



Installer's Guide

IMPORTANT INFORMATION

Read This Document First

On completion, sign and leave with owner

sunpro[®]

Pre Boosted Gas Solar Water Heater MP15

Models: DN15DS
DL15DS

Installation only by a licensed tradesperson and in accordance with:

- AS/NZS 3500.4 "National Plumbing & Drainage Code Hot Water Supply Systems – Acceptable Solutions"
- AS5601/AG601 Gas Installation
- 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 Sunpro gas boosted solar water heaters manufactured and sold after 1 April 2011.



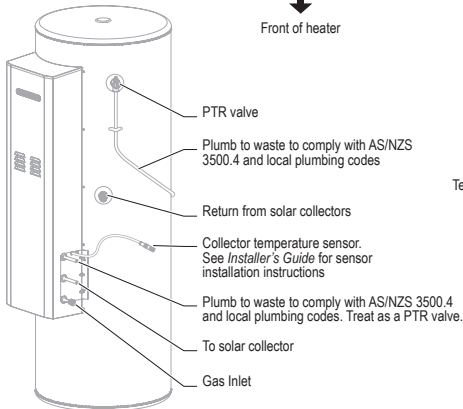
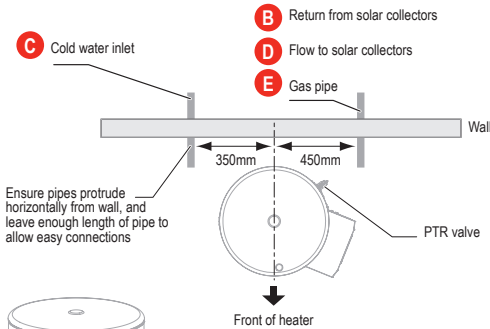
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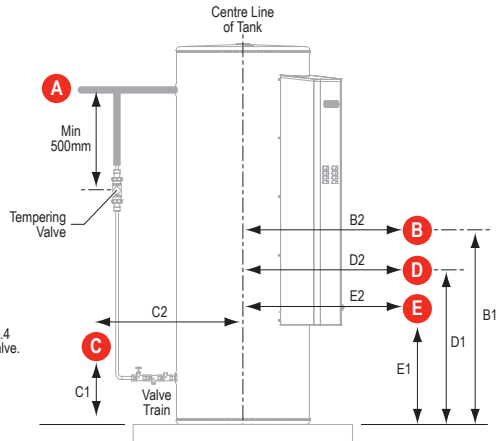
Pre Boosted Gas Solar Water Heater MP15

Rough In Diagram



Notes

1. All pipe work must comply with AS/NZS 3500.4.
2. All solar system pipes must be ½" copper.
3. Pipes must be fully insulated with UV stabilized insulation suitable for solar working temperatures, e.g. Armaflex DuoSolar / Solar insulation.
4. Pipes from the solar collectors to the water storage tank must have a minimum of 5° continuous fall, to allow the water to easily drain out of the pipes.
5. A solar non return valve is supplied, and **MUST** be fitted to the return from the collectors, as per the supplied Installer's Guide.



Approximate location of pipework (rounded to the nearest 10mm). A tolerance of 25mm is acceptable to dimensions shown in table.

		DN15DS, DL15DS
	Capacity	324 L
	Tank Height	1754
	Overall diameter	617
A	Untempered hot water outlet from top of fireproof slab	1541
B	Return from solar collectors from top of fireproof slab	B1 1013
	Return from solar collectors from centre line of tank	B2 450
C	Cold water inlet from top of fireproof slab	C1 215
	Cold water inlet from centre line of tank (allowing space for valve train)	C2 350
D	Flow to solar collectors from top of fireproof slab	D1 640
	Flow to solar collectors from centre line of tank	D2 450
E	Gas entry from top of fireproof slab	E1 540
	Gas entry from side of tank	E2 450



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Parts Included With The Water Heater

- Inside the water heater's carton is a box containing the following parts required to complete installation:

Description	Part No.
DN15 (1/2") Y LINE STRAINER	H4323
VALVE – SOLAR NON RETURN SNR502	H4508
VALVE – MIX SOLAR 1/2" (MIX11116)	H3566
PT VALVE 1/2" – HT55 1000kPa	H0443
OWNER'S MANUAL	H4096
INSTALLER'S GUIDE	H4099

Model Numbers

- Below is a list of model numbers and their descriptions:

Model No.	Description
DN15DS	315 Litre, 45 MJ/h, Natural Gas
DL15DS	315 Litre, 45 MJ/h, LPG



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Read This Document First

Step 1

- This *Installer's Guide* and the *Owner's Manual* contain important information about installation and use of this water heater.



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

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.**



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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.

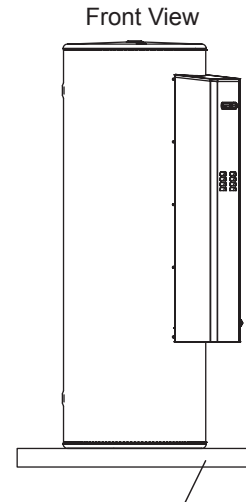
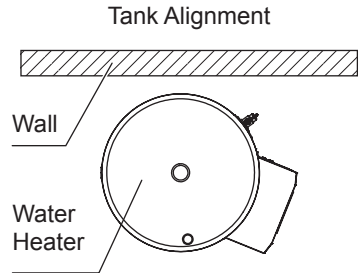


Note: We recommend a plinth be installed under the water heater where the water heater is subjected to wet conditions

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



Note: Certain locations are prohibited areas for flue terminals. Refer to the section called “Flue Clearances” on page 29 for detailed information on the flue clearances required by AS 5601 Gas Installations.



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

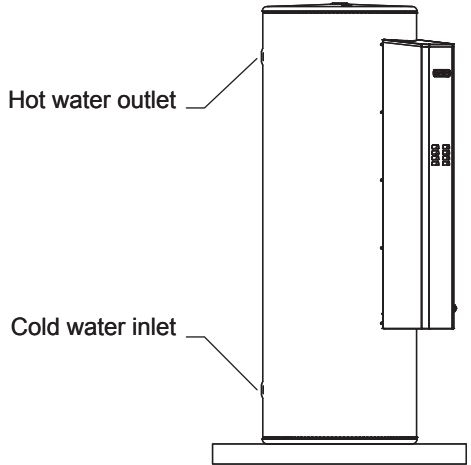


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Water Connections

Step 5

- Using correct plumbing methods, connect the cold water pipe to the storage tank.
- It is **mandatory** to fit the following items between the supply main and the RP $\frac{3}{4}$ "/20mm socket in the water heater: an isolating valve, a non return valve, a line strainer, a union.
- All fittings must be approved by the relevant Authority and in accordance to the plumbing code.
- 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.



Pipes – Important Points

Step 6



Note: 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 DR brass and copper. Refer to AS/NZS 3500.4.



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- Pipes **must be fully insulated** with UV stabilized insulation suitable for solar working temperatures. We recommend Armaflex DuoSolar / Solar insulation, minimum 13mm thick (or as per local regulations).

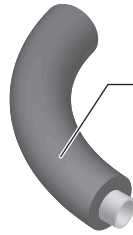


Note: Warranty will be void if this minimum insulation requirement is not used.

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



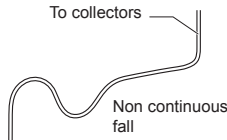
Note: Where roof and the eaves are made from asbestos, specialised handling and advice is necessary.



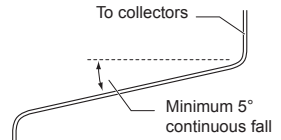
Pipes must be fully insulated with UV stabilized insulation suitable for solar working temperatures, minimum 13mm thick (refer to local regulations)

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

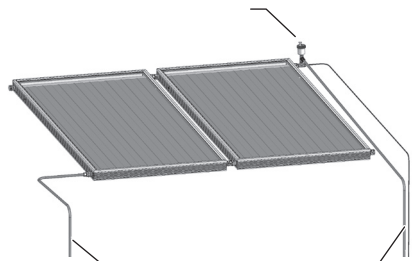
Incorrect



Correct



No pipes can be higher than the automatic air vent valve



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



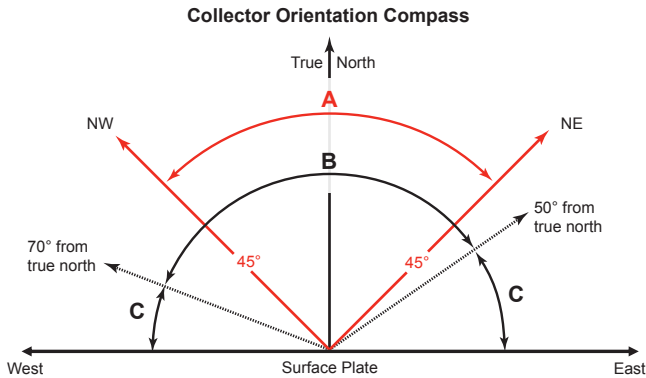
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Collectors – Alignment and Inclination

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.

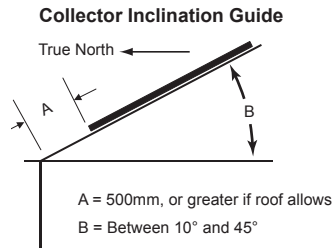


- A. Dux preferred range
- B. Industry accepted range
- C. If orientations A or B are not practical, an additional collector can be installed at the home owner's discretion in range C (not required north of Tropic of Capricorn)

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.





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Collectors – Important Points

Step 8

- Inspect fittings after collectors are pressurized with water.



Critical: Fittings must be as tight as possible.

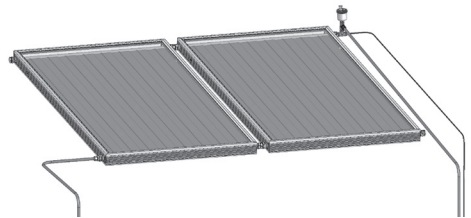


Warning: Only pressurize the the collectors for inspection and de-pressurize them immediately after inspection.



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.



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Collectors - Attaching to Roof

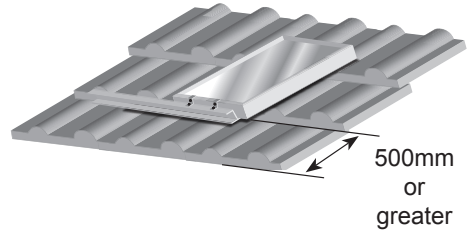
Step 9

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.



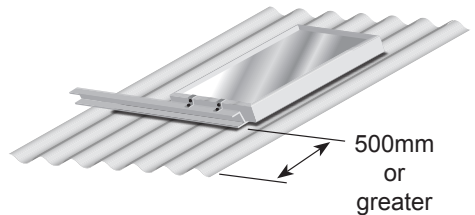
Step 10

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.



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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.

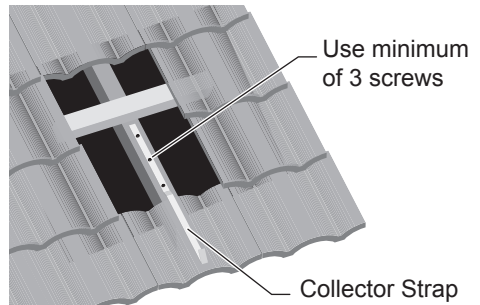
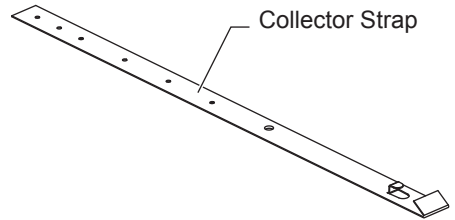
- Ensure collector strap is located on truss vertically.
- Repeat this process for the collector strap at the other end of the mounting rail.

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.





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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.



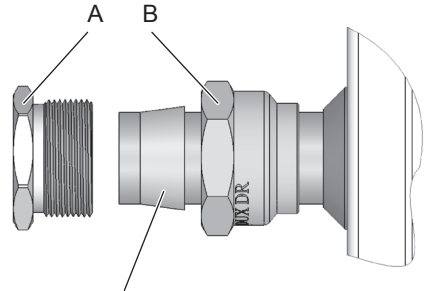
Critical: Do not use multi grips or similar tool, as you will damage the brass fittings. Ensure you use the correct size spanner.



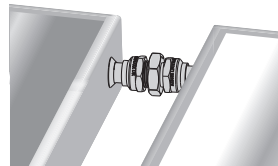
Critical: This is a compression fitting, and therefore must be tightened to operate correctly.

- Blank off any unused collector header piping with the fittings provided.

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





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Step 13

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

Step 14

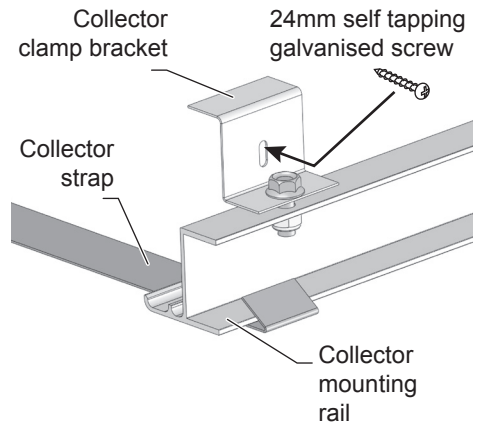
- Repeat the process for the second collector.



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.





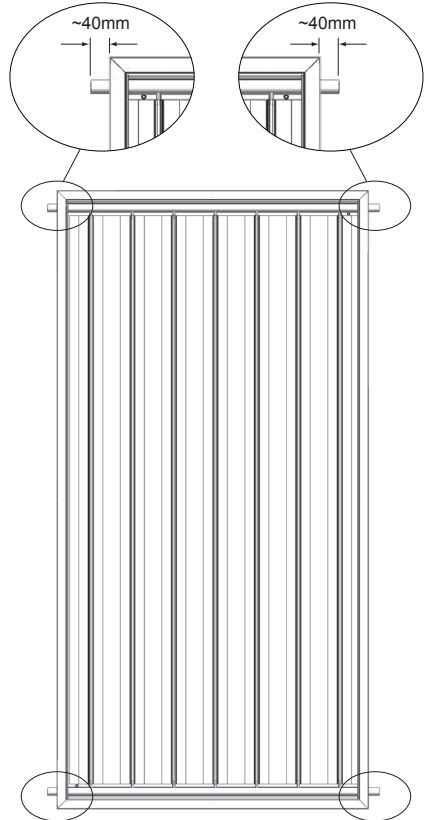
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Step 16

- 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.



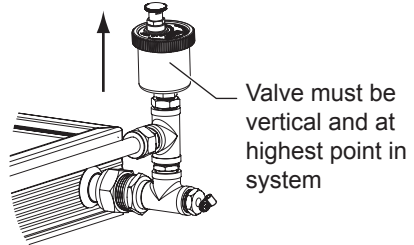


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4 Way Union Assembly

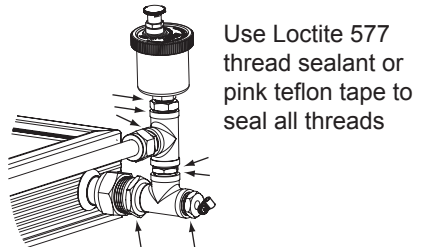
Step 17

- Using correct plumbing methods, install the 4 Way Union assembly and automatic air vent valve at the **highest point in the system**, at the top of the collector diagonally opposite the solar collector inlet pipe.
- The automatic air vent 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 automatic air vent valve. Tighten by hand. **Do not use spanner.**
- If the system is installed correctly, air will automatically be purged from the system through the automatic air vent valve.



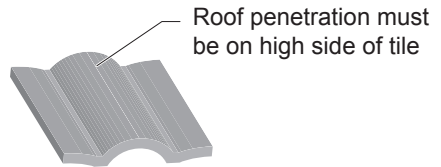
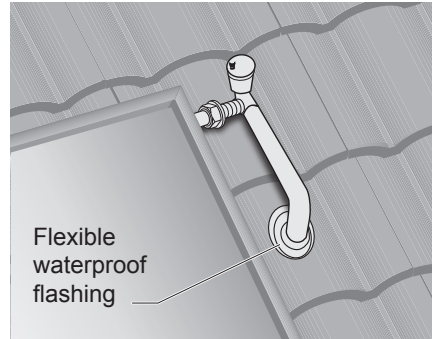


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Flashing

Step 18

- 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).





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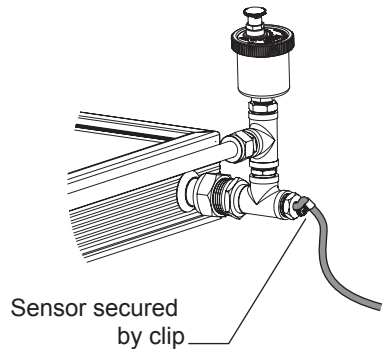
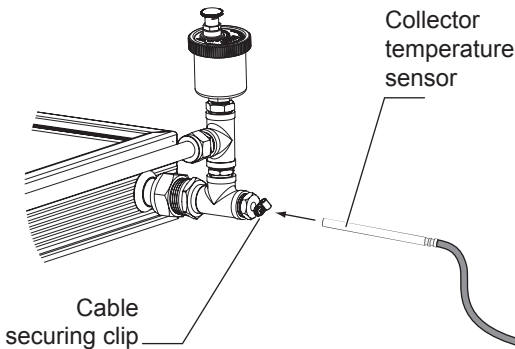
Temperature Sensor

Step 19

- 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.



Critical: To ensure the collector temperature sensor functions properly, ensure that the sensor cable is firmly secured by the clip.



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



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



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



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Step 20

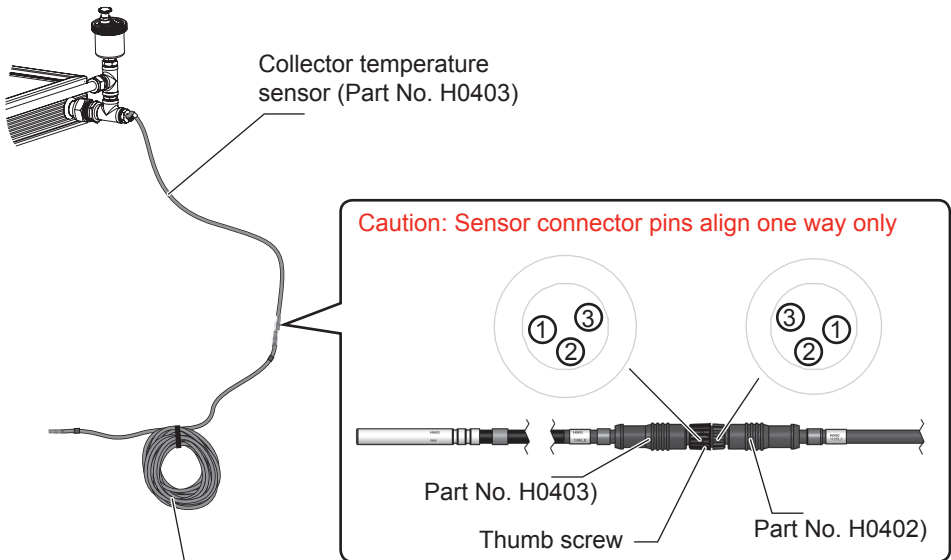
- Align the pin positions carefully and press home the collector temperature sensor (Part No. H0403) into the 20 metre collector temperature sensor cable (Part No. H0402).
- Secure the connection by tightening the thumb screws.



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.



20m collector temperature sensor cable (Part No. H0402)
(Male /male connectors).

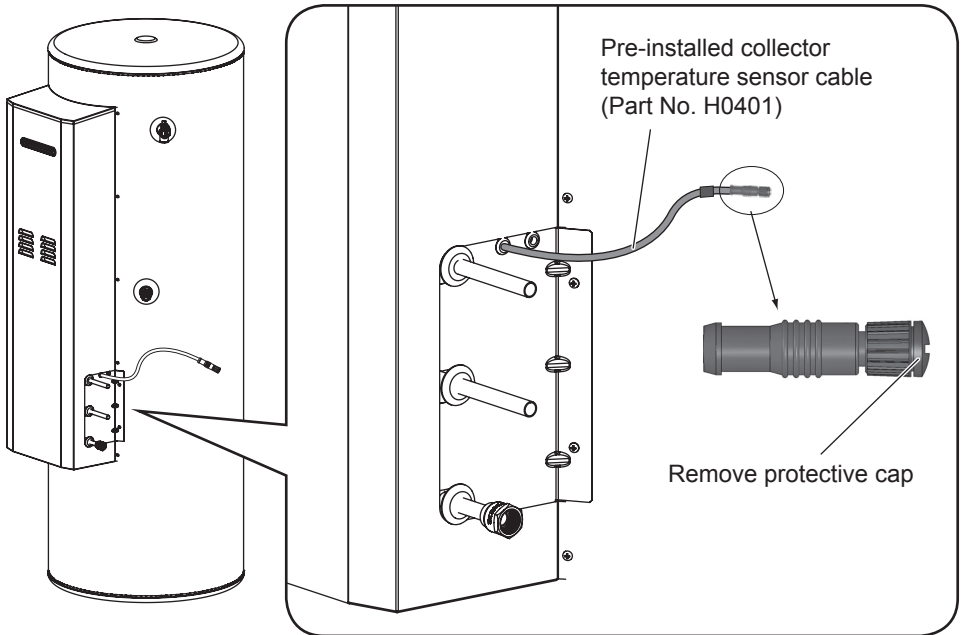
If the collector temperature sensor cable is exposed to atmosphere, you must insulate the cable from UV radiation damage.



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Step 21

- Locate the pre-installed collector temperature sensor cable (Part No. H0401) coming out of the side of the water heater's cover (see illustration below).
- Remove the protective cap from the end of the collector temperature sensor cable.





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Step 22

- Attach the 20 metre collector temperature sensor cable (Part No. H0402) to the end of the pre-installed collector temperature sensor cable (Part No. H0401) coming out of the side of the water heater's cover.
- Secure the connection by tightening the thumb screws.



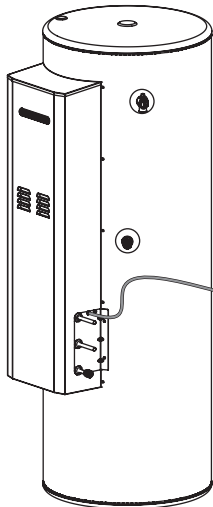
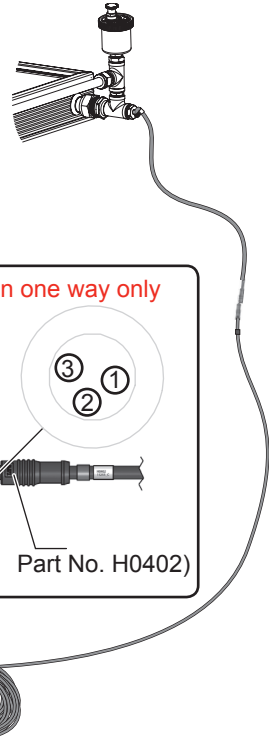
Warning: Pre-installed collector sensor is silicon rubber, but may require additional conduit protection.



Warning: Ensure the 20 metre sensor cable is protected inside the building fabric.



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.



Pre-installed collector temperature sensor (Part No. H0401)

20m collector temperature sensor (Part No. H0402) (Male /male connectors)

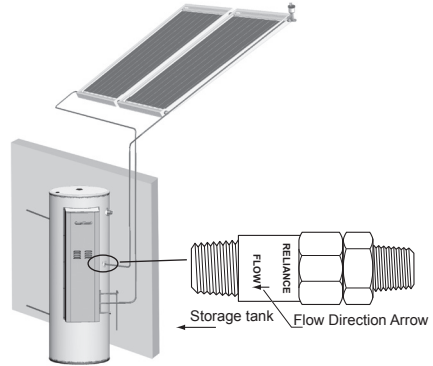


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Non Return Valve

Step 23

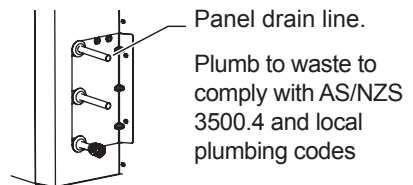
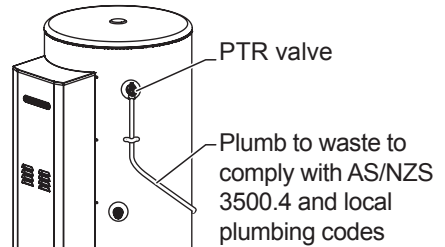
- A solar non return valve is included with this water heater, and **must** be fitted to comply with warranty conditions.
- We recommend fitting the non return valve at the solar return pipe connection.
- Ensure the non return valve is installed so that the flow direction arrow faces the storage tank.



PTR Valve and Panel Drain Line

Step 24

- The pipe from the PTR valve **must**:
 - be easily seen
 - pose no risk of damage to the building or injury to persons
 - be plumbed to waste to comply with AS/NZS 3500.4 and local plumbing codes
- The panel drain line **must** be plumbed safely to the waste drain and **must** comply with AS/NZS 3500.4 and local plumbing codes.
- This system may periodically drain water from the collectors to protect the system from extreme hot or cold conditions.



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 25

- The solar pump module must be continuously powered to provide system protection in all ambient extremes.
- Install a Weatherproof GPO for the system.
- This water heater is designed for connection to **Continuous Tariff** for the Solar Pump Module.



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.

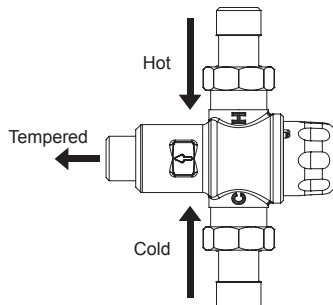
Tempering Valve

Step 26

- Fit and commission the solar tempering valve that is included with this water heater as per the manufacturer's instructions.



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





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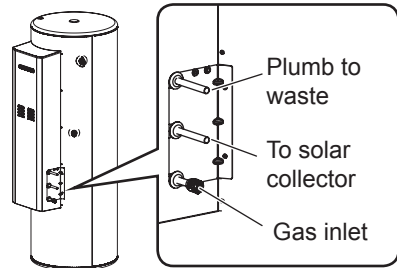
Gas Connection

Step 27

- Connect the gas line to the gas inlet coming from the lower right side of the cover (see illustration).
- Fit an AGA approved isolating gas cock in the supply line adjacent to the water heater gas connection.

 **Note: Gas pipe sizes must comply with AS5601/AG601.**

- The gas pipe sizes and maximum gas consumption rates are shown in the table right.
- Ensure that the supply pipe and the gas pressure regulator have sufficient flow capacity for this and other appliances connected to the fitting line.
- Before connecting the appliance to the gas service, purge any debris or air from the gas service. Venting of purged gas shall be in an area free of sources of ignition.
- Close the isolating gas valve prior to connection of the appliance.
- After connection, check all joints for leaks with an approved leak tester.



Model No.	Max. Gas Consumption	Gas Pipe Size
DN15DS	45 MJ/h*	R½"/15mm
DL15DS	45 MJ/h*	R½"/15mm

* ±5%



Commissioning the System

This water heater uses several staged valve units to control the flow of water through the gas booster and solar plumbing circuits.

When the water heater is switched on, both the valves and gas system need to be initialised. This process takes several minutes to complete.

Please observe the following system startup process when the unit is commissioned.

Step 28

- Ensure gas is **OFF**.
- Fill tank.



Warning: Warning: Do not turn power on until the storage tank is full.

- Turn power and gas **ON**.
- There will be a delay of up to 2 minutes before the fan will start. During this time, a small amount of water may drain from the system. This is normal.
- After approximately another 30 seconds, the gas booster will start.
- Commissioning the water heater is now complete.



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"/>	Tank positioned on a level base in accordance with all plumbing and building regulations	4
<input type="checkbox"/>	Cold and hot water pipes connected	5 – 6
<input type="checkbox"/>	Collectors aligned and attached to roof	7 – 11
<input type="checkbox"/>	Fittings attached to collectors	12 – 16
<input type="checkbox"/>	4 Way Union Assembly fitted	17
<input type="checkbox"/>	Roof penetration sealed with a flexible waterproof flashing	18
<input type="checkbox"/>	Temperature sensor installed	19 – 22
<input type="checkbox"/>	Non return valve fitted	23
<input type="checkbox"/>	PTR valve fitted and solar drain line plumbed to waste	24
<input type="checkbox"/>	GPO installed	25
<input type="checkbox"/>	Tempering valve fitted	26
<input type="checkbox"/>	Gas connected and checked	27
<input type="checkbox"/>	Commissioning the water heater	28



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 Dux Hot Water that all the requirements of proper installation have been carried out by the installer in accordance with the Installation Commissioning Checklist and all other requirements noted in the Owner’s Manual supplied with the solar water heater.

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

Declaration

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

Name:

Signed:

Company:

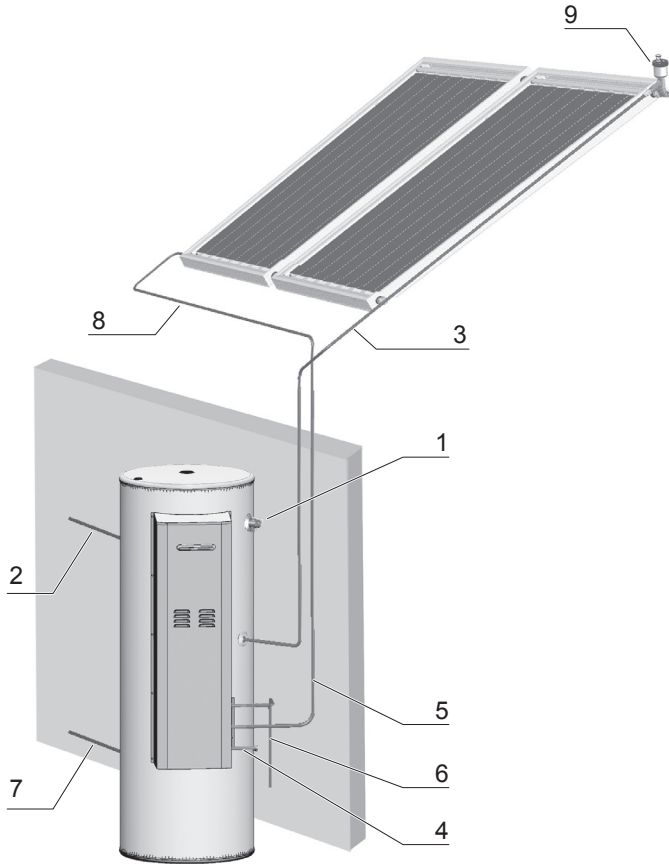
Plumber’s Licence Number:

Date:



Pre Boosted Gas Solar Water Heater MP15

System Components

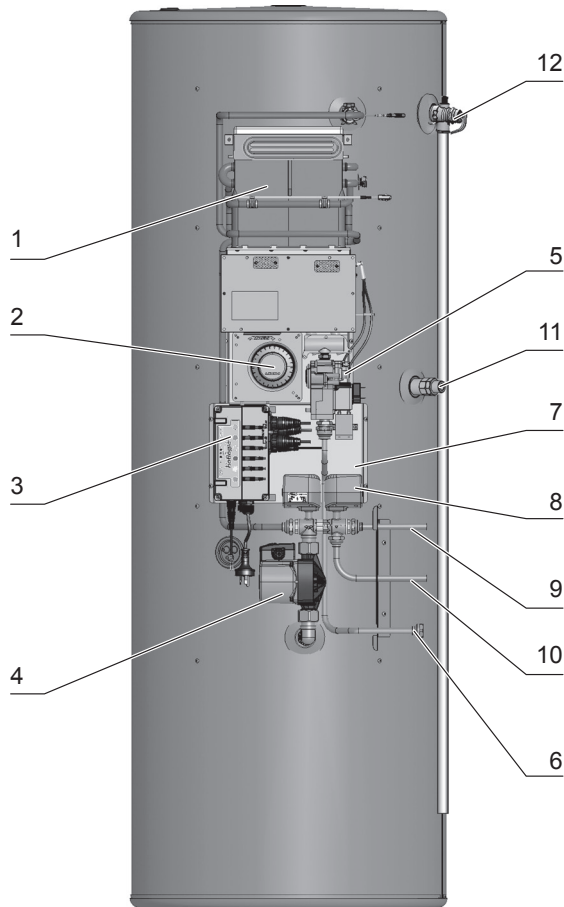


System Components

1	PTR valve	6	To drain pipe
2	Hot water outlet to house	7	Cold Water Inlet
3	Solar collector return	8	Cold water outlet to solar collector
4	Gas inlet	9	Automatic Air Vent Valve
5	To solar collector pipe		



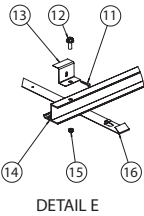
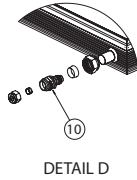
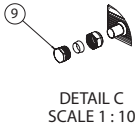
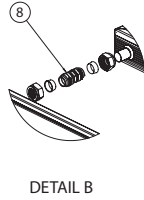
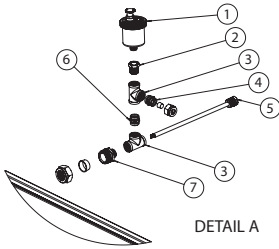
System Components



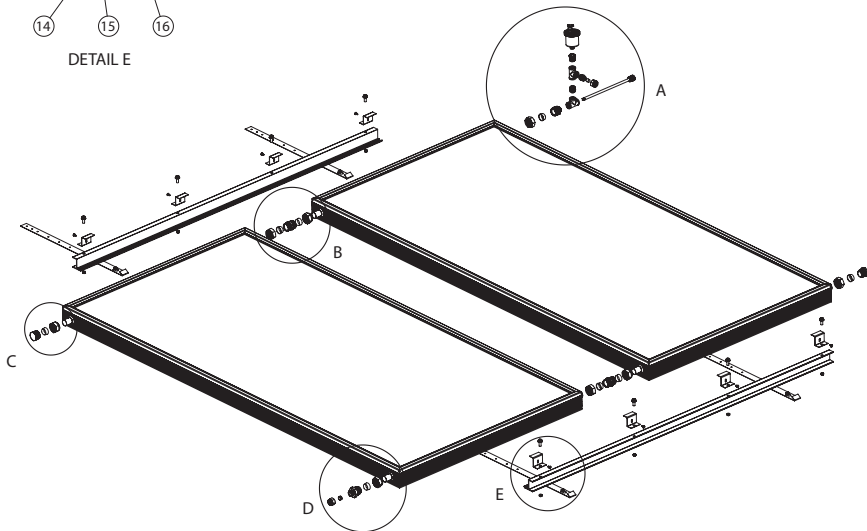
System Components			
1	Burner unit	7	Backing plate
2	Fan	8	Diverter valve
3	Hotlogic® controller	9	Solar drain pipe
4	Pump	10	Solar flow pipe (to collector)
5	Gas valve	11	Solar non return valve
6	Gas inlet pipe	12	PTR Valve (drain to waste)



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
9	End stop 1" Conetite
10	Union 1" Conetite × ½" Conetite
11	24mm galvanised screw, self tapping
12	Bolt
13	Panel Clamp (Z) Bracket
14	Solar heater rail
15	Nut
16	Collector strap





Flue Clearances

Use the information below from AS 5601 Gas Installations when determining the location of the water heater. Shaded areas are prohibited areas for flue terminals.

LEGEND:

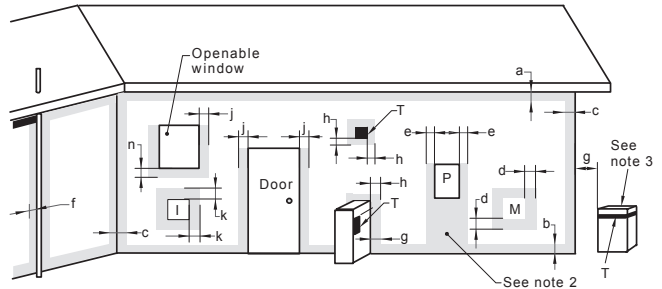
T = Flue terminal

I = Mechanical air inlet

M = Gas meter

P = Electricity meter or fuse box

■ Shading indicates prohibited areas for flue terminals



Ref.	Item	Minimum clearances (mm)	
		Natural draft	Fan assisted
a	Below eaves, balconies and other projections: • Appliances up to 50 MJ/h input • Appliances over 50 MJ/h input	300 500	200 300
b	From the ground, above a balcony or other surface †	300	300
c	From a return wall or external corner †	500	300
d	From a gas meter (M) (see 4.7.11 for vent terminal location of regulator)	1000	1000
e	From an electricity meter or fuse box (P)	500	500
f	From a drain pipe or soil pipe	150	75
g	Horizontally from any building structure † or obstruction facing a terminal	500	500
h	From any other flue terminal, cowl, or combustion air intake †	500	300
j	Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation: • Appliances up to 150 MJ/h input • Appliances over 150 MJ/h input up to 200 MJ/h input • Appliances over 200 MJ/h input up to 250 MJ/h input † • Appliances over 250 MJ/h input † • All fan-assisted flue appliances, in the direction of discharge	500 1500 1500 1500 -	300 300 500 1500
k	From a mechanical air inlet, including a spa blower	1500	1000
n	Vertically below an openable window, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation: • Space heaters up to 50 MJ/h input • Other appliances up to 50 MJ/h input • Appliances over 50 MJ/h input and up to 150 MJ/h input • Appliances over 150 MJ/h input	150 500 1000 1500	150 500 1000 1500

† Unless appliance is certified for closer installation

NOTES:

- All distances are measured to the nearest part of the terminal.
- Prohibited area below electricity meter or fuse box extends to ground level.
- Where the flue terminal of a balanced flue appliance, a fan-assisted flue appliance, a room sealed appliance or the flue terminal of an appliance designed for outdoor installation is to be installed under a covered area -
(a) the covered area is to be open on at least two sides; and
(b) the terminal is to be located to ensure a free flow of air across it is achieved.
- See Appendix J, Figures J2(a) and J3(a), for clearances required from a flue terminal to an LP Gas cylinder. A flue terminal is considered to be a source of ignition.
- For appliances not addressed above, acceptance should be obtained from the technical regulator.



Pre Boosted Gas Solar Water Heater MP15

sunpro[®]

Pre Boosted Gas Solar Water Heater MP15

Models: DN15DS
 DL15DS

For Advice, Repairs And Service, Call:

1300 365 115 (Australia)

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