DURABLE RIGID SOLAR PANEL

D.I.Y. Rigid Panels

INSTALLATION MANUAL

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INTRODUCTION

CONGRATULATIONS ON THE PURCHASE OF YOUR NEW SUNLOVER HEATING SYSTEM!

By investing in a Sunlover pool heating system you will extend your swimming season.
Night time swimming will become a real possibility.

Installing a Sunlover pool heating system simply, and cost effectively, utilises the suns FREE energy to extend your swimming season.

This manual is designed to enable the handyman to install a professional sunlover pool heating system quickly and easily.

With the correct sized kit and a few hand tools these instructions will provide the necessary information for an easy and economical installation.

To ensure you have many years use of your Sunlover Pool Heating System, we recommend that you have it serviced regularly, to check for any maintenance requirements that may spring up over the Winter season and have them rectified well before the swimming season begins.

In order to avoid potential delays of up to 10 business days during the rush of Service and Maintenance bookings we receive during the swimming season, we recommend registering for our Annual Maintenance Program, scheduled yearly between May and August.

If you would like to register for our Annual Maintenance Program please log your details at sunloverheating.com.au/annual-pool-heating-maintenance-program.

Additional product information is available for download from sunloverheating.com.au/solar-pool-heating-system and we have a number of troubleshooting questions answered for you over on our Troubleshooting FAQs page

Should you have any queries regarding the operation of your Sunlover Solar Pool Heating System, please do not hesitate to contact your local Sunlover Heating Office during business hours for assistance.

Thank you for your business and we know you will be very happy with your decision to purchase your Sunlover Heating product.

Solar Kit Sizing

The kit size depends on the amount of solar absorber required.

The surface area of the pool (length x width) is used as the basis for calculating your swimming pool's heating, and a solar collector is installed according to this total area. Typically 80 – 100% is used as the area required for the absorber.

Additional Items
Along with the Sunlover Kit you will require a method of circulating the pool water through the solar system.

These items are purchased separately as specific requirements may need to be considered

For example:

A pool 10m long by 4m wide has a surface area of 40m^2
Therefore 32m^2 is required.

Sizing the System

The size of the solar system to be installed relates directly to the exposed water surface area of the pool, as this is where the heat loss occurs. In general, the panels should equate to approximately 80% of the pool surface area.

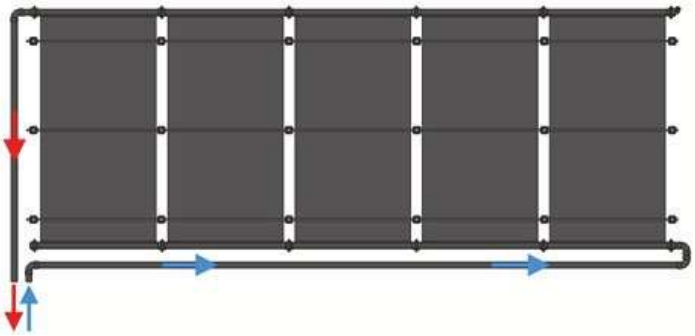
Refer to the Sunlover technical support team for sizing if panels are subject to severe shade, wind or southern roof aspect etc.

Ie: 10m x 4m pool = 40m² x 80% = 32m² of panels.
Panels are available in
1.22m x 2.44m (2.9m²)
1.22m x 3.01m (3.7m²)
1.22m x 3.66m (4.4m²)

Use larger panels where possible to lower the cost per square metre.

Verify Space Requirements

Determine the available area on the roof(s) for the installation. Panels are 1220mm wide with a 80mm gap between absorbers for mounting, totaling 1300mm.



Panels are placed next to each other in a row; each panel requires 1300mm horizontally (i.e. 7 x (1220mm x 3010mm) panels would be 9.1m horizontal by 3.01m vertical.)

Panel Rows may be split to circumvent large obstacles, to change panel size in array, to install on separate roofs. Each split requires a “Split Kit.”

Panels may be spaced around small vents up to 130mm without a “Split Kit” provided they fall between panels by using a 150mm rubber connector.
Each Row requires a minimum of 75mm on all sides to allow for feed and return plumbing.

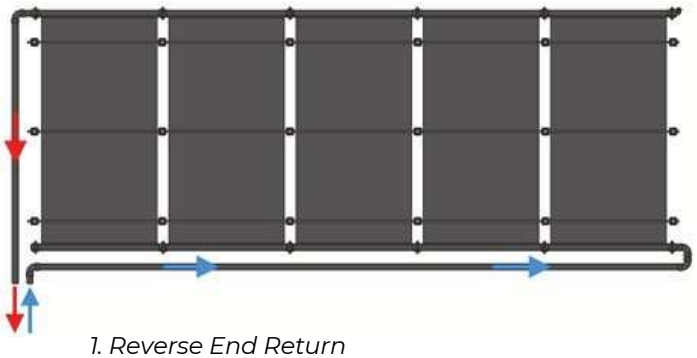
INSTALLATION

Where to Install

Determine the roof(s) where the panels will be installed. The panels should face (in the order of efficiency) North, flat, West or East.
Panels should not face South.
In the event of freezing conditions, the water must be drained out of the collector pipe to avoid panel damage or installed on 15° angles to ensure proper drainage.

Most roof surfaces are acceptable for installation.
The system can also be installed on aluminum or wood ground mounted rack system.

For more information on rack or flat roof installations, consult our technical support team.



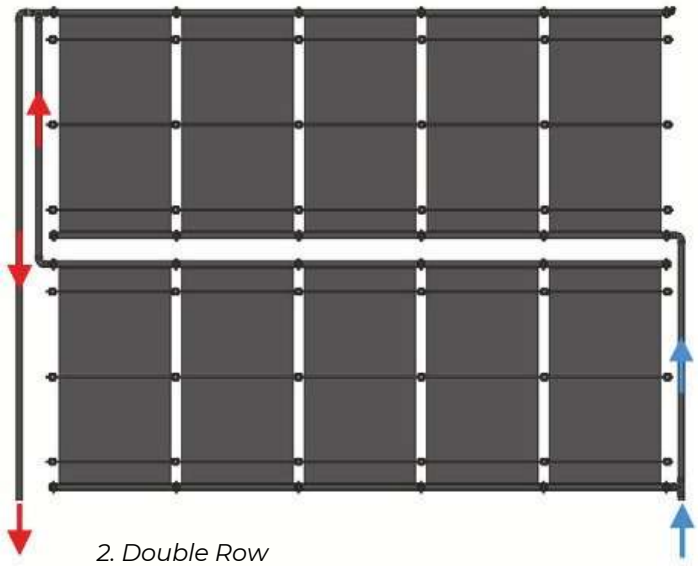
1. Reverse End Return

Typical Panel & Plumbing

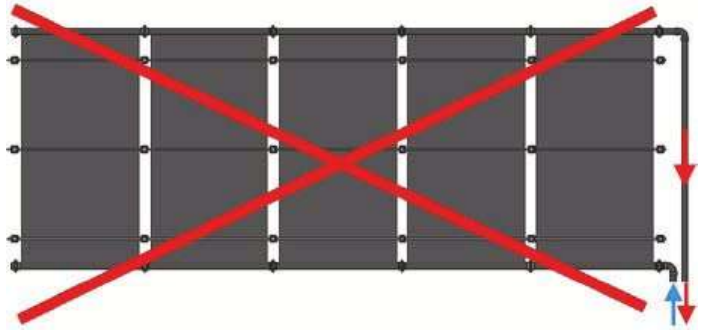
Do not use more than 12 panels in any row. Feed the water into the BOTTOM corner and return from the opposite top corner, **Figure 1.**

Note: Design plumbing layout to have the shortest possible return line to reduce heat losses. For larger systems, split the panels into several rows, **Figure 2**.

Never use "Same End Return", **Figure 3**, because of reduced efficiency at the opposite end panels. All bottom headers and feed plumbing should allow for gravity drain.
In warmer climates the panels and plumbing may be level; in areas where subzero temperature occurs, panels must be installed with a 45mm per meter slope towards the feed.
All return lines from multiple panel rows must meet at the highest point of the system.



2. Double Row



3. Same End Return

SAFETY

Full attention should be paid to safe working practices at all times. Solar heating systems are usually installed on an elevated structure and unless you have the appropriate safety equipment for working at heights, you should employ someone with experience and equipment to complete the installation for you.

Falls from heights can result in serious injury or death.

Panel Installation

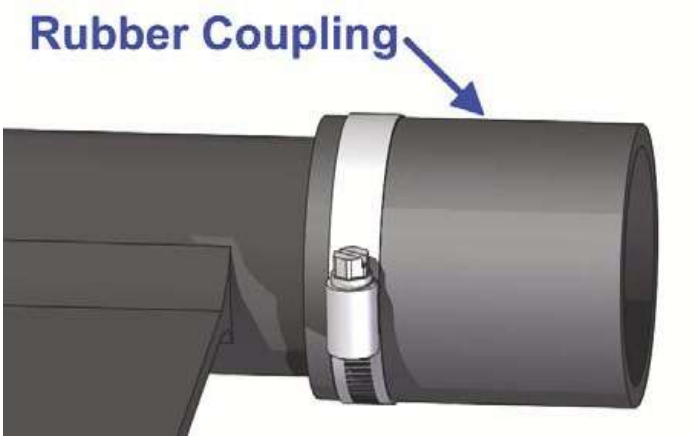
The following procedure assumes a shingle roof; for other roof types including flat roofs, see Section 11 for Special Roof Requirements

Step 1
Establish a horizontal chalk line across the roof for the location of the top of the system. This line must have 20mm clearance above and below it for mounting the Header Clip on a flat surface.
For tile roofs, the line should be approximately 50mm above the bottom of the tile. Note: For seasonal climates, this line must have a 25mm per metre slope towards the feed line to allow for rainage and winterization.
Then drop a vertical line (90° to the horizontal line) at the left or right end of the installation to locate the first panel. Allow a minimum of 75mm on all sides of the panel row for piping. Inspect the roof for any sharp projections that may damage the panels.

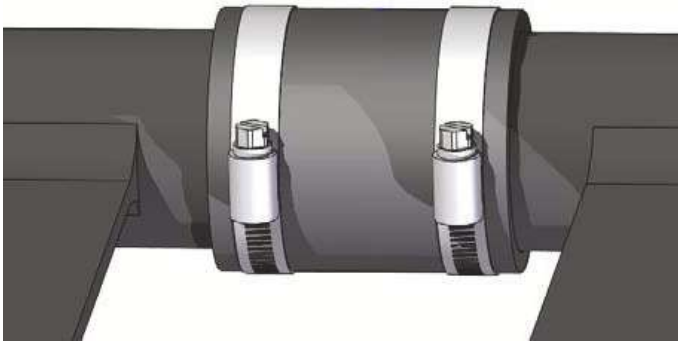
Step 2
Lay out the system before securing any panels.
Begin installing the panels on the left working right towards the opposite end.
The panels can be installed with either side up, and should be flipped after five years to lengthen their life.

Step 3
Lay the top header approximately 20mm below the horizontal chalk line.
Using the parts from the Panel Kit, install a Rubber Coupling on the top right and bottom right header outlet.
Slide a Hose Clamp over each Rubber Coupling and position it over the groove in the header.
Rotate the head of each clamp facing up for easy access, shown in Figure 4. Then tighten until snug.

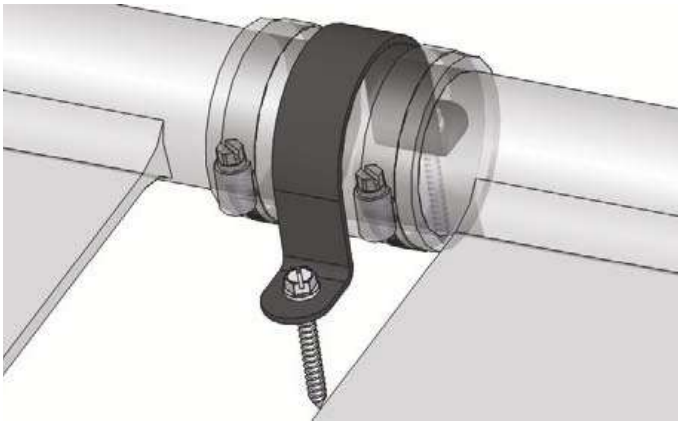
Step 4
Slide another Hose Clamp over the top and bottom Rubber Coupling.
Position the next panel to the right of the first panel, and insert the header outlet into the top and bottom Rubber Coupling of the first panel.
Position each Hose Clamp over the groove of the second panel; facing up for easy access.
Then tighten until snug.
The top and bottom should resemble Figure 5 when finished.
If the roof is not too steep for the panels to slide, you may continue connecting panels following Step 3 then Step 4; otherwise move to Step 5.



4. Rubber Coupling



5. Rubber Coupling Installed



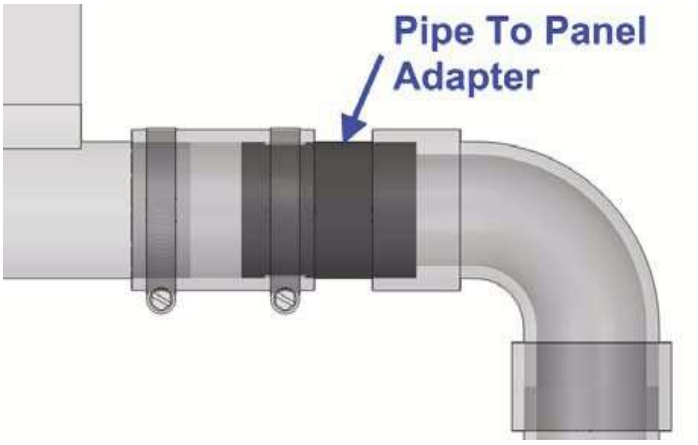
6. U-Shaped Bracket

Panel Installation

Step 5
Verify that the panels are in position (the top edge of the header should be parallel to the horizontal line; the left edge of the very first panel should be on the vertical line).
Place a U-Shaped Bracket over the upper Rubber Coupling and mark the roof where the Hex Screw will penetrate.
Remove the U-Shaped Bracket and apply a generous amount of sealant to the marked areas on the roof.
Return the U-Shaped Bracket. Using a drill and a 3/8" nut driver, drive two Stainless 3/8 Hex Screws through the holes of the Bracket and into the roof.
Note: The U-Shaped Bracket should be tightly secured but be sure not to over tighten the screws and strip the wood. When installed it should resemble Figure 6.
Finally, apply sealant around the head of the screws.

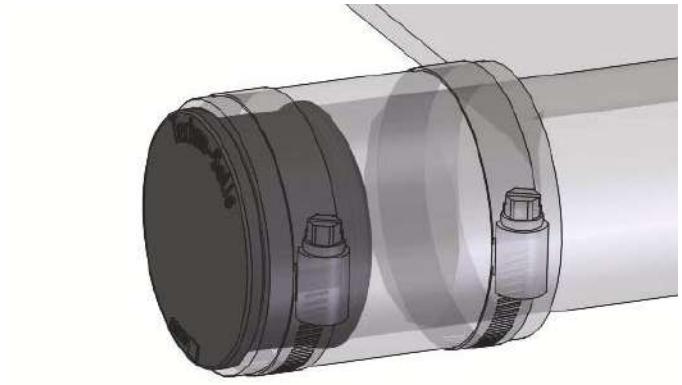
Note: The bottom headers are NOT secured with U-Shaped Brackets to allow for expansion.
Continue with Step 4 and Step 5 until all panels in the row are installed.

Step 6
Install a Rubber Coupling on the four outside remaining header corners using the Hose Clamps.
On the feed and return corners, insert the Pipe to Panel Adapters, seen in Figure 7, into the Rubber Coupling using the end that resembles a header outlet.
Secure with a Hose Clamp. On the upper remaining corner, insert an End Cap and secure with a Hose Clamp, Figure 9, and secure with a Hose Clamp.
On the bottom remaining corner, insert the vacuum breaker assembly, Figure 8.
Secure the final two top Rubber Couplings to the roof with U-Shaped Brackets just as you did in Step 5.

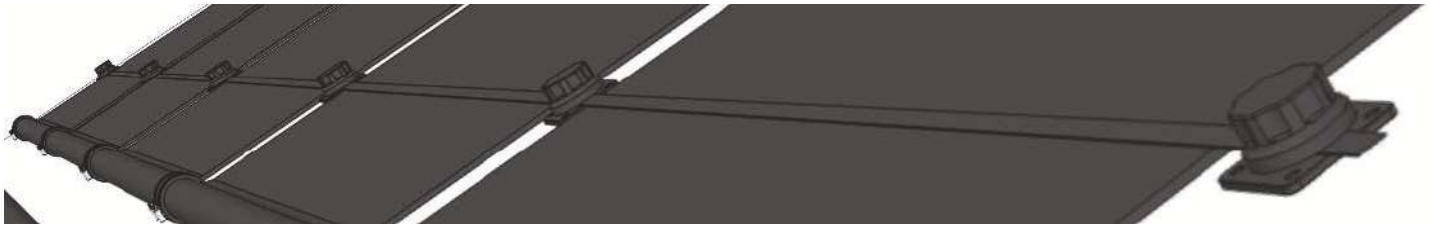


7. Pipe to Panel Adapter

8. Vacuum Breaker Assembly (Vacrel)



9. End Cap



10. Hold Down Straps

Panel Installation

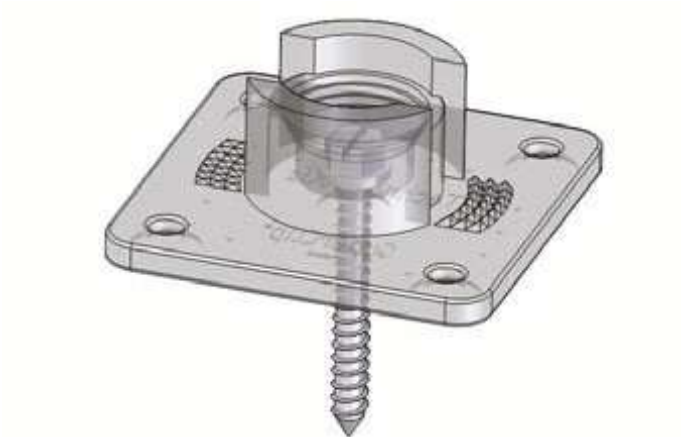
Step 7
The Hold Down Straps, Figure 10, may now be installed. A minimum of 3 straps is required.
In high wind areas, increase the number of straps per panel row, particularly for the longer panels.

The bottom Strap is always located 300mm above the bottom header. The remaining Strap(s) are equally spaced between the bottom Strap and the top header. You may want to use a chalk line to mark this spacing before you install the panels by measuring down from the top horizontal line; or use the shingle / tile lines or rood screws as a guide.

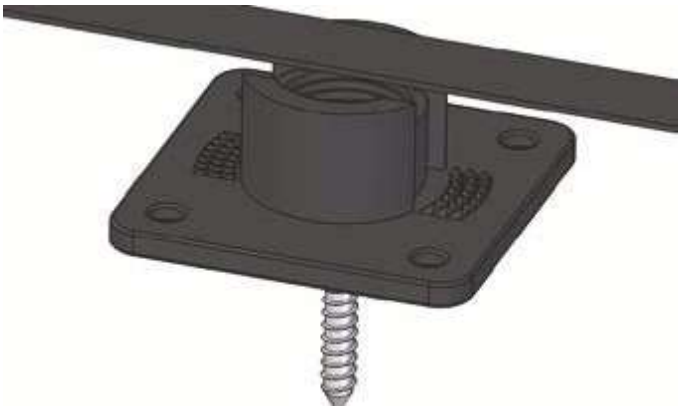
Install SuperClips along the marked lines between all panels and at the ends of the row.
To install a SuperClip, apply a generous amount of sealant to the base of the clip.
Place the base on the marked line and secure with a Stainless 3/8 Hex Screw through the center hole of the base, Figure 11.
Note: The SuperClip base should be tightly secured but be sure NOT to over tighten the screw and strip the wood. In high wind areas the base can be fastened in the four corners in addition to the center.

Lay strap across the SuperClip base at the left end of the row, Figure 12. and screw on SuperClip cap firmly, Figure 13.
Stretch the strap across all the panels to the right and screw on the last SuperClip cap firmly while the strap is under tension. Now, working from the center towards the ends of the row, screw each cap on firmly.

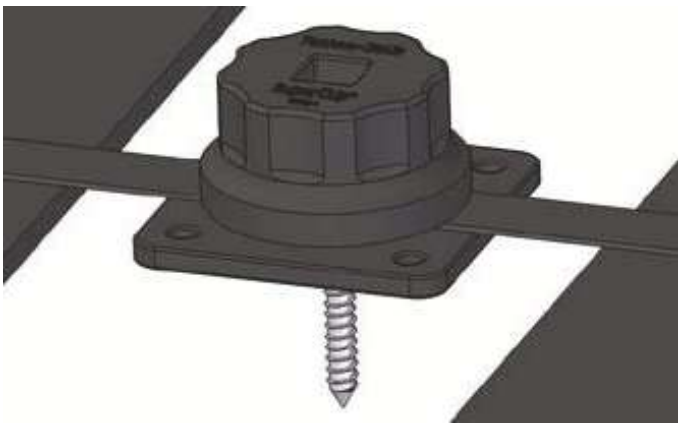
After the system is installed for several weeks or even months the Strap may need to be re-tensioned due to expansion of the strap in warmer weather.



11. SuperClip Base



12. Tensioned Strap



13. SuperClip Installed

INSTALLATION

Pipe Layout

Use 40mm PVC plastic piping between the risers and the panels. Black pipe is recommended because of its excellent outdoor life.
The pipe may be painted with a good outdoor paint to match the structure or roof. 40mm pipe may be used on splits between panel rows.

All plumbing should allow for gravity drain. In tropic or sub-tropic climates, the panels and plumbing may be level; in southern climates, they must be installed with a 20mm per 3m slope towards the pool equipment.

The panels should gravity drain back to the pool. If it is not possible to route plumbing to allow for panel drainage, a manual drain valve or line should be installed, or the end plugs may be removed to drain panels.
Support all pipes every 1.2m using Galvanized Pipe Clamps.

Flow Rate

The required flow rates for the system is determined by adding together the recommended flow rates for all the panels installed.
Pump sizing is determined by required flow rate and the head pressure of the system (varies, depending on individual system).
Refer to Pump performance charts to select pump.

Panel size	3.66m	3.01m	2.44m
Max	37.86	37.86	37.89
Min	11.36	9.47	9.47
Recommended	18.55	18.55	18.55

Startup & Testing

Consult the owner's manual for complete startup procedure. After system is filled with water, check all fittings, hose couplings and panels for leaks.
Set the time clock to operate during the solar day, typically 9am to 5pm.
Feel the surface of each panel to ensure proper flow; as the pool water flows through it on startup it will cool to the temperature of the pool water.
Check for air bubbles from the pool returns.

Roof Requirements

Variations in the installation procedures are outlined below. Consult the technical support for other types of roof installations.

FLAT TILE OR BARREL TILE ROOFS

The mounting screws need to be screwed through the tiles and into the pine battens below.
Determine location of battens and drill a pilot hole through tiles to batten. DON'T DRILL INTO THE BATTEN.
Apply a generous amount of sealant to saddle and screw the saddle into batten. This will ensure the bracket is firmly fixed to the roof sub structure and does not place undue pressure on the tile, causing it to crack.

FLAT BUILT-UP GRAVEL ROOFS

Use caution when installing on this type of roof.
The preferred method is to have a roofing contractor install "roof curbs" where the mounting hardware will be installed.

OPEN BEAM ROOFS

Any ceiling with exposed beams must be checked to avoid the screw ends from penetrating into the interior space. Call for alternate installation method.

METAL ROOFS

If the metal roof is installed on a plywood surface, you may proceed using the normal installation method.
If the metal roof is installed on pine battens, the mounting hardware must penetrate into the pine battens to ensure a good seal and to avoid bending the metal surface.

KLIPLOCK ROOF

To install the panels on a flat kliplock roof, the panels will need to be installed sideways (90° offset) to the edge of the roof. This enables all the fixings and superclips to be attached to the ridges of the roof profile.
When installing on a Kliplock roof, use the butterfly clip and an extra stainless steel clamp to secure the panels to ridges of kliplock roof profile. NO fixings should be installed in pans of Kliplock roof, as this may lead to future roof leaks. Contact Sunlover Technical support if needed.

RUBBER OR ASPHALT MODIFIED

This type of roof is typically installed flat. Using a 50 – 60mm fender washer under the mounting hardware will provide additional mounting surface. Be sure to use a generous amount of sealant under the washer, between the washer and the mounting hardware, and on top of the mounting screw.

ROOF OR GROUND MOUNTED RACK SYSTEMS

Rack systems can be made from pressure treated wood or aluminum. For roof mounted racks aluminum is preferred for its additional strength and longevity.
Aluminum racks are available in a kit form. To order a kit, or to request a wood rack design specification sheet, call the technical support line.

PLUMBING DIAGRAMS

Independent

Additional Parts Required
when installing a NEW System

Solar Boost Pump

M Series Pool & Spa Pump
(Instructions with pump)

Digital Solar Controller

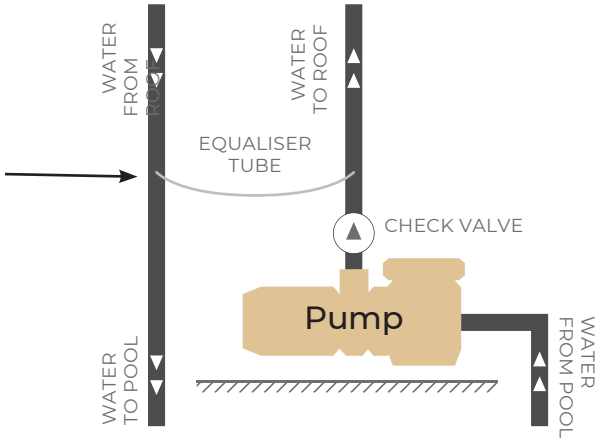
SLHC1 - Heat Command Auto Controller
(Instructions with controller)

Equaliser Kit

The Equaliser tube (bleeder pipe) is used to allow the roof system to drain while the solar is not operating. This is installed on the pipe work up to the roof (below the eve) connecting supply and return pips.

To install the equaliser tube:

- Drill one 9mm hole onto each of the 40mm pipes
- Insert a grommet (supplied) into each hole
- Using one tube of the solar absorber, push a joining barb into either end and push both ends into the grommets and sleeve.



Retro Fit

If existing pool plumbing to be used, the pool pump must be running during solar heating hours.

This system is suitable for 2 story installations.

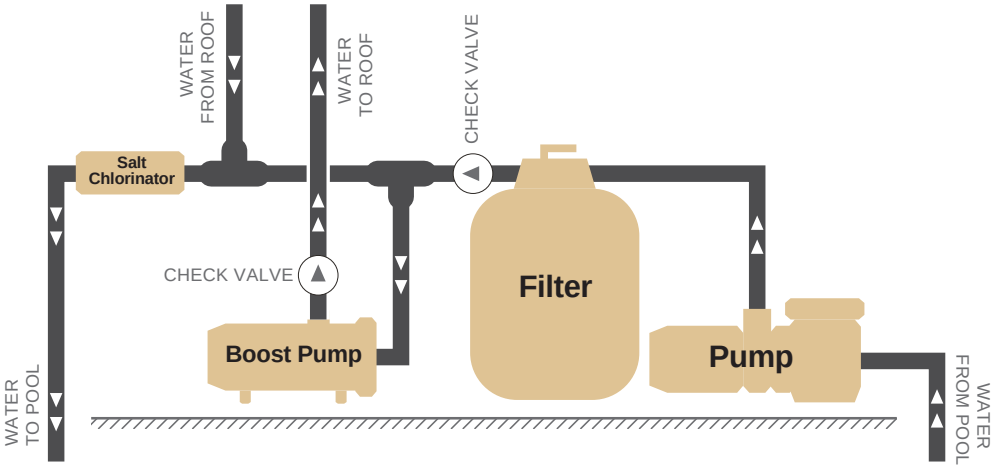
Additional Parts Required
when installing a NEW System

Solar Boost Pump

P Series Pool & Spa Pump
(Instructions with pump)

Digital Solar Controller

SLHC1 - Heat Command Auto Controller
(Instructions with controller)



VACUUM RELIEF VALVE (VACREL)

If the Vacrel leaks it may have some type of foreign material under the silicone rubber. ie Stick, leaf, spider etc.

To clean this unit:

- Unscrew the Valve body from the main body of the Vacrel. (grip points included on this part)
- Simply clean out the Underside of the umbrella lip (soft rubber) on the valve and remove any foreign material.
- Replace the valve body ensuring that the O-ring is still in place
- Replace Vacrel onto your solar system

Should you continue having an issue with leaks on the valve please contact your local Sunlover Heating Office during business hours for assistance.

INSTALLATION TIPS

- Lay the solar first - work plumbing back to filter
- Make sure roof is not shaded and is clean
- Use saddles where needed to secure pipe to roof and walls.
- Vacuum break valve must be installed to allow water to flow back to pool when switched off
- Install solar controller so pump lead reaches
- Make sure solar controller roof sensor is not shaded and is not installed on solar panels
- Wear sand shoes when working on roof and read safety issue statement before beginning work
- At start up, check all fittings and collector for leaks.
- When turning solar on you will see air bubbles returning to the pool - this is normal.
- To ensure you have many years use of your Sunlover Pool Heating System, we recommend that you have it serviced regularly

TECHNICAL SUPPORT

For all product and installation enquiries please contact your Sunlover Heating office and we will either assist or direct you to your nearest authorised support agent.

Sunlover Heating Pty Ltd

1800 815 913

customerservice@sunloverheating.com.au

We recommend that you register all products to ensure you are covered by your Warranty online at https://sunloverheating.com.au/service-request/warranty-registration/

Registering your products simplifies proof of purchase in the event of a warranty claim.

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Molendinar QLD 4214
T: 07 5679 6821

sales@sunloverheating.com.au
sunloverheating.com.au

WARRANTY REGISTRATION

Registering your Sunlover Heating / Oasis Aquatics products is fast and easy, providing peace of mind that you've got great backup support for the life of your products.

PLUS:

- Extend your warranty
- Dedicated customer support
- Exclusive discounts on new products and service

And we promise, NO SPAM!

SCAN ME TO BE DIRECTED TO THE REGISTRATION PAGE

IT'S VERY IMPORTANT THAT WE HEAR FROM YOU!

RIGID SOLAR PANEL WARRANTY

Including Internal Freeze Protection and 10 Year Cockatoo Protection

Effective 1st September 2017, Sunlover Heating (the "Warrantor") warrants the solar pool panels manufactured by it (the "Panel"), to be free from defects in material and workmanship from the date of purchase by owner (the Consumer"), subject to the following limitations, terms, and conditions.

This Warranty is subject to the terms and conditions set out hereunder.

1. DURATION OF THE WARRANTY

1.1. First Period: Ten (10) Years Warranty.

1.2. Second Period: Lifetime Limited Warranty. (15 Years)

2. WARRANTORS OBLIGATIONS

2.1. During the First Period (10 Years), the Warrantor shall be required to exchange a defective Panel due solely to faulty materials or workmanship.

2.1.1. Cockatoo Coverage: During the first 5 years of this First Period, the Warrantor shall be required to exchange a defective Panel due to any direct damage caused by the Cockatoo bird. During years 6 through 10 the Warrantor will provide Consumer a replacement Panel at 50% of the current published Panel List Price, in effect at the time of discovery, for any direct damage caused by the Cockatoo bird.

2.2. During the Second Period (15 years), the Warrantor shall be required, under this Limited Lifetime Warranty, to replace a defective Panel due solely to faulty materials or workmanship, the cost of such replacement will be 50% of the current published Panel List Price, in effect at the time of discovery, to be assumed by the Consumer.

3. INSTALLATION CONDITIONS

3.1. The Panel must be installed in accordance with The Sunlover Heating Installation Manual. Local installation regulation shall provide the base standards by which the installation is performed. Installation standards include but are not limited to:

3.1.1. The Panel must be fully drained when they are not in use.

3.1.2.The Panel must not rest on any sharp objects.

3.1.3.The Panel must not be anchored at both the top and bottom header.

3.1.4.The Panel must be supplied with filtered water.

3.2. The Panel has to be serviced by a Sunlover Heating Authorised Dealer.

4. TRANSFERABILITY OF WARRANTY

4.1. This Warranty is solely for the benefit of the original Consumer and is therefore not transferable. If at any time, the Panel is resold or has changed ownership; this Warranty shall become null and void.

4.2. Customers have the option to apply directly to Techno-Solis for a Transferability Addendum to this Warranty. The cost of this Transferability Addendum is 50% of the current published list price of a Panel, per Panel sold and installed (as per the original sales Contract and Warranty). This application and payment must be returned to Techno-Solis within 90 days of the change in original ownership. Techno-Solis reserve the right to refuse any application.

5. EXCLUSION OF COVERAGE

5.1. This Warranty extends only to damages resulting from defects in materials and workmanship. It does not extend to damage caused by Consumer neglect, misuse, abuse, accidents, violent storms, abnormal weather conditions, freight, improper installation, or by any other fortuitous event caused by any other means whatsoever being out of Warrantor's direct control.

5.2. This Warranty does not cover any cost of labour or associated parts in its execution. Any labour cost or parts cost incurred in the execution of this Warranty is the sole responsibility of the Consumer.

5.3. Warrantor shall not be liable for any direct or indirect damages resulting from the Panel or Defective Panel.

5.4. No Warranties are, or have been made by Warrantor with respect to the Panel other than those expressly included in this Warranty.

6. EXTENT OF WARRANTOR'S LIABILITY

6.1. Warrantor's liability under this Warranty can never exceed the cost of the Panel purchased from Sunlover Heating.

7. RESPONSIBILITY OF THE CONSUMER

7.1. The enclosed Warranty Card must be fully completed by Consumer and returned to Warrantor within (30) days from the date of purchase by Consumer.

7.2. If, at any time during the period covered by this Warranty, Consumer discovers a Panel to be defective, notice of such faulty conditions shall be given by Consumer to Warrantor in writing within (30) days of discovery of such faulty condition.

7.3. The Consumer must establish the original purchase date and system information by making available to the Warrantor the original purchase contract, i.e. Proof of Purchase in the form of the original invoice.

7.4. The Consumer is responsible for the good working condition of the system. If you find that your system is not in good working condition, contact your Sunlover Heating Authorised Dealer immediately.

7.5. The Consumer is responsible for maintaining a regular service program on the system. The system is to be serviced a minimum of every 12 months from the date of installation. Failure to comply with an annual service of the system will void the p**roduct Warranty. The Consumer is responsible for all charges associated with regular servicing of the system.**

8. SHIPPING COSTS AND AUTHORISATION

8.1. Prior to returning any defective Panel to the Warrantor, written authorisation must be received from the Warrantor. If authorisation instructions are not followed, this Warranty shall become null and void.

8.2. The Consumer is responsible for any freight involved in returning to the Warrantor's Plant, any defective Panel for exchange under this Warranty.

8.3. Upon approval of the Warranty claim, the Warrantor will make available a Replacement Panel for the Consumer.

8.3.1. The Consumer can opt to pick up the Replacement Panel from the Warrantor's Plant.

8.3.2. The Consumer can opt for the Warrantor to ship the Replacement Panel to the Consumer, at the Consumer sole expense.

NOTES