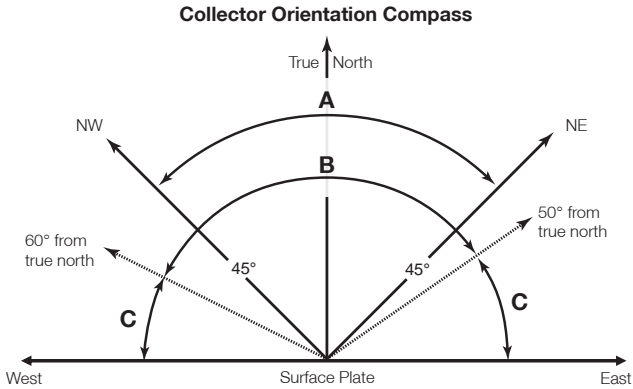
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Collectors – Alignment and Inclination

Step 7

Solar Collector Alignment

- For the most efficient solar gain, the collectors must be aligned $\pm 45^\circ$ from true north (i.e. north west to north east). See **Collector Orientation Compass** below.

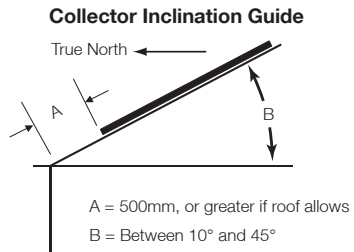


- A. Preferred range
- B. Complies with the Victorian Plumbing regulations when installed with two panels
- C.1. If A and B are not practical, an additional collector can be installed at the home owner's discretion in range C.
- C.2. Complies with the Victorian Plumbing regulations when installed with three panels.

Note: When establishing the correct Collector Orientation, please account for the Magnetic Declination of your geographic location

Solar Collector Inclination

- For the most efficient solar gain, the collectors must be inclined within 10° to 45° from horizontal. See **Collector Inclination Guide** right.



Installer's Guide

Collectors – Important Points

Step 8

- Inspect fittings after collectors are pressurized with water.



Critical: Fittings must be as tight as possible.



Warning: Only pressurize the the collectors for inspection and de-pressurize them immediately after inspection.



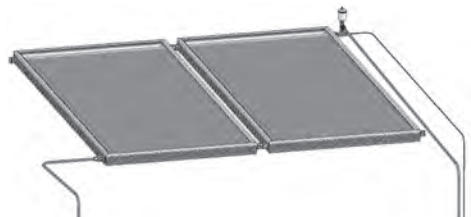
Critical: Do not leave collectors pressurised for longer than 24 hours.

- To prevent damage, collectors should be left pressurised **only** when connected to the storage tank with appropriate pressure relief valves.
- Collectors can be located a maximum of 20 metres (with minimal bends) from the storage tank if pipe layout is simple.



Note: For more energy efficiency, locate the collectors as close as possible to the tank

- This system is suitable for 2 storey homes.



Installer's Guide

Collectors - Attaching to Roof

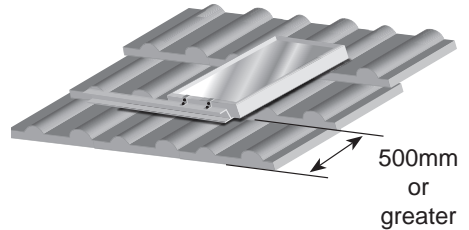
Step 9

For Both Metal and Tiled Roofs

- Locate the lower mounting rail a minimum of 500mm distance from the gutter, or greater if roof allows.



Note: Ensure that the rail is parallel with the gutter.



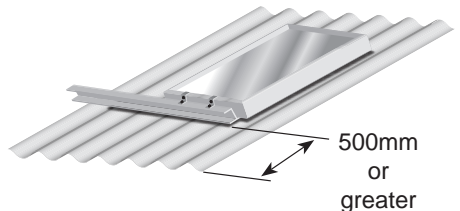
Step 10

For Metal Roofs Only

- Fix roofing screws through the mounting straps on both sides, using rubber grommets to prevent corrosion.



Note: A minimum of 3 roofing screws of 40mm length must be used to fix the collector strap to the truss.



- Ensure that the rail is parallel with the gutter.

Electric Boosted Solar Installer's Guide

For Tiled Roofs Only

- Carefully remove a roof tile and locate the nearest roof truss.
- Attach the first (2 per mounting rail) stainless steel collector strap to the mounting rail.
- Shape the collector strap over the tile and position over the roof truss.



Note: A minimum of 3 roofing screws of 40mm length must be used to fix the collector strap to the truss.

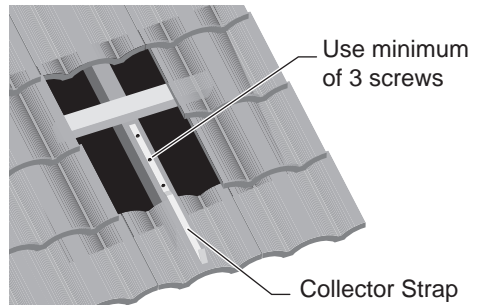
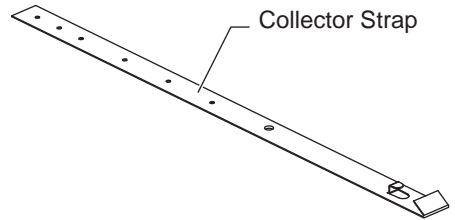
- Ensure collector strap is located on truss vertically.
- Repeat this process for the collector strap at the other end of the mounting rail.

Step 11

- Once the bottom rail has been secured, the collector can now be lifted on to the roof.



Note: Ensure this is done with full consideration to OH&S regulations. Care should be taken.




Installer's Guide


Collectors – Attaching Fittings

Step 12

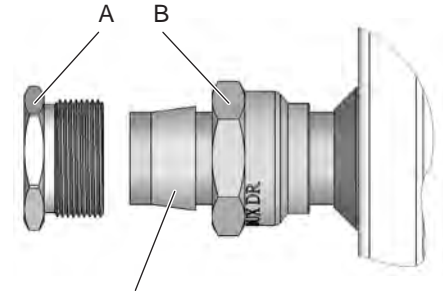
All connections must be brass and all pipe work must be copper

- Ensure fitting is fully engaged on to the header pipe. This is very important for correct connection.
- To ensure leak proof installation, hold fitting A (see illustration in margin) while tightening nut B to prevent twisting the header pipe.

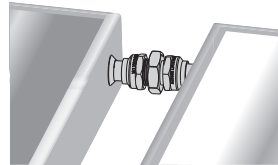
 **Critical: Do not use multi grips or similar tool, as you will damage the brass fittings. Ensure you use the correct size spanner.**

 **Critical: The fitting must be as tight as possible on the barrel union to prevent the fitting coming loose.**

Hold fitting A while tightening nut B to prevent twisting the header pipe



Ensure the brass conetite compression fitting is installed in the correct direction



Electric Boosted Solar Installer's Guide

Step 13

- Secure the collectors to the mounting rail with the Z brackets, screws, nuts and bolts provided with the water heater.

Step 14

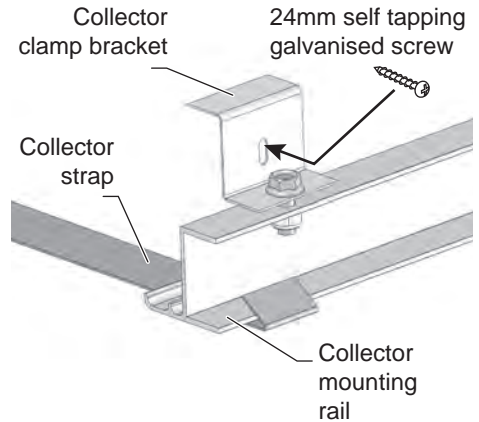
- Repeat the process for the second collector.



Note: Ensure this is done with full consideration to OH&S regulations. Care should be taken.

Step 15

- Now position the top mounting rail and repeat the above steps for that rail.
- Join the top connections with the brass compression fittings supplied.



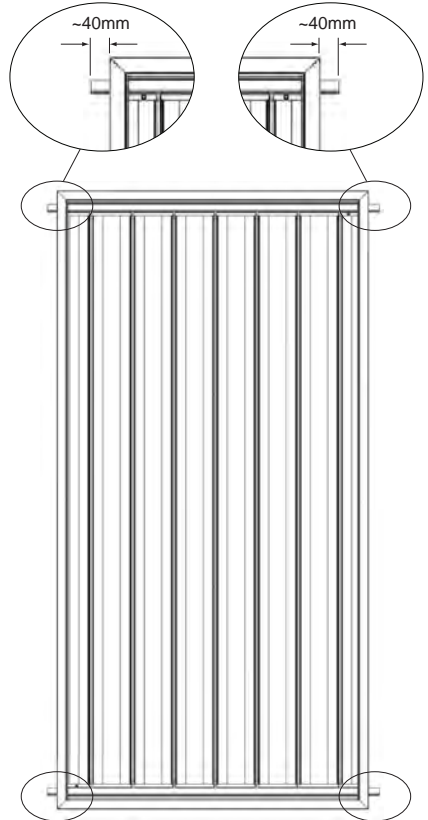
Installer's Guide

Step 16

- Connect collector flow and return pipes to the collectors.
- Ensure that you connect the solar flow (cold) and solar return (hot) pipes to the correct connections:
 - the solar flow (cold) pipe connects to the **bottom** of the collectors
 - the solar return (hot) pipe connects to the **top** of the collectors, diagonally opposite to the solar cold pipe connection.
- We suggest when you install pipes through roof, that you consider colour coding the pipe ends to show flow and return.



Critical: During connection, the header pipe can move in the collectors. It is critical that the header pipe is centred to provide about 40mm of tube on both sides of the collector.



Electric Boosted Solar Installer's Guide

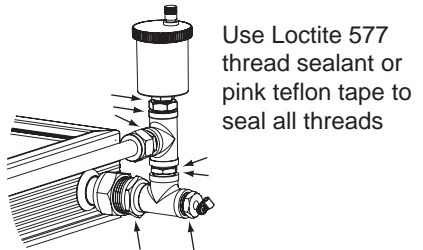
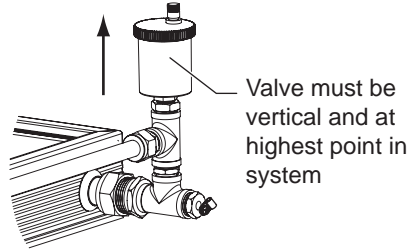
4 Way Union Assembly

Step 17

- Using correct plumbing methods, install the 4 Way Union assembly and air bleed valve at the **highest point in the system**, at the top of the collector diagonally opposite the solar collector inlet pipe.
- The air bleed valve **must stand vertically** straight towards the sky.

 **Note: If installed in top left/
bottom right of collector, then
T should be reversed.**

- When fitting the 4 Way Union assembly, we recommend Loctite 577 Thread sealant and/or a good quality pink teflon tape to secure the air bleed valve. Tighten by hand. **Do not use spanner.**



Electric Boosted Solar Installer's Guide

Anti-Frost Valve

Step 18

- Consult the table right to determine if your system needs an anti-frost valve.
- If your model does require frost protection, you **must** install an anti-frost valve.
- However, **TWO** anti-frost valves must be installed if you live in alpine areas or areas subject to extreme frost, such as the ACT and Snowy Mountain regions.
- The anti-frost valve comes in kit form and must be ordered separately.

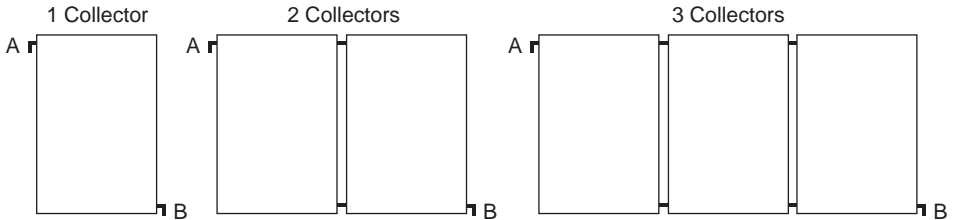
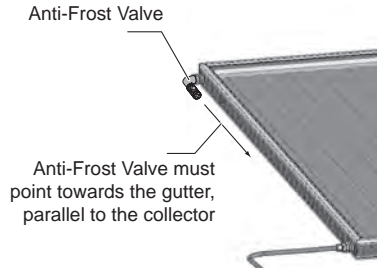
Tank Model	Anti-Frost Valve Needed?
2F136S	Yes
2F136SD	No
2S136ED	No
3F136S	Yes
3F136SD	No
3S136ED	No
4F136S	Yes
4F136SD	No
4S136ED	No

Frost Protection Installation Map



Installer's Guide

- Connect the anti-frost valve to the top collector connection, on the opposite collector to where the thermowell/air bleed valve is installed.
- Ensure the valve is pointing down the collector towards the gutter, parallel to the collector.

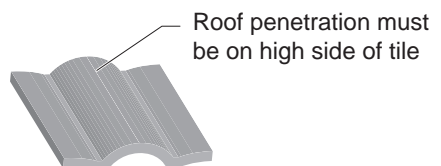
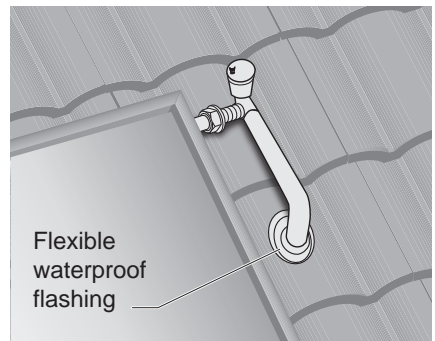


A - Normal position of anti-frost valve (if required)
B - Position of second anti-frost valve (if required)

Flashing

Step 19

- As per local authority regulations, use an approved method of flashing on the flow and return lines, e.g. Dektite or lead collars.
- Where flow and return lines penetrate the roof surface, the penetration must occur on the high side of the roof profile, not in the valley.
- Seal the roof penetration with a flexible waterproof flashing. We recommend the use of the appropriate Dektite brand solar flashing (available for either tile or steel roofs).



Installer's Guide

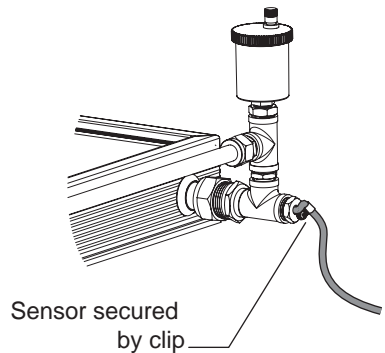
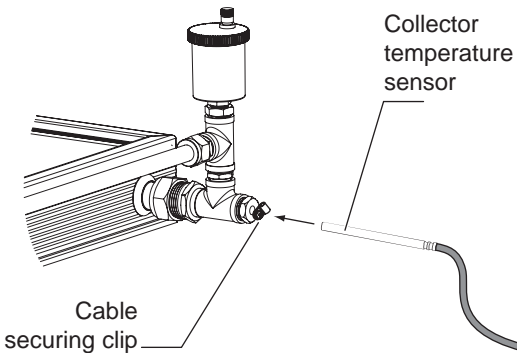
Temperature Sensor

Step 20

- Insert the end of the collector temperature sensor (supplied in collector rail kit) into the sensor dry well.
- The sensor must be **fully** inserted and touch the end of the thermowell.
- Firmly secure the sensor cable using the cable securing clip.



Warning: Extreme care must be taken to not damage the sensor by pulling on collector temperature sensor.



Warning: Install the sensor cable such that it does not touch the roofing material surface.



Warning: The collector sensor cable is a silicon rubber that may require additional conduit protection in extreme UV radiation conditions.



Warning: Conceal all temperature sensor cables in the roof cavity so that they are not exposed to sunlight or heat.

Electric Boosted Solar Installer's Guide

Step 21

Only if installing models

**2F136SD, 2S136ED
3F136SD, 3S136ED
4F136SD, 4S136ED**

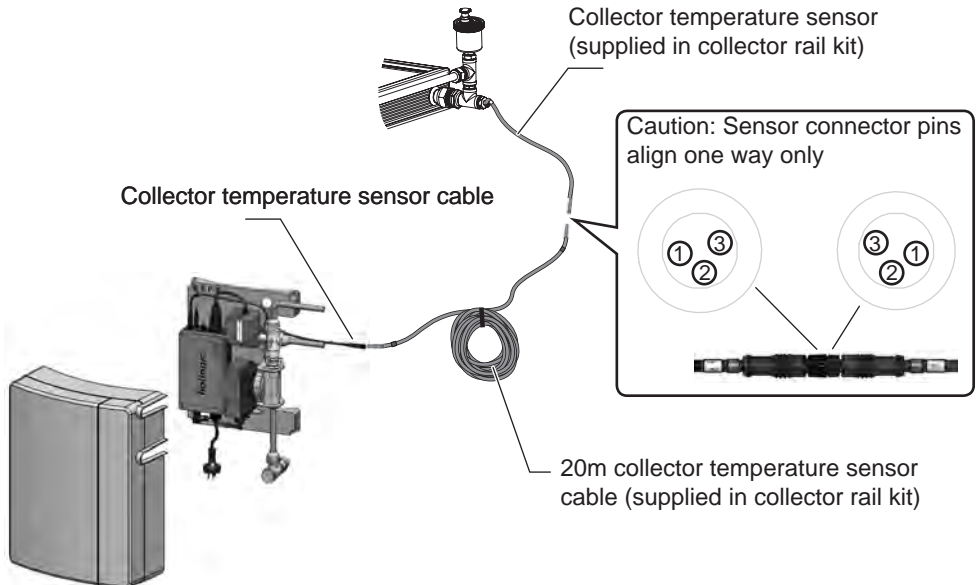
- Align the pin positions carefully and press home the collector temperature sensor into the 20 metre collector temperature sensor cable.
- Secure the connection by tightening the thumb screws.



Warning: If the collector temperature sensor cable is exposed to atmosphere, you must insulate the cable from UV radiation damage.



Warning: Sensor connector pins align one way only. When attaching sensors, carefully align the connector pins with the correct holes, taking care not to bend or damage them.



Electric Boosted Solar Installer's Guide

Only if installing models

2F136S

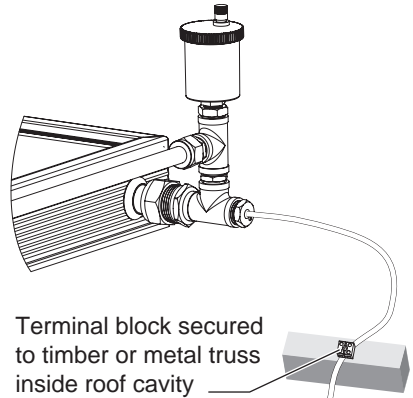
3F136S

4F136S

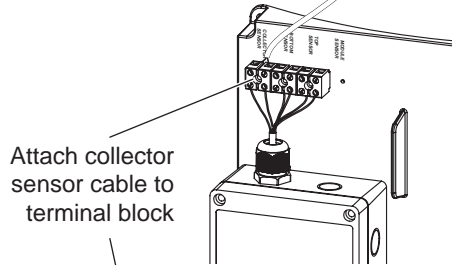
- Connect collector sensor cable to a terminal block secured to the timber or metal truss inside the roof cavity.
- If the terminal block cannot be located within the roof space, it must be enclosed within a waterproof junction box. **Do not leave exposed.**
- Do **not** run collector sensor cable in contact with the copper pipes as it may melt and cause signal interference.
- Connect collector sensor cable to terminal block labelled "Collector Sensor" as shown in diagram.
- There is no polarity for which collector sensor cable goes into which terminal block connection.



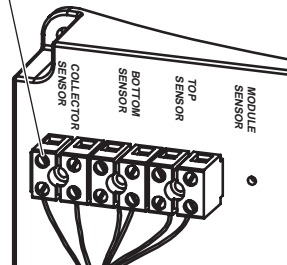
Warning: If sensor cable is on top of a steel roof, the heat produced from the roof may cause the sensor wire to melt and cause signal interference or failure.



Terminal block secured to timber or metal truss inside roof cavity



Attach collector sensor cable to terminal block

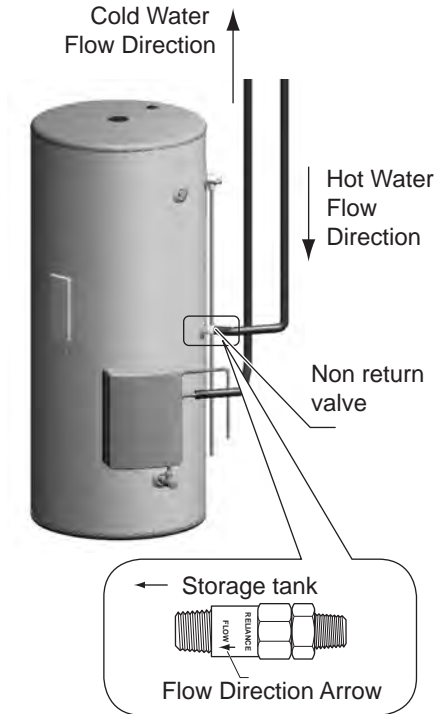


Electric Boosted Solar Installer's Guide

Non Return Valve

Step 22

- A non return valve is included with this water heater.
- We recommend fitting the non return valve at the solar return pipe connection.
- Ensure the non return valve is installed so that the flow direction arrow faces the storage tank.
- All pipe work must be insulated.

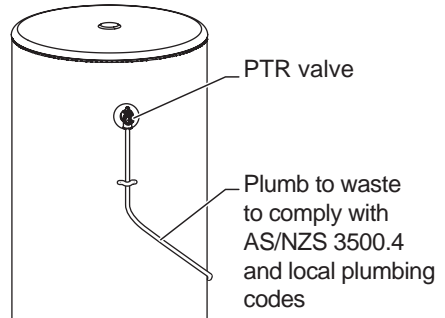



Installer's Guide


PTR Valve and Drain Down Line

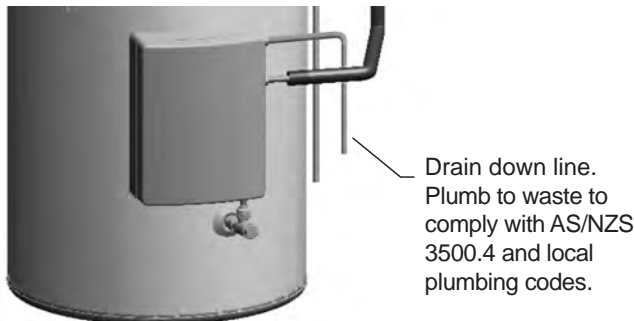
Step 23

- Connect the PTR valve and plumb to waste to comply with AS/NZS 3500.4 and local plumbing codes.
- The pipe from the PTR valve **must**:
 - be easily seen
 - pose no risk of damage to the building or injury to persons.
- Plumb the drain down line to waste to comply with AS/NZS 3500.4 and local plumbing codes. This line **must not** be connected to the the PTR drain line.



 **Warning: Extreme care should be taken as this drain down line may discharge very hot water once the system is operating. It must be safely plumbed to waste as per AS/NZS 3500.4 and local plumbing codes.**

 **Warning: The point of discharge from each drain line shall be located so that the release of steam or hot water does not cause a nuisance, is readily discernible and incurs no risk of damage to the building or injury to persons.**




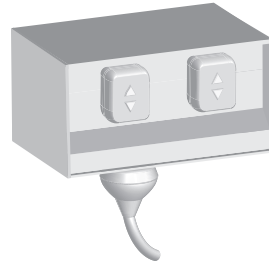
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GPO

Step 24

- Install a Weatherproof GPO for the system.
- This water heater requires the following electrical connections:
 1. **Solar Pump Module** – CONTINUOUS TARIFF must be used.
 2. **Supplementary Electrical Boost Element** (3.6kW) – Off Peak recommended, single phase 240V A.C. supply. A 15 amp power supply is needed.
- Separate continuous electrical power must be supplied to the Hotlogic controller. This ensures the protection features are enabled.

 **Warning: Power cables should be routed away from any hot water pipes. If this is not practical, insulate the hot water pipes to avoid direct contact with the power cables.**



Note: This water heater is designed to allow the tank boost to be connected to continuous or off peak power supply. Large daytime users of hot water that exceed the capacity of the off peak boost option should connect to continuous supply.

Installer's Guide

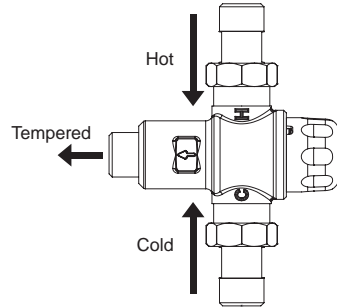
Tempering Valve

Step 25

- Fit the solar tempering valve that is included with this water heater.



Note: Any adjustment to the valve should be made according to the valve manufacturer's recommendations.



Commissioning the System

Step 26

- When the power is turned on, the Hotlogic will go through initialisation: Sensors (red) and Power (green) status lights will alternate for 4 seconds.
- After the initialisation, if there are no red status lights visible on Hotlogic, the system is functioning normally.
- If there are any red status lights visible, refer to the *Owner's Manual* for a full list and description of possible errors.

Commissioning Checklist

Tick	Task	See Step No.
<input type="checkbox"/>	Installer's Guide read	1
<input type="checkbox"/>	Safety audit conducted	2
<input type="checkbox"/>	Existing tank removed	3
<input type="checkbox"/>	New storage tank safely positioned on a level surface	4
<input type="checkbox"/>	Cold and hot water pipes connected	5
<input type="checkbox"/>	Collectors aligned and attached to roof	6 – 11
<input type="checkbox"/>	Fittings attached to collectors	12 – 16
<input type="checkbox"/>	4 Way Union Assembly fitted	17
<input type="checkbox"/>	Anti-Frost Valve fitted	18
<input type="checkbox"/>	Roof penetration sealed with a flexible waterproof flashing	19
<input type="checkbox"/>	Temperature sensor installed	20 – 21
<input type="checkbox"/>	Non return valve fitted	22
<input type="checkbox"/>	PTR valve fitted	23
<input type="checkbox"/>	GPO installed	24
<input type="checkbox"/>	Tempering valve fitted	25
<input type="checkbox"/>	Commissioning the water heater	26

Installation Declaration

Location of Installation:
.....
.....

Tank Serial Number:

Tank Model Number:

Date Installed:

Terms and conditions of warranty will apply only if the below is signed by the installer. This notifies the manufacturer that all the requirements of proper installation have been carried out by the installer in accordance with the Installer's Guide, Owner's Manual, and any other documentation supplied with the water heater.

Upon completion of installation, this document **must** be given to the home owner in its entirety. When required by the manufacturer, the home owner will provide this document as evidence that the installation of the water heater was carried out in accordance with installation requirements.

Declaration

I have installed the water heater in accordance with the above instructions. If the instructions have not been followed then I understand that the terms and conditions of warranty will be void.

Name:

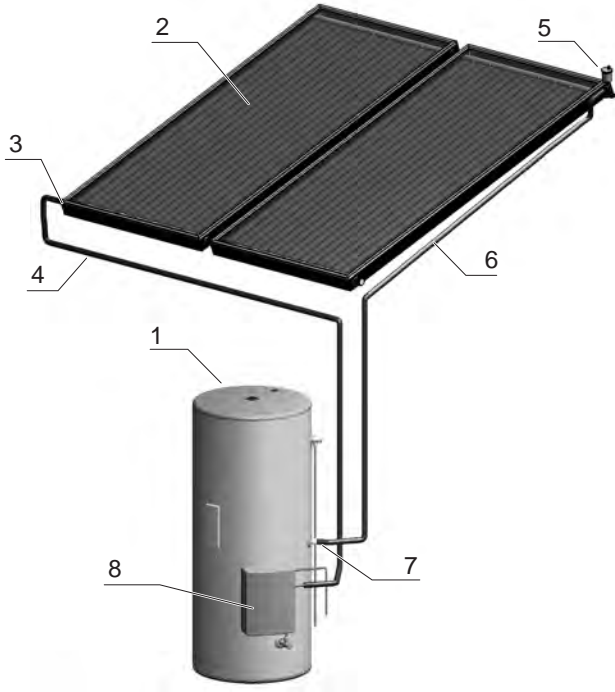
Signed:

Company:

Plumber's Licence Number:

Date:

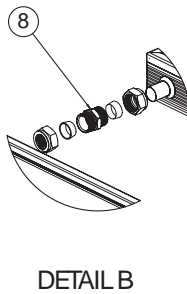
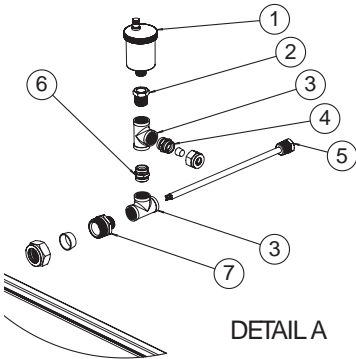
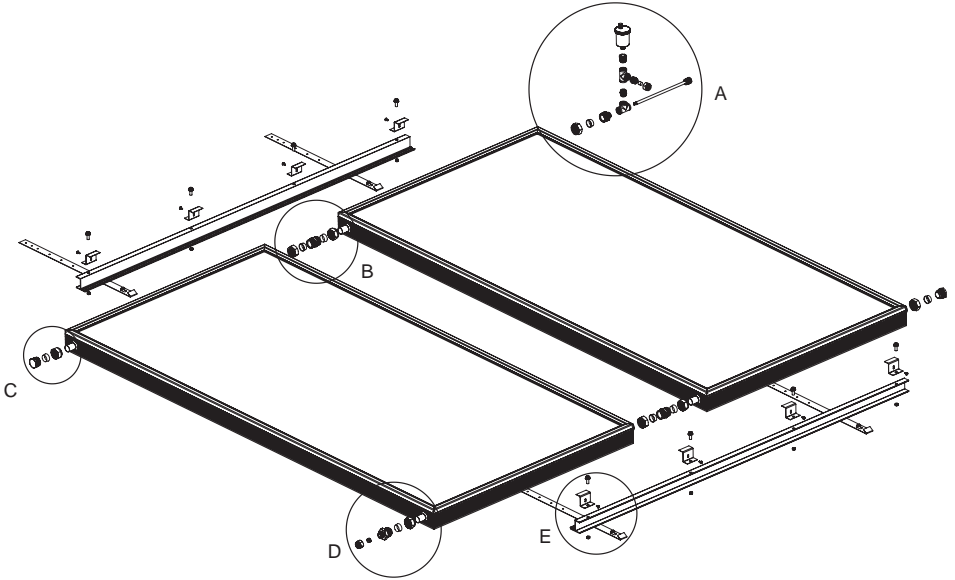
Electric Boosted Solar Components



System Components

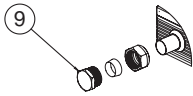
- 1 Solar electric tank assembly
- 2 Solar collector
- 3 Solar collector flow connection
- 4 Solar collector flow pipe
- 5 Automatic air vent valve
- 6 Solar collector return pipe
- 7 Non return valve
- 8 Solar module

Exploded Diagrams

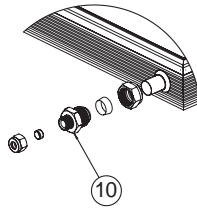


System Components	
1	Automatic air vent valve
2	Bush
3	15mm female tee
4	Union 15mm M × 15mm C
5	Sensor dry well
6	Hex nipple
7	Union 1" C × ½" M
8	Union conetite

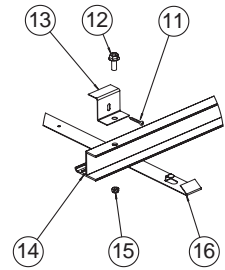
Exploded Diagrams



DETAIL C
SCALE 1 : 10



DETAIL D



DETAIL E

System Components	
9	End stop 1" conetite
10	Union 1" C x 1/2" C
11	24mm galvanised screw, self tapping
12	Bolt
13	Bracket - clamp
14	Solar heater rail
15	Nut
16	Collector strap

Electric Boosted Solar
Installer's Guide