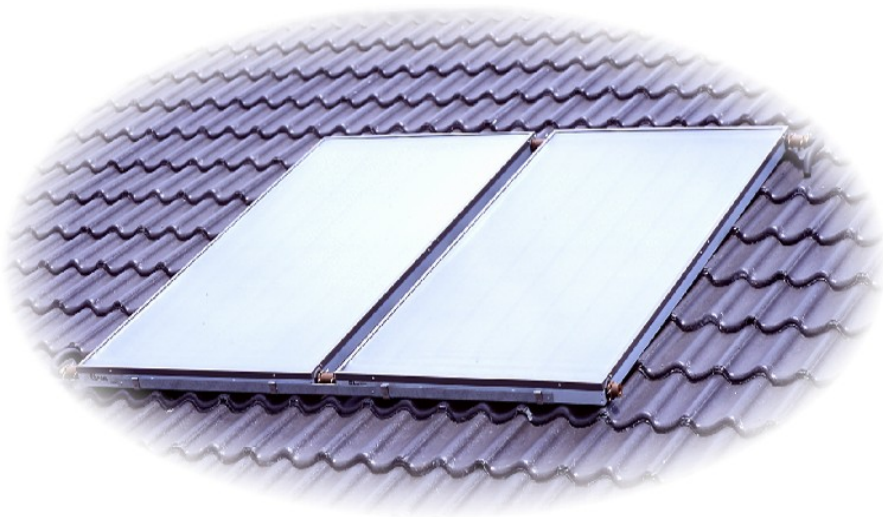


Installation Instructions



Solar Collector Kit

Solar Collector Add On Kit

NPT 200 SOLAR COLLECTORS



WARNING: Plumber – Be Aware

Use copper pipe ONLY. Plastic pipe MUST NOT be used.
It is a requirement of a solar water heater installation that all pipe work be in copper and not plastic, due to the effects of high water temperatures and pressures.

*This collector kit must be installed and serviced by a qualified person
Please leave this guide with the householder.*



WARNING: Plumber – Be Aware

- The solar hot and solar cold pipes between the solar storage tank and the solar collectors **MUST BE** of copper. All compression fittings must use brass or copper olives.
- The full length of the solar hot and solar cold pipes **MUST BE** insulated.

The insulation must:

- be of a closed cell type or equivalent, suitable for a solar water heating application and capable of withstanding the temperature of the water generated by the solar collectors under stagnation conditions

The specification of the chosen insulation material should be checked with the insulation manufacturer prior to installation as different materials may vary in temperature tolerance.

- be at least 13 mm thick, however thicker insulation may be required to comply with the requirements of AS/NZS 3500.4
- be weatherproof and UV resistant if exposed
- extend through any penetrations in the eaves, ceiling and roof
- cover valves and fittings in the solar hot and solar cold pipe work
- be fitted up to and cover the connections on both the solar storage tank and the solar collectors.

Note: Failure to observe these requirements increases the risk of freeze damage.

Uninsulated pipe work, including concealed in cavities and roof spaces or where it may be in contact with a metal roof, may lead to freeze damage. The system has NO WARRANTY for freeze damage if the solar hot and solar cold pipes are not insulated in accordance with the installation instructions.

The insulation is essential to assist in providing freeze protection, will offer corrosion protection to a metal roof against water runoff over the copper pipe, assist in avoiding accidental contact with the solar pipe work as high temperature water can flow from the solar collectors to the solar storage tank and also reduce pipe heat losses.

Plumber: It is important to refer to and read in full the complete "Warning: Plumber – Be Aware" statement commencing on page 11.

CONTENTS

HOUSEHOLDER - This installation instruction booklet is intended for the installer but you may find it of interest.

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**Notice to Victorian Customers from the
Victorian Plumbing Industry Commission.**

**This water heater must be installed by a licensed person
as required by the Victorian Building Act 1993.**

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant Standards. Only a licensed person will have insurance protecting their workmanship for 6 years. Make sure you use a licensed person to install this water heater and ask for your Compliance Certificate.

COMPONENTS AND KIT CONTENTS

SOLAR COLLECTOR KIT AND COLLECTOR ADD ON KIT

For installation with a solar storage tank.

Your solar water heater is designed for the solar collectors to be roof mounted and the solar storage tank to be installed at ground or floor level. The collector kits are suitable for:

Collector Kit (1 or 2 solar collectors)

299139 NPT 200 solar collectors

Screwed fittings

Collector Add On Kit (for each additional solar collector)

299140 NPT 200 solar collector

Screwed fittings

Note: One Collector Add On Kit is required for each additional solar collector.

Part No	Kit Components and Description	299139 Collector kit NPT 200	299140 Add on kit NPT 200
129870	Installation instructions roof kit	1	-
191614	Collector angle 1 panel	-	1
191613	Collector angle 2 panel	1	-
191801	Collector straps	4	3
080022	Screws self tapper ½" x 8G ZP pan head	8	3
330695	Collector union assembly	2	2
063603	Connector M33	1	-
063604	Sensor connector M33 assembly – consisting of: 1 x 063605 fitting M33-15BSP for temp sensor 1 x 088062 sensor nipple solar loline 1 x 087026 O ring 5/16" ID x 1/16 BS011 silicone	1	-
088027	Compression olive copper ½"	2	-
080055	Compression nut brass ½"	2	-
063602	End plug collector M33	2	-
330606	Blanking disc	2	-
330171	O ring 25 ID x 3.2	8	4
056001	Hot sensor assembly Loline	1	-
087025	O ring 5/32" ID x 1/16	2	-
123204	Label hot pipe / cold pipe	1	-
348071	Cable ties 150 mm long	3	-

SYSTEM INSTALLATION

THIS WATER HEATER IS NOT SUITABLE FOR POOL HEATING.

The system is suitable for installation with NPT 200 solar collectors as part of a direct open circuit system installation.

The system is not suitable for installation above 400 metres altitude.

IMPORTANT NOTES

- Working on roofs is and should always be considered a hazardous activity, particularly early in the morning, late in the evening, when the roof is wet and during and after periods of rain.
- All work must be carried out in accordance with Local, State and Federal Occupational Safety, Health and Welfare Regulations. In particular, the requirements for safety whilst manual lifting, working at heights and on roofs.
- Installers must be competently trained in:
 - Height Hazard Assessment
 - Working at Height Procedures
 - Assessment / Use / Wearing of correct height safety equipment (harnesses etc.)
 - All other relevant safety factors specific to the installation and maintenance work to be compliant with suitable Occupational, Health and Safety Regulations / Codes.
- All relevant permits shall be obtained from the regulatory authorities before commencing work to install the solar hot water system.
- All work carried out must be performed by appropriately qualified tradespeople or be suitably supervised for trades assistant duties.
- Every care must be taken to protect and warn occupants of the building and the public from personal injury which may occur from falling tools, roof materials, fittings or any other hazards of a general nature.
- Advise the occupants of any inconvenience which may occur due to disconnection of existing water and electrical supplies.
- The connection, attachment, integration or general association of other equipment or parts which either directly or indirectly affect the operation or performance of this equipment could void the warranty.

INSTALLATION STANDARDS

The water heater must be installed:

- by a qualified person, and
- in accordance with the installation instructions, and
- in compliance with Standards AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements.

In New Zealand, the installation must also conform with Clause G12 of the New Zealand Building Code.

WATER HEATER APPLICATION

This water heater is designed for use in a single family domestic dwelling for the purpose of heating potable water. Its use in an application other than this may shorten its life.

If this water heater is to be used where an uninterrupted hot water supply is necessary for the application or business, then there should be redundancy within the hot water system design. This should ensure the continuity of hot water supply in the event that this water heater was to become inoperable for any reason. We recommend you provide advice to the system owner about their needs and building backup redundancy into the hot water supply system.

DIRECT OPEN CIRCUIT SYSTEM INSTALLATION

A direct open circuit system has a collector circuit which is directly connected to the potable water in the solar storage tank. Potable water from the solar storage tank circulates through and collects heat gained by the solar collectors and then circulates back into the solar storage tank.

Freeze Protection

The system has a level of freeze protection designed to guard the system against damage from freeze conditions. The system must be installed with the full length of the solar hot and solar cold pipes insulated to offer protection against freeze damage (refer to “**Warning: Plumber Be Aware**” on page 11). Freeze conditions occur below 6°C.

The system has NO WARRANTY for freeze damage when installed above 400 metres altitude or if the solar hot and solar cold pipes are not insulated in accordance with the installation instructions (refer to “**Warranty Note**” on page 27). **Note:** Warranty against freeze damage applies only to systems installed in Australia.

INSTALLATION – SOLAR STORAGE TANK

SOLAR WATER HEATER STORAGE TANK LOCATION

The solar storage tank should be installed close to the most frequently used outlet and its position chosen with safety and service in mind.

Consideration must also be given to the position of the solar storage tank in relation to the solar collectors. There are limitations on the maximum length of the solar hot and solar cold pipes between the solar storage tank and the solar collectors. Refer to “[Solar Collector Location](#)” on page 8 and to “[Pipe Lengths](#)” on page 10.

Refer to the installation instructions supplied with the solar storage tank for installation details of the solar storage tank.

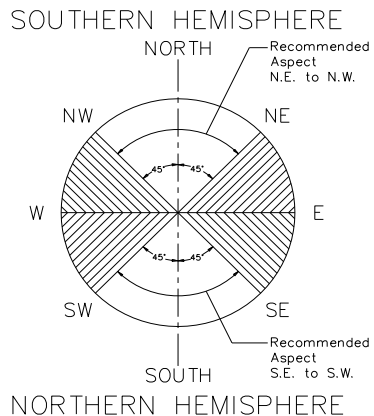
SOLAR COLLECTOR LOCATION

Consideration must be given to the position of the solar collectors in relation to the solar storage tank. There are limitations on the maximum length of the solar hot and solar cold pipes between the solar storage tank and the solar collectors. Refer to “Solar Storage Tank Location” on page 7 and to “Pipe Lengths” on page 10.

- The solar collectors must be installed in a shade free position.

- The surrounding vicinity should be checked for higher buildings or trees which may cause shade at other times of the year and for small trees which may grow and shade the solar collectors in the future.

- For optimum performance, solar collectors should be installed facing towards the equator (i.e. north facing in the southern hemisphere and south facing in the northern hemisphere). ALWAYS CHECK ORIENTATION WITH A COMPASS. Where this orientation is not practical, solar collectors facing up to 45° from the equator will receive about 4% less total solar radiation, resulting in a reduction of system performance.



- For optimum performance, inclination of the solar collectors should be approximately equal to 90% of the local latitude angle. The **latitudes of some Australian cities** are listed on page 9. Solar collectors may be installed at the roof angle for simplicity of installation and appearance, but must never be flat. If the roof angle varies by 15° from the optimum angle, the solar collectors will receive about 10% less total solar radiation, resulting in a reduction of system performance.
- The collector kit is suitable for installations with an inclination of up to 30°. Where the solar collectors are installed at inclinations greater than 30°, a With Pitch frame is necessary. Refer to your local Solar Distributor for details.
- For a solar collector installation on a roof with a pitch less than 10°, a Variable Pitch frame should be used. Refer to your local Solar Distributor for details.

- For an installation of collectors on a pitched roof in a cyclonic or high wind area, a suitable With Pitch frame is required. Refer to your local Solar Distributor for details.
- The installation of these solar collectors on a suitable frame, subject to the frame's design criteria not being exceeded:
 - is suitable for installation in geographic locations up to and within Wind Region D (With Pitch frame) or up to and within Wind Region C (Variable Pitch frame), as defined in the Building Code of Australia, Australian / New Zealand Standard AS/NZS 1170.2:2002 and the Australian Standard AS 4055-2006, and
 - provides an acceptable method of installation where it is necessary to satisfy the requirements of the Building Code of Australia and AS/NZS 3500.4 Clause 6.5.3.4 for high wind areas.
- The installer must ensure the structural integrity of the building is not compromised by the solar water heater installation and the roof structure is suitable to carry the full weight of the solar collector(s). If in doubt the roof structure should be suitably strengthened. Consult a structural engineer.
- Each solar collector and its fittings weighs approximately 40 kg when full of water.
- Refer to the installation instructions supplied with the solar storage tank for details on the installation of the solar storage tank.

Roof area required for solar collectors:

- 4 solar collectors – 4.6 m wide x 2.0 m deep. Weight (full) 160 kg approx.
- 3 solar collectors – 3.5 m wide x 2.0 m deep. Weight (full) 120 kg approx.
- 2 solar collectors – 2.4 m wide x 2.0 m deep. Weight (full) 80 kg approx.
- 1 solar collector – 1.3 m wide x 2.0 m deep. Weight (full) 40 kg approx.

LATITUDE OF SOME AUSTRALIAN CITIES

Adelaide	35°S	Cairns	17°S	Hobart	42°S	Port Hedland	20°S
Alice Springs	24°S	Canberra	35°S	Mildura	34°S	Rockhampton	24°S
Brisbane	27°S	Darwin	12°S	Melbourne	38°S	Sydney	34°S
Broken Hill	31°S	Geraldton	28°S	Perth	32°S	Townsville	19°S

PIPE LENGTHS

The solar hot and solar cold pipes between the solar storage tank and the solar collectors shall:

- be of bendable grade or hard drawn copper tube.
Annealed or soft copper shall not be used.
- *Direct Open Circuit System:* have a continuous fall from the solar collectors to the solar storage tank. Horizontal runs of pipe work are acceptable and may be installed.
- not exceed the maximum recommended combined lengths as specified in the table.

Maximum recommended total combined pipe length (solar cold + solar hot) and number of 90° bends						
Pipe Size	1 or 2 Collectors		3 Collectors		4 Collectors	
	Pipe Length	90° Bends	Pipe Length	90° Bends	Pipe Length	90° Bends
DN15	40 metres	20	30 metres	20	15 metres	20
DN20	NR	NR	40 metres	20	40 metres	20

For each additional 90° bend, reduce the maximum total pipe length by 0.5 metres.

For each additional metre of pipe length, reduce the number of 90° bends by two.

Note: One 90° elbow is equal to two 90° bends.

NR – not recommended.

Notes:

- It is important not to cross connect the solar cold and solar hot pipes to the incorrect connections at the solar collectors and at the solar storage tank.
- The solar cold pipe connects to the bottom of the solar collector and may connect to either the left or right hand side. The solar hot pipe must connect to the top of the solar collector diagonally opposite to the solar cold pipe connection.
- *Direct Open Circuit System:* The hot sensor connection is at the solar hot outlet where the solar hot pipe connects to the solar collector.
- Refer to “Warning: Plumber – Be Aware” on page 11.

It is essential for these requirements to be followed for the system to operate correctly and efficiently. Solar pipe work which is oversized, or is too long, or does not have a continuous fall can result in a reduction in performance or the system not operating effectively.



WARNING: Plumber – Be Aware

- The solar hot and solar cold pipes between the solar storage tank and the solar collectors **MUST BE** of copper. All compression fittings must use brass or copper olives.
- The full length of the solar hot and solar cold pipes **MUST BE** insulated.

The insulation must:

- be of a closed cell type or equivalent, suitable for a solar water heating application and capable of withstanding temperatures of up to 150°C, which may be generated by the solar collectors under stagnation conditions

The specification of the chosen insulation material should be checked with the insulation manufacturer prior to installation as different materials may vary in temperature tolerance.

- be at least 13 mm thick, however thicker insulation may be required to comply with the requirements of AS/NZS 3500.4
- be weatherproof and UV resistant if exposed
- extend through any penetrations in the eaves, ceiling and roof
- cover valves and fittings in the solar hot and solar cold pipe work
- be fitted up to and cover the connections on both the solar storage tank and the solar collectors.

Note: Failure to observe these requirements increases the risk of freeze damage.

Uninsulated pipe work, including concealed in cavities and roof spaces or where it may be in contact with a metal roof, may lead to freeze damage. The system has NO WARRANTY for freeze damage if the solar hot and solar cold pipes are not insulated in accordance with the installation instructions.

The insulation is essential to assist in providing freeze protection, will offer corrosion protection to a metal roof against water runoff over the copper pipe, assist in avoiding accidental contact with the solar pipe work as high temperature water can flow from the solar collectors to the solar storage tank and also reduce pipe heat losses.



WARNING: Plumber – Be Aware

- The insulated copper pipe work:
 - should be fixed at suitable locations to prevent or reduce the possibility of noise from water hammer and vibration from occurring
 - is not to be placed or installed in contact with plastic pipe work.

Likewise, plastic pipe work is not to be placed or installed in contact with the insulated copper pipe work after the solar circuit is installed.

- *Direct Open Circuit System:* The highest point of the solar cold pipe and solar hot pipe must be where they connect to the solar collectors, to avoid the possibility of air locks occurring in the system. There **MUST BE a continuous fall** in the pipe work between the solar collectors and solar storage tank. Horizontal runs of pipe work are acceptable and may be installed.
- Plastic pipe **MUST NOT** be used, as it will not withstand the temperature and pressure of the water generated by the solar collectors under stagnation conditions. The solar collectors can generate extremely high water temperatures up to 150°C and high water pressure of 1000 kPa. Plastic pipe cannot withstand these temperatures and pressures and **MUST NOT** be used. Failure of plastic pipe can lead to the release of high temperature water and cause severe water damage and flooding.
- The pressure applied to the solar circuit and solar collectors during a pressure test of a direct open circuit system **MUST NOT** exceed 1000 kPa where NPT200 solar collectors are installed, otherwise damage may result to the solar collectors.

Refer to “[Pressure Testing](#)” on page 14.

- Upon completion of the installation of the NPT200 solar collectors the packaging material may be removed, whether or not the solar circuit is connected to the solar storage tank and / or the solar water heater is commissioned.

Maximum Number of Collectors

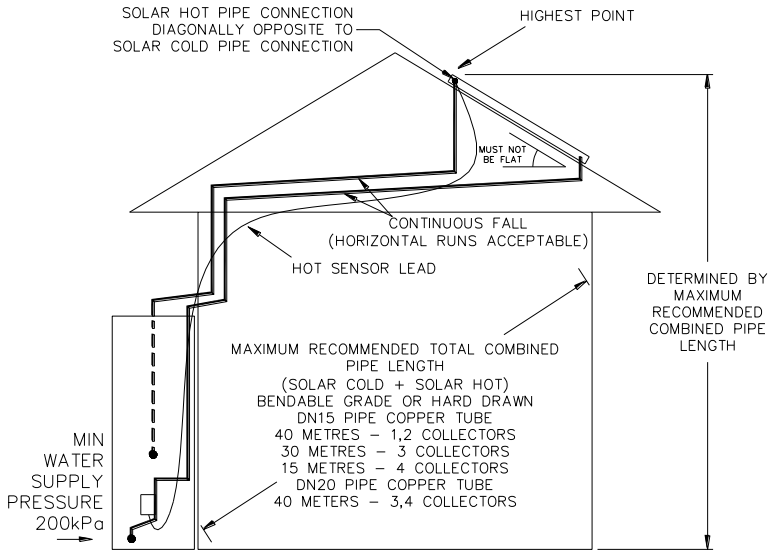
The maximum recommended number of collectors for each tank size are:

- 430 model tank – 4 x NPT200 collectors
- 340 model tank – 3 x NPT200 collectors
- 270 model tank – 3 x NPT200 collectors

Maximum Height to Collectors – Direct Open Circuit

The maximum height of a solar installation, from the solar controller (circulator) to the top of the solar collectors, is determined by the maximum recommended total pipe length for the system and the water supply pressure.

The maximum recommended total pipe length of the solar circuit should not be exceeded and a minimum water supply pressure of 200 kPa should be available at the inlet to the system, otherwise the system performance may be reduced or the solar circuit may not be purged of air during the commissioning of the system.



NOTES:

- PIPE WORK MUST HAVE A CONTINUOUS FALL BETWEEN SOLAR COLLECTORS AND SOLAR STORAGE TANK. HORIZONTAL PIPE RUNS ARE ACCEPTABLE.
- PIPE WORK MUST BE OF BENDABLE GRADE OR HARD DRAWN COPPER TUBE. ANNEALED OR SOFT COPPER SHALL NOT BE USED.
- MINIMUM WATER SUPPLY PRESSURE TO INSTALLATION MUST BE 200kPa.
- INSTALL HOT SENSOR LEAD WITH INSULATED SOLAR PIPES DURING CONSTRUCTION FOR NEW HOMES.
- PRESSURE TESTING OF SOLAR COLLECTORS AND SOLAR CIRCUIT MUST NOT EXCEED 1000KPa.


Direct Open Circuit Solar Pipe Work Installation Requirements

Pressure Testing

The solar water heater, including the collector circuit and solar collectors, is to be isolated during the testing and commissioning of the heated water reticulation system in a building, in accordance with Clause 11.1 and 11.3 (a) of AS/NZS 3500.4.

It may be necessary to pressure test the collector circuit to comply with codes and regulatory authority requirements or on other occasions where the solar collectors and solar cold and solar hot pipe work are installed prior to the solar storage tank, such as on a building site.

Direct Open Collector Circuit

 **Warning:** The pressure applied to the solar circuit and solar collectors during a pressure test of a direct open circuit system **MUST NOT** exceed 1000 kPa where NPT200 solar collectors are installed, otherwise damage may result to the solar collectors.


Direct Open System

If the solar collectors, solar pipe work and solar storage tank are installed and commissioned together, then the flooding of the collector circuit with water under mains pressure for a direct open circuit system and checking the pipe work for leaks during the commissioning procedure can be substituted for the pressure testing of the collector circuit.


ROOF ASSEMBLY OF SOLAR COLLECTORS

Notes:

- All plumbing work must be carried out by a qualified person and in accordance with the requirements of the Standard AS/NZS 3500.4, and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with Clause G12 of the New Zealand Building Code.
- These solar collectors have passed the AS/NZS 2712 requirements for resistance to hailstone damage, so it is not normally necessary to fit a guard to a collector. Stone Guards are available to provide a level of protection to the collectors against vandalism or accidental damage. Refer to your local Solar Distributor for details.
- Warranty **DOES NOT** cover breakage of solar collector glass. Check your insurance policy covers collector glass breakage.

 **Warning:** No attempt should be made to remove or replace broken collector glass.

The collector glass is not offered as a replacement part. Should the solar collector require replacement, contact your local Solar Distributor for details.

-  **Warning:** Do not remove the solar collector packaging completely, prior to the installation as the solar collector surface can become very hot. Remove only sufficient packaging material to enable the installation of the solar collectors.

Upon completion of the installation of the NPT200 solar collectors, such as on a building site, the packaging material may be removed whether or not the solar circuit is connected to the solar storage tank and / or the solar water heater is commissioned.

The solar collector packaging must be removed completely prior to the permanent operation of the water heater.

- All connectors, end plugs, 'O' rings, brass fittings, collector straps and collector angle required for the installation are included with the collector kit. Suitable screws or anchors will be required to fix the collector straps to the rafters for a pitched roof installation.
- Screws to secure the collector straps and collector angle to the solar collector(s) must not be longer than 15 mm. Suitable screws are provided in the collector kit.

Numbers in parentheses refer to items in the diagrams on pages 25 ([two solar collector installation](#)) and 26 ([three or four solar collector installation](#)).

DO NOT MODIFY THESE PARTS IN ANY WAY.

1. **Solar Collector Location:** Select a suitable position for the solar collectors.

Refer to [“Solar Collector Location”](#) on page 8.

2. **Collector Angle – Pitched Roof Installation:** Determine the location of the collector angle(s) (1). If more than two solar collectors (17) are installed, locate the collector angle(s) (1) from the Collector Add On kit(s) adjacent to the first collector angle (1).

Hook two collector straps (2) to each bottom collector angle (1).

Tile Roof: Remove the tiles on the next row above the position of the collector angle (1) to expose the rafters. Ensure the collector angle (1) is horizontal. Once in position, fix the collector straps (2) to the rafters, using suitable screws or anchors. Replace the tiles.

Metal Roof: Ensure the collector angle (1) is horizontal. Once in position, fix the collector straps (2) to the rafters, through the metal roofing material, using suitable screws or anchors. Care should be taken not to mark Colorbond or other metal roof sheet with a marking pen and to remove all swarf from the metal roof as these can cause deterioration of the metal roofing material.

Note: Fixings must penetrate only through the high point in the roof material profile.

Note: A rise across the solar collectors from the solar cold connection side up to the solar hot connection side is acceptable.

Solar Frame – Flat Roof Installation: Determine the location of the Variable Pitch frame(s). Assemble and fix the frame(s) to the roof, following the installation instructions provided with the frame(s).

3. **Solar Collectors:** Position the solar collectors (17) in the correct configuration with the lower ends seated in the collector angle (1).
4. **Collector Unions:** For multiple solar collector installations, couple the solar collectors (17) together using the collector unions (3) and ‘O’ rings (6) supplied in the collector kit.

Refer to [“Coupling Collector to Collector – Screwed Fittings”](#) on page 20.

5. **Fixing Collector (bottom):** Ensure the solar collectors (17) are well seated in the collector angle (1).

Pitched Roof Installation: Screw the collector angle (1) to the solar collectors (17) (two screws per collector), using the screws (13) provided.

Solar Frame – Flat Roof Installation: Clamp the solar collectors (two clamps per collector) to the collector rail, using the clamps, hex screws, washers and nuts provided with the Variable Pitch frame.

6. **Collector Strap (top) – Pitched Roof Installation:** Position a collector strap (2) against the top end of each solar collector (17).

Tile Roof: Remove the tiles on the next row above the top edge of the solar collectors (17) to expose the rafters. Once in position, fix the collector straps (2) to the rafters, using suitable screws or anchors. Replace the tiles.

Metal Roof: Once in position, fix the collector straps (2) to the rafters, through the metal roofing material, using suitable screws or anchors. The collector straps (2) may be cut to a length of approximately 100 mm to retain the aesthetics of the installation.

Note: Fixings must penetrate only through the high point in the roof material profile.

Screw the collector straps (2) to the solar collectors (17) using the screws (13) provided.

Solar Frame – Flat Roof Installation: Ensure the solar collectors are well seated in the collector rail. Clamp the solar collectors (two clamps per collector) to the collector rail, using the clamps, hex screws, washers and nuts provided with the Variable Pitch frame.

7. **Connector:** Fit a connector (10) to the inlet of the solar collector array using the 'O' rings (6) provided.

Refer to **"Coupling Cold and Hot Pipes to Collector – Screwed Fittings"** on page 20.

8. **Sensor Connector:** Fit a sensor connector (4) (with hot sensor port) to the outlet of the solar collector array using the 'O' rings (6) provided.

Refer to **"Coupling Cold and Hot Pipes to Collector – Screwed Fittings"** on page 20.

9. **End Plugs:** Fit the end plugs (5) to the two remaining solar collector connections using the 'O' rings (6) and blanking discs (7) provided.

Refer to **"End Plug Assembly – Screwed Fittings"** on page 20.

10. **Solar Cold and Solar Hot Pipes:** Install the solar cold pipe from the solar storage tank to the solar collectors (17) and the solar hot pipe from the solar collectors (17) to the solar storage tank.

The solar hot and solar cold pipes should be a minimum DN15, but sized to suit the installation. Refer to “[Pipe Lengths](#)” on page 10.

The solar hot and solar cold pipes must have a continuous fall from the solar collectors to the solar storage tank. Horizontal runs of pipe work are acceptable and may be installed.

The full length of the solar hot and solar cold pipes must be insulated. The insulation must be capable of withstanding the temperatures generated by the solar collectors under stagnation conditions.

⚠ Warning: Plumber – Be Aware: It is important you refer to “[Warning: Plumber – Be Aware](#)” on page 11 for important information relating to the installation of the solar hot and solar cold pipes.

Refer also to [installation diagrams on pages 25 and 26](#) and to “[Pipe Work Roughing In Dimensions](#)” on page 23.

Notes:

- Penetrations through the roofing material must be:
 - at the high point of the roof tile or metal sheet;
 - made neatly and kept as small as practicable;
 - waterproofed upon installation of the solar hot and solar cold pipes.
 - Exposed insulated pipe work between the solar collectors and the penetration through the roofing material should be kept to a minimum to maintain the aesthetics of the installation.
11. **Connecting the Solar Cold and Solar Hot Pipes to Collectors:** Connect the solar cold pipe to the connector (10) at the inlet of the solar collectors (17) and the solar hot pipe to the sensor connector (4) at the outlet of the solar collectors (17) using the compression nuts and olives provided.

Refer to “[Coupling Cold and Hot Pipes to Collector – Screwed Fittings](#)” on page 20 and the [installation diagrams on pages 25 and 26](#).

12. **Hot Sensor Lead:** Insert the sensor probe of the hot sensor lead assembly (9) into the sensor connector (4), ensuring the 'O' ring is in position on the probe. Lock it into position with the locking washer and clip provided.

Run the hot sensor lead down to the solar storage tank. An extension sensor lead is available if the hot sensor lead is not long enough to reach the solar control unit. Connect the hot sensor lead to the hot sensor cable connecting socket located at the underside of the solar control unit screwed to the side of the solar storage tank.

13. **Cable Ties:** Secure the hot sensor lead at appropriate locations with the cable ties (14) provided.
14. **Labels:** At ground or floor level, adjacent to the location of the solar storage tank, attach the 'Solar Cold Pipe' label (16) to the insulation on the solar cold pipe to the solar collectors and the 'Solar Hot Pipe' label (15) to the insulation on the solar hot pipe from the solar collectors. Ensure the arrows on the labels are pointing in the correct direction of water flow.
15. **Pressure Testing the Collector Circuit:** Upon completion of the solar collector and solar cold and solar hot pipe installation, it may be required to pressure test the collector circuit. Refer to **"Pressure Testing"** on page 14.
16. **Connecting the Solar Cold and Solar Hot Pipes to the Solar Storage Tank:** Refer to "Connections – Plumbing" and "Installation – Solar Control Unit" in the Owner's Guide and Installation Instructions supplied with the solar storage tank for details on the solar cold and solar hot pipe connections to the solar storage tank.
17. **Commissioning:** Upon completion of the installation, commission the water heater, including bleeding the air from the solar collectors and checking the plumbing and connections for leaks. Refer to "Commissioning" in the Owners Guide and Installation Instructions supplied with the solar storage tank for the procedure to bleed the solar collectors.

INSTALLATION CHECK LIST

Once the installation is complete, it is important to check the following:

- Maximum recommended total combined solar cold and solar hot pipe length is not exceeded.
- Solar cold and solar hot pipe work is insulated in accordance with the installation instructions.
- The solar hot and solar cold pipes have a continuous fall between the solar collectors and solar storage tank. Horizontal runs of pipe work are acceptable.

CONNECTION DETAILS

COUPLING COLLECTOR TO COLLECTOR – SCREWED FITTING

Refer to [installation diagrams on pages 25 and 26](#) for position and [Detail A](#) on page 21.

1. Seat an 'O' ring (6) into each of the collector connections to be joined.
2. Fit a collector union (3) to each collector connection of the first solar collector (17) to receive the second solar collector and screw in the unions until they seat firmly against their 'O' ring (6), applying medium pressure with a spanner to tighten.
3. Place the collector unions (3) into the collector connections on the second solar collector and screw in the unions until they seat firmly against their 'O' ring (6), applying medium pressure with a spanner to tighten.

END PLUG ASSEMBLY – SCREWED FITTING

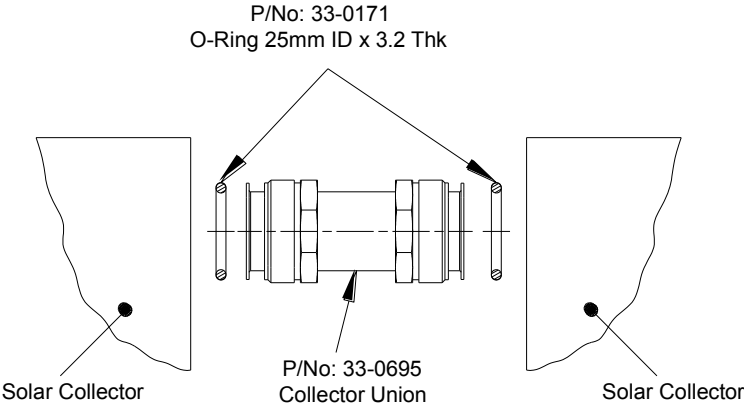
Refer to [installation diagram on page 25](#) for position and [Detail B](#) on page 21.

1. Seat an 'O' ring (6) into the collector connection.
2. Place a blanking disc (7) over the seated 'O' ring (6).
3. Place the end plug (5) into the collector connection and screw in until it seats firmly against the blanking disc (7), applying medium pressure with a spanner to tighten.

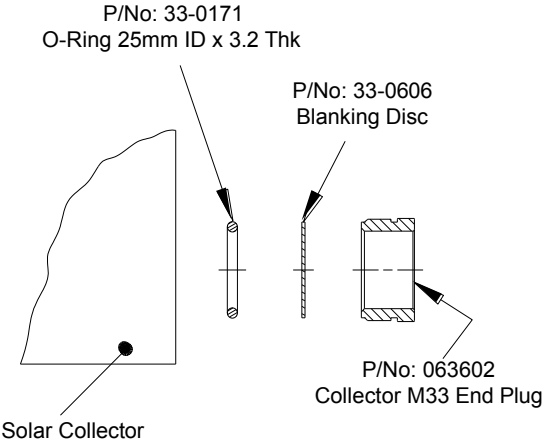
COUPLING COLD AND HOT PIPES TO COLLECTOR – SCREWED FITTING

Refer to [installation diagram on page 25](#) for position and [Detail C](#) on page 22 and [Detail D](#) on page 22.

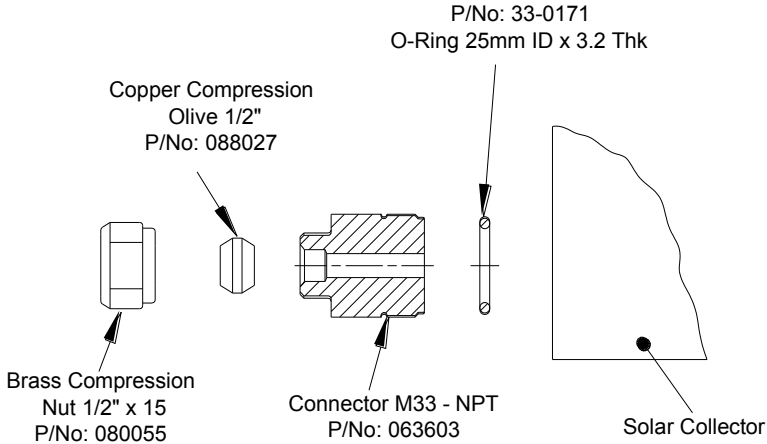
1. Seat an 'O' ring (6) into the collector connection.
2. Place the connector (10) into the collector connection and screw in the union until it seats firmly against the 'O' ring (6), applying medium pressure with a spanner to tighten.
3. Place the compression nut (11) and olive (12) over the end of the solar cold pipe. Position the cold pipe into the connector (10), seat the olive (12) and tighten the compression nut (11).
4. Repeat this procedure with the sensor connector (4) to couple the solar hot pipe to the solar collector (17).



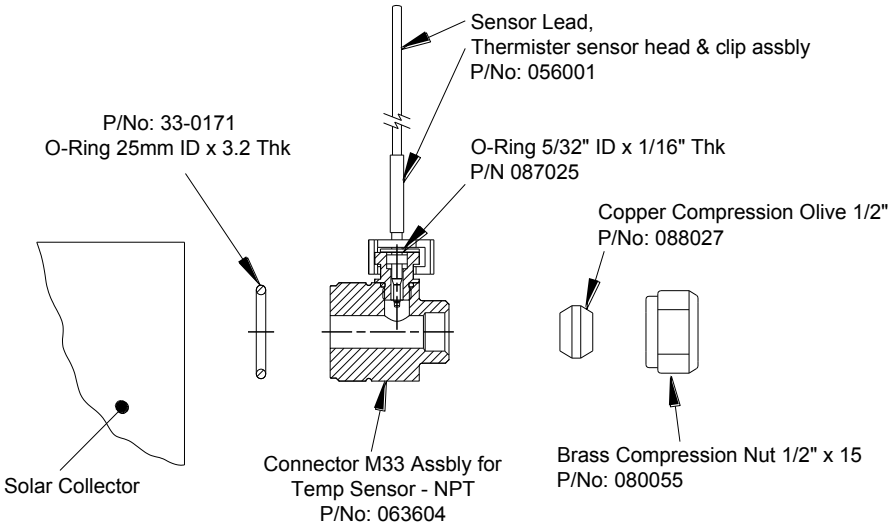
DETAIL A – COLLECTOR UNION ASSEMBLY – SCREWED FITTING



DETAIL B – END PLUG ASSEMBLY – SCREWED FITTING



**DETAIL C – CONNECTOR ASSEMBLY – SCREWED FITTING
(WATER CONNECTION TO SOLAR COLLECTOR)**

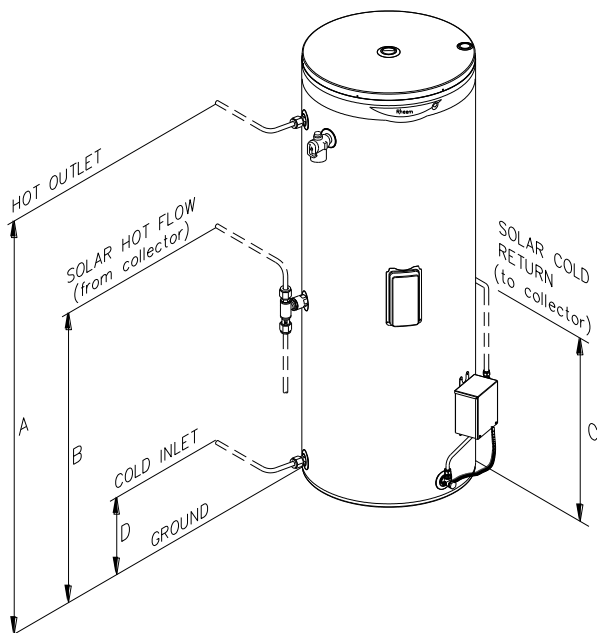


DETAIL D – SENSOR CONNECTOR ASSEMBLY – SCREWED FITTING

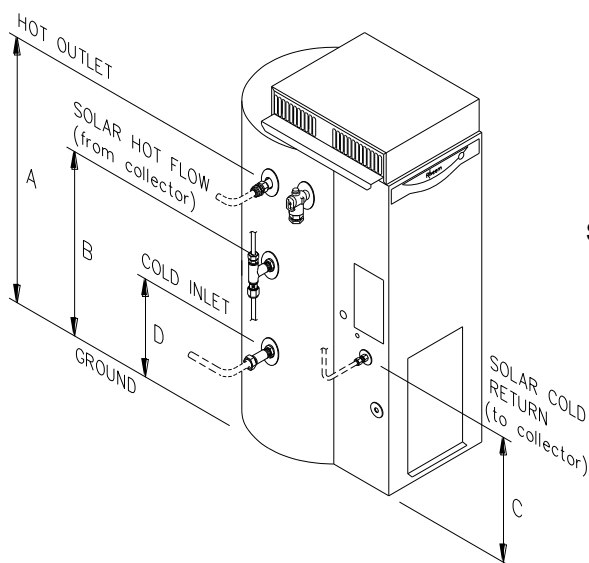
PIPE WORK ROUGHING IN DIMENSIONS

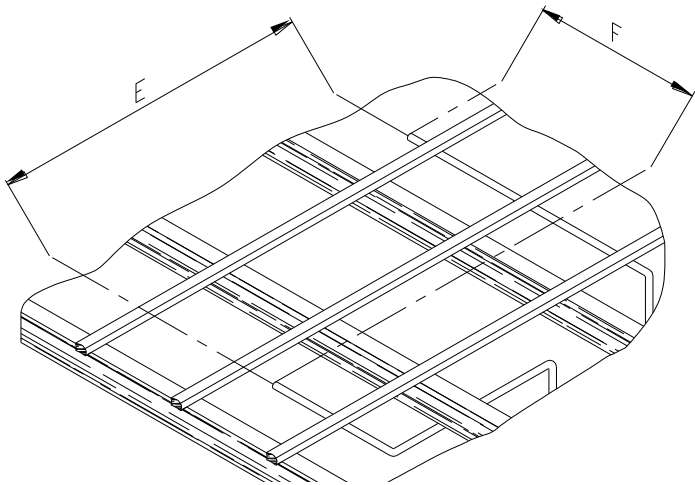
Refer to the diagrams for roughing in dimensions for pipe work to the solar collectors and to the solar storage tank.

**Electric Boost
Solar Storage Tank**



**Gas Boost
Solar Storage Tank**





Solar Pipe Work Roughing In Dimensions

Pipe Work to Solar Storage Tank	A Hot Outlet	B Solar Hot Flow	C Solar Cold Return	D Cold Inlet
Electric Boost				
270	1190	672	373	73
340	1430	734	373	73
430	1600	598	381	81
Gas Boost				
260	1316	922	540	328

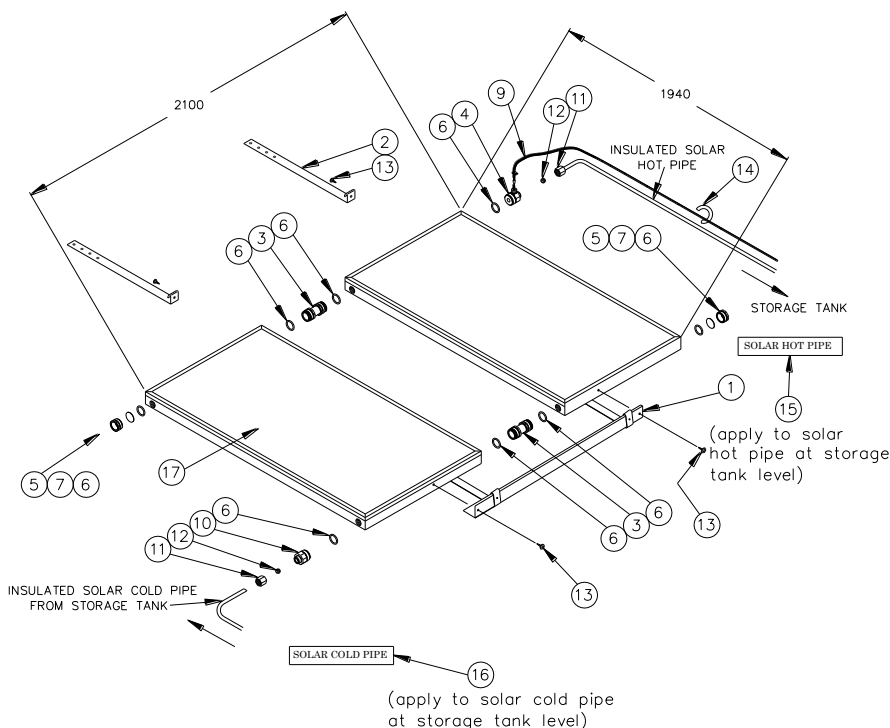
Pipe Work to Solar Collectors		
	E	F
1 Collector	1240	1880
2 Collectors	2360	1880
3 Collectors	3480	1880
4 Collectors	4600	1880

Note: Dimension B and C are 100 mm above fitting.

INSTALLATION – SOLAR COLLECTORS

Note: Although the drawings illustrate the solar cold pipe connecting the bottom left hand corner of the solar collector(s), the solar cold pipe may be connected to either the bottom right or the bottom left corner of the solar collector(s). The solar hot pipe must connect to the top of the solar collector(s) diagonally opposite to the solar cold pipe connection.

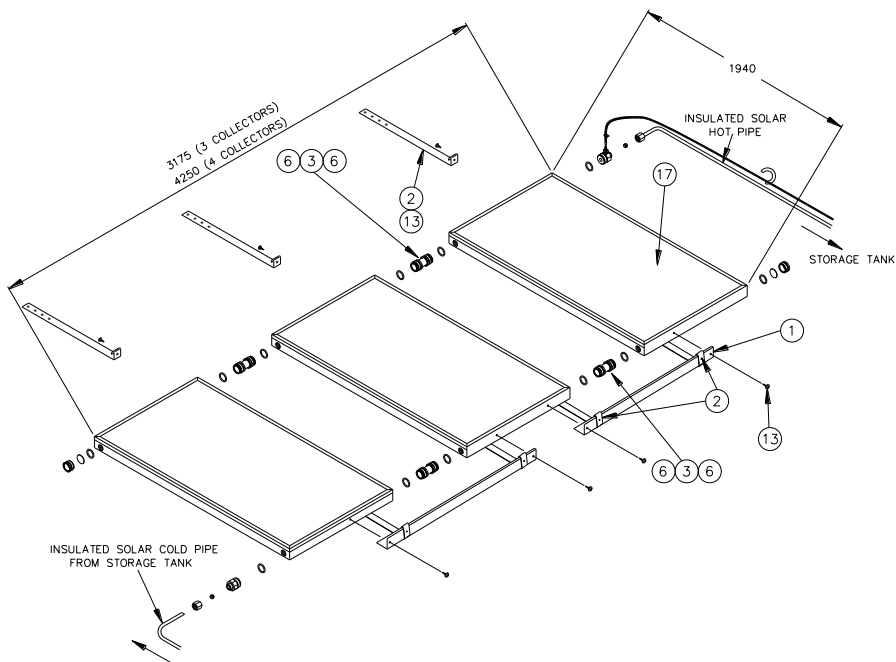
INSTALLATION WITH SCREWED FITTING SOLAR COLLECTORS



SUPPLIED IN COLLECTOR KIT (SCREWED FITTINGS) (299139)

- | | |
|-----------------------------|-----------------------------|
| 1. Collector angle | 11. Compression nut |
| 2. Collector strap | 12. Compression olive |
| 3. Collector union | 13. Screws |
| 4. Sensor connector | 14. Cable tie |
| 5. End plug | 15. Label – solar hot pipe |
| 6. 'O' ring | 16. Label – solar cold pipe |
| 7. Blanking disc | |
| 9. Hot sensor lead assembly | (Supplied separately) |
| 10. Connector | 17. Solar collector |

INSTALLATION – ADDITIONAL SOLAR COLLECTOR(S) – SCREWED FITTING



SUPPLIED IN COLLECTOR ADD ON KIT (SCREWED FITTINGS) (299140)

1. Collector angle
2. Collector strap
3. Collector union
6. 'O' ring
13. Screws

(Supplied separately)

17. Solar collector

WARRANTY NOTE

The solar water heater and its components are covered by a manufacturer's warranty. For full details, refer to the Owners Guide and Installation Instructions supplied with the solar storage tank.

The part extracts from the "Terms Of The Warranty And The Exclusions To It" of the water heater Warranty should be noted before commencing the installation of the solar collectors.

TERMS OF THE WARRANTY AND EXCLUSIONS TO IT

- 2.5 Where the water heater is installed in a position that does not allow safe or ready access, the cost of that access, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility. In other words, the cost of dismantling or removing cupboards, doors or walls and the cost of any special equipment to bring the water heater to floor or ground level or to a serviceable position is not covered by this warranty.
- 2.7 The warranty does not cover faults that are a result of:
- c) Installation not in accordance with the Owner's Guide and Installation Instructions or with relevant statutory and local requirements in the State or Territory in which the water heater is installed.
 - d) Connection at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions.
 - k) Breakage of collector glass for any reason including hail damage (we suggest that the collector glass be covered by the home insurance policy).
 - l) Ice formation in the waterways of a water heater system incorporating a freeze protection system where the electricity supply has been switched off or has failed or where it is installed at an altitude more than 400 metres above sea level.
- 2.8 Subject to any statutory provisions to the contrary, this warranty excludes any and all claims for damage to furniture, carpet, walls, foundations or any other consequential loss either directly or indirectly due to leakage from the water heater, or due to leakage from fittings and/ or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure.

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RHEEM AUSTRALIA PTY LTD - ABN 21 098 823 511
1 Alan Street (PO Box 6) Rydalmere NSW 2116 Australia
www.rheem.com.au

FOR SERVICE TELEPHONE 131 031 AUSTRALIA
0800 657 335 NEW ZEALAND

PATENTS

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TRADEMARKS

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