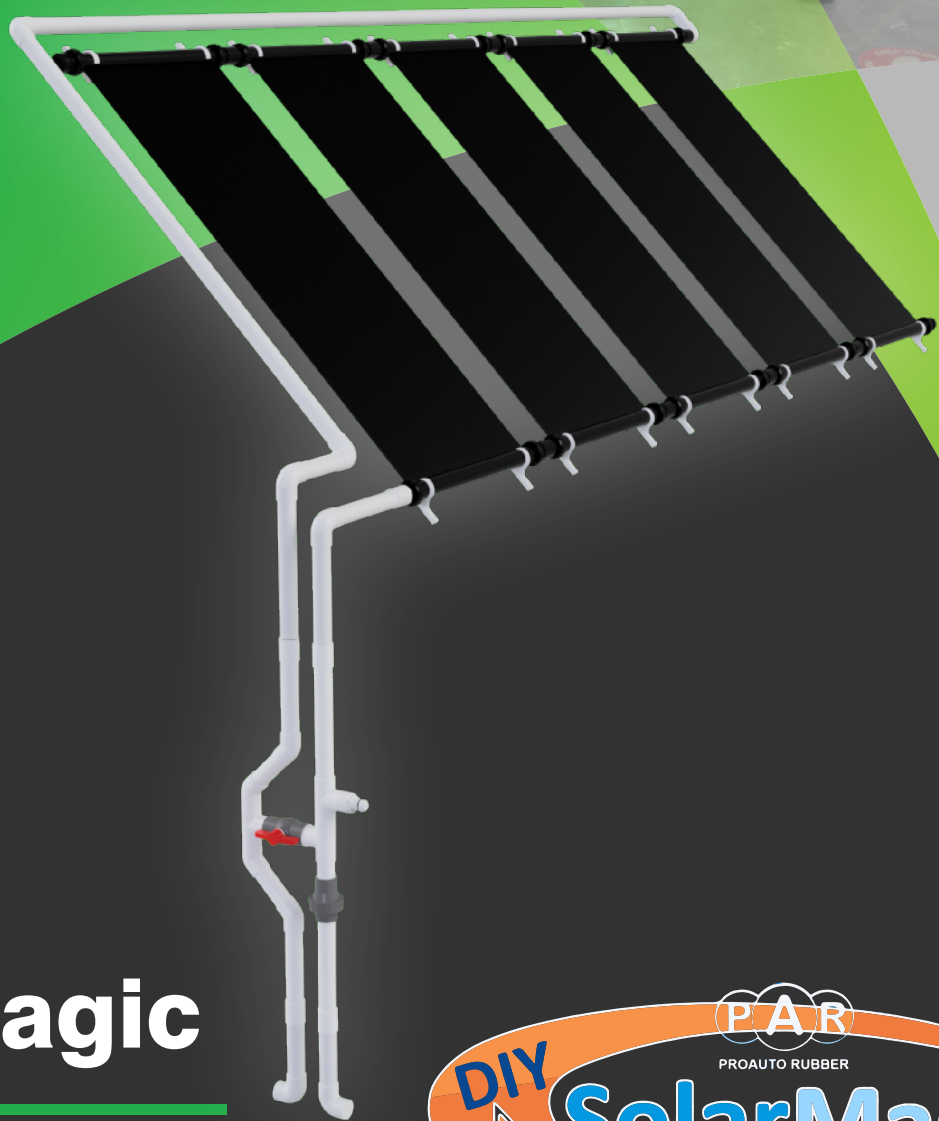
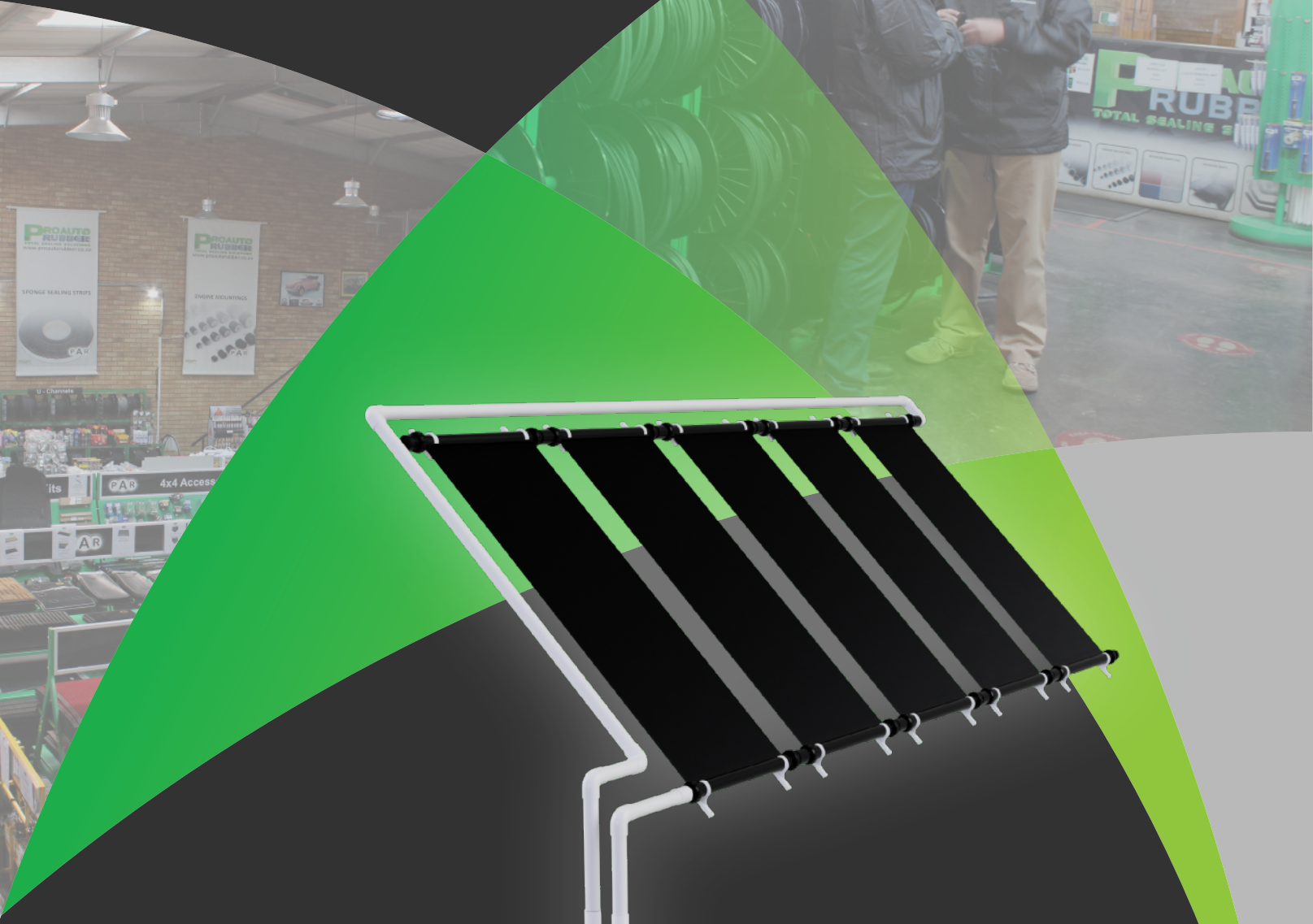




PROAUTO RUBBER

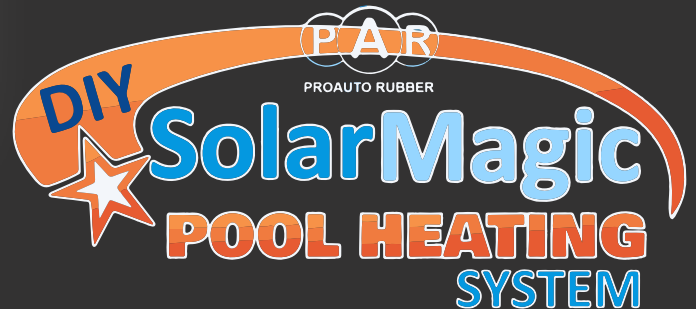
2021

October



Solar Magic

DIY Guide



ProAuto Rubber Solar Magic System

This modular system allows you to build a pool heating system customized to your pool size and panel placement, The kits bellow are sold separately, this gives you the option to buy single or multiple panels based on your pool size.

Our General diy kit has a variety of elbows, fittings and brackets to make the installation convenient without having to buy all these items separately.

Our valve kit offers a great solution to bypass the panel array and provide a proper draining method when the pump is off or the panels are bypassed.

Lastly our panel kit, each panel kit includes one 600mm by 3000mm solar panel with fittings, This panel kit on its own wont work as a system but works great with the kits mentioned above. This panel kit can also be used to extend an existing solar magic panel system.

PVC pipe is not included in any of our kits to keep shipping costs down

This guide is designed assuming you bought all our kits or sourced all the parts in the kits as listed below



25mm Polyester Webbing	X10m
260ML CLEAR SILICONE	X1
45' PVC ELBOW BLACK	X8
45' PVC ELBOW WHITE	X8
90' ELBOW BLACK	X8
90' PVC ELBOW WHITE	X8
HOLDER BATS WHITE	X12
50mm to 40mm reducer	X2
POP RIVETS 4.8X27 (WEBBING)	X24
POP RIVETS 4.8x40	X24
PVC STRAIGHT CONNECTER BLACK	X6
PVC STRAIGHT CONNECTER WHITE	X6
PVC WELD GLUE 200ml	X1
Solar End Cap	X2
SOLAR MAGIC UNION	X2
PTFE Tape	X1



45' PVC ELBOW WHITE	X4
50mm White PVC Pieces	As Show in Picture
BALL VALVE PVC 50mm	X1
Non Return Valve	X1
PVC STRAIGHT CONNECTER WHITE	X4
PVC T PIECE WHITE	X3
PVC WELD GLUE 200ml	X1 (In unglued version)
REDUCER FOR V/BREAKER	X1
Vacuum Breaker 22mm	X1



25mm Webbing Prepack	X2
HOLDER BATS BLACK	X4
POP RIVETS 4.8X27	X4
POP RIVETS 4.8x40	X8
PVC STRAIGHT CONNECTER BLACK	X2
SOLAR MAGIC O RING	X4
Solar Panel 600mm x 3m	X1

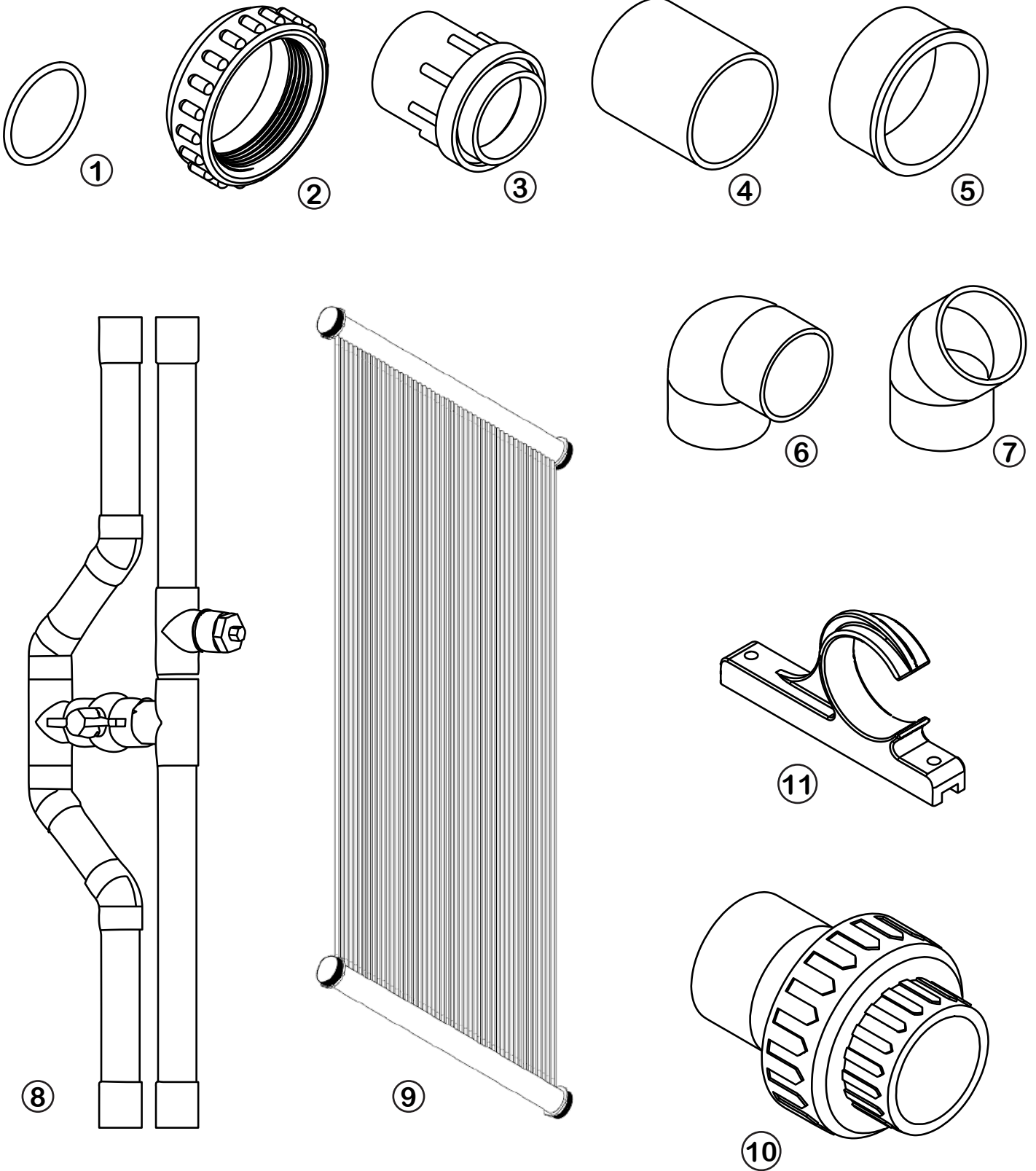
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How many panels do you need ?

Pool size is dependent of depth, The deeper your pool the longer it will take to heat up. These pool sizes are based on an average depth of 1.2m

Pool Size	Litres	Panels
2m x 3m	8000	1
3m x 3m	14000	2
4m x 3m	18000	3
6m x 4m	36000	5
8m x 4m	54000	7
10m x 5m	75000	10
12m x 5m	80000	12
20m x 6m	108000	14

Month	Unheated Pool	Heated Pool	Heated pool(with Solar Blanket)
Jan	24.3	30.2	33.3
Feb	23.5	29.4	32.5
Mar	22.8	28.4	31.8
Apr	19	24.5	28
May	15.1	20.5	23.5
Jun	12.3	16.2	20
Jul	11.9	14.9	18.4
Aug	13.7	19.7	22.7
Sep	16.9	22.9	25.8
Oct	20.2	26.2	29.3
Nov	22.66	28.5	31.7
Dec	23.7	30.3	33.3



Installation introduction

Pump and Filter

A minimum 1.1Kw Pump size is required to run the system. Do some research on your pump to make sure it will be able to push water to the height of the desired panel position, If your pump has a weak flow because of a blocked filter or any other obstruction we recommend fixing any problems prior to installation.

Positioning

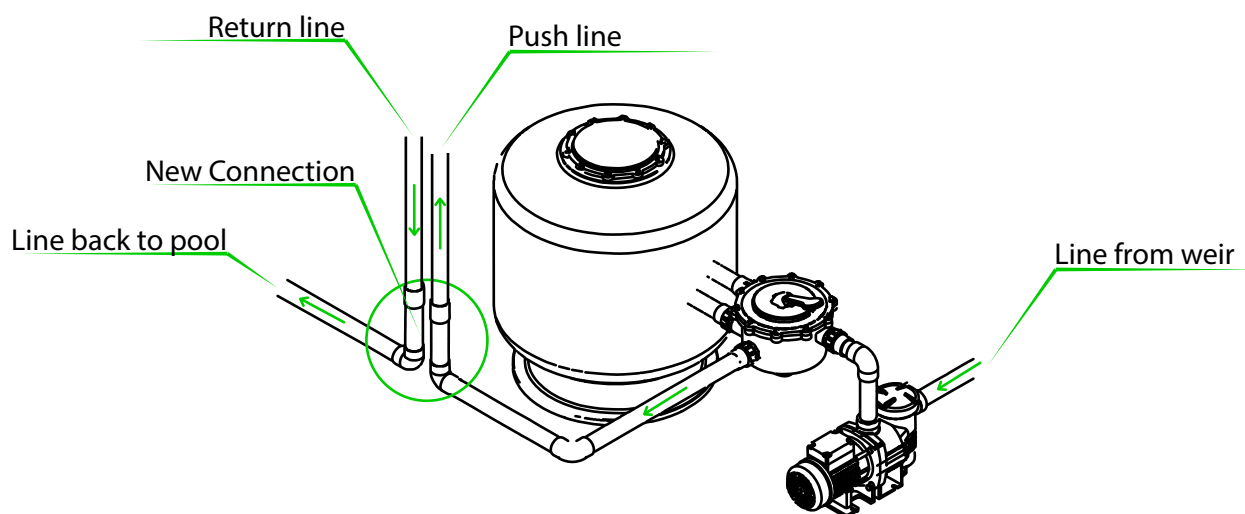
In the southern hemisphere a north facing roof is desirable, take a day to see which part of your roof is best suited. The panels can be positioned on any structurally sound roof suitable to hold some extra weight

Piping

Choose the shortest route possible between your roof and pump, use as few elbows as possible Each elbow decreases the flow rate and ultimately your heating. Some of your pipes will be burried and some will be braced to a wall on its way up to the panels. You will need some basic tools like a shovel, drill and masonry drill bits. When digging trenches for your pipes look out for existing pipes and electrical lines found especially around your pump.

Flow

First we need to establish where the panel push and return intersection will be made. The panel system needs to be under pressure and therefore needs to be coupled after your pump, just before it returns to your pools jets or fountain. In the illustration you can see where the new connection is made

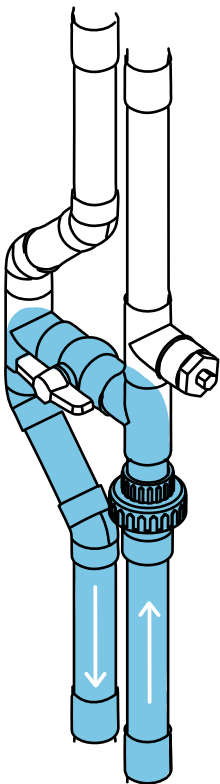


Valve

The valve is used to toggle the solar panels in or out of use. The valve assembly should be positioned on an accessible wall en route to the panels on the roof. The valve assembly includes a non return valve to keep water draining back to the filter and pump. Also included in the valve assembly is a vacuum breaker. This allows the panels to drain through the return line when the pump is switched off. This keeps the water in the panels from freezing. We do not recommend leaving the system dry when there is a lot of sunlight. Having the panels bake in the sun with the system off will reduce the lifespan.

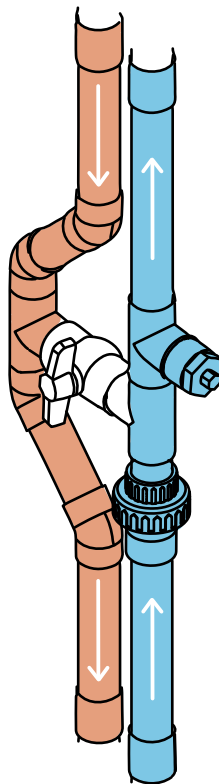
Valve open

With the valve open the water will flow through the valve and bypass the panels as this is the path of least resistance



Valve closed

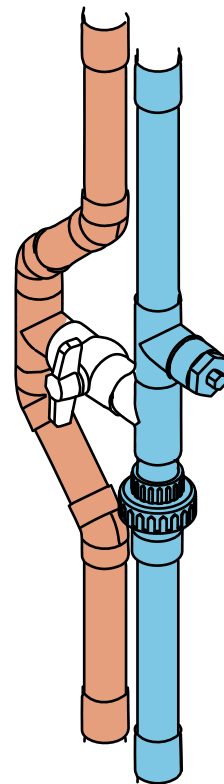
When the valve is closed the water flow will be directed through the panels



Valve closed

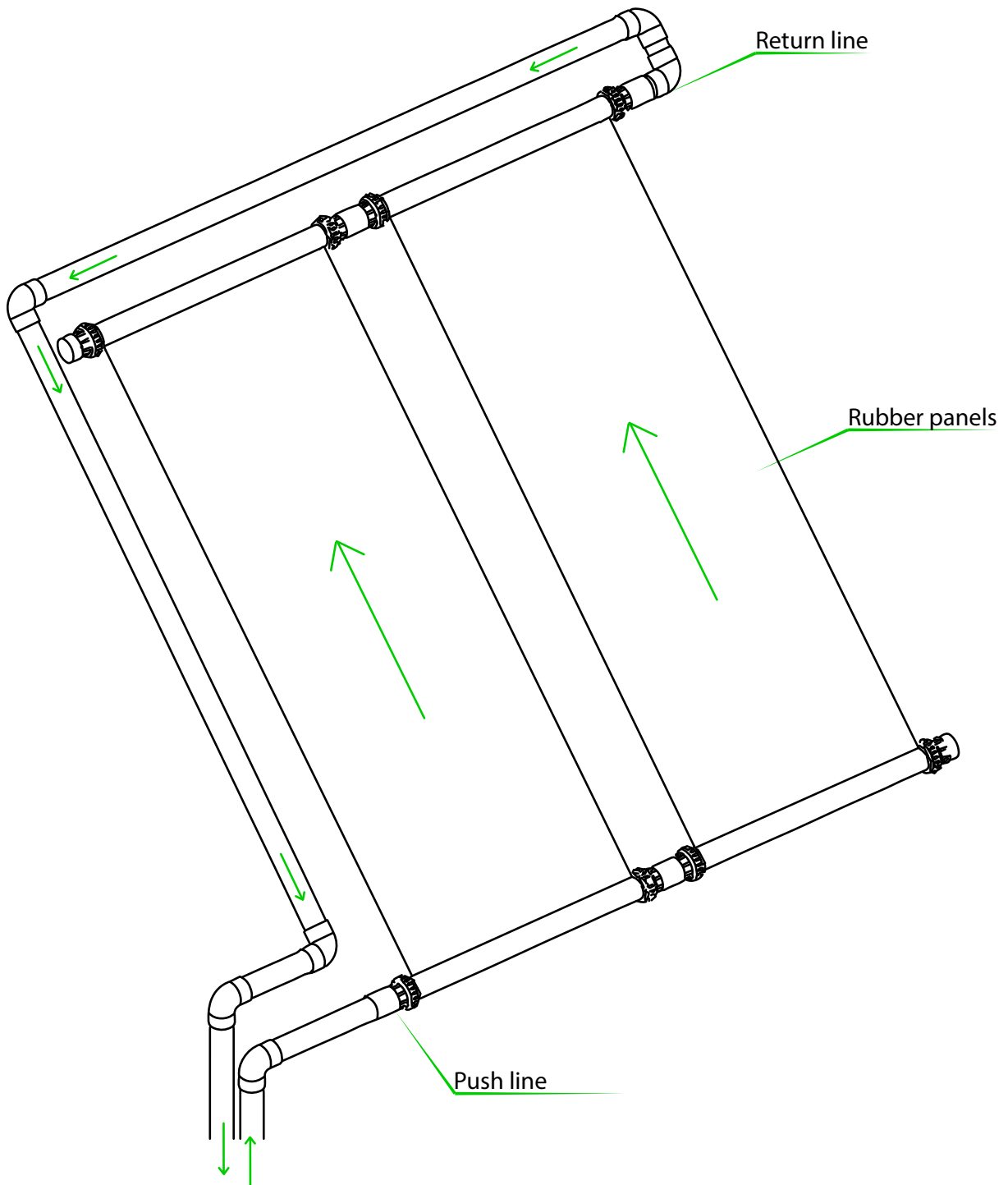
Pump off

When the pump is off and the valve closed the some water will flow out towards the pool. The vacuum breaker prevents a vacuum



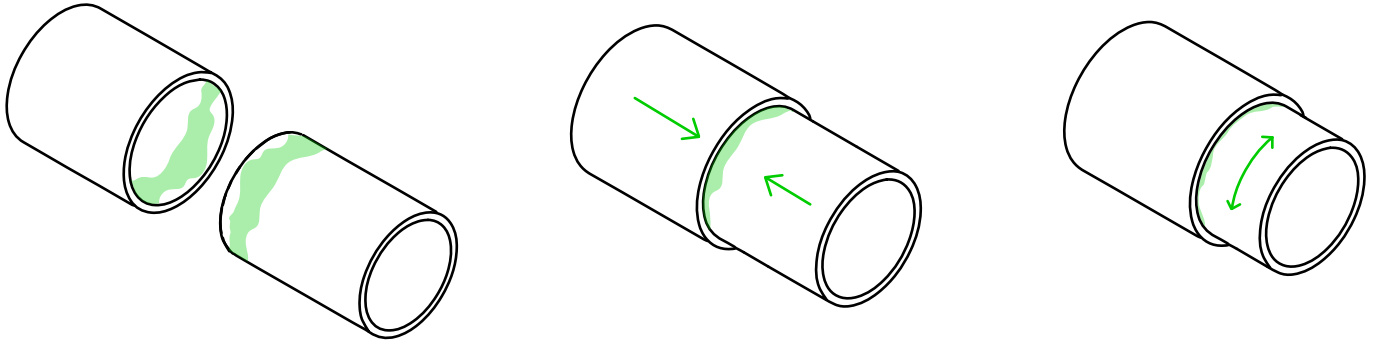
Panels

The panels are filled from the bottom and overflow at the top to the return line to go back to the pool. The in and outlet of the panels are on the opposite sides to make the water flow through the tubes evenly



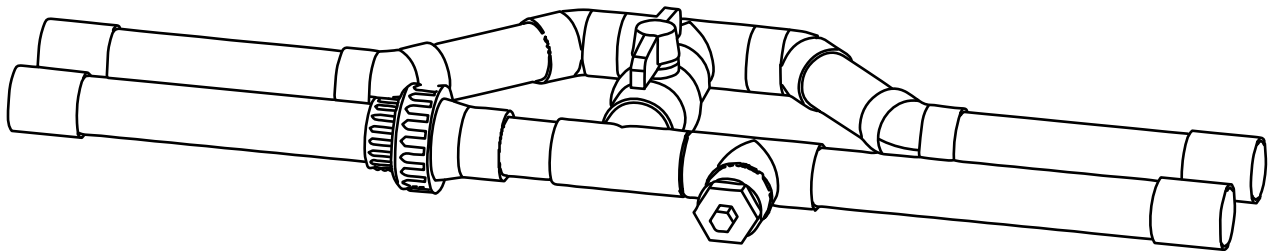
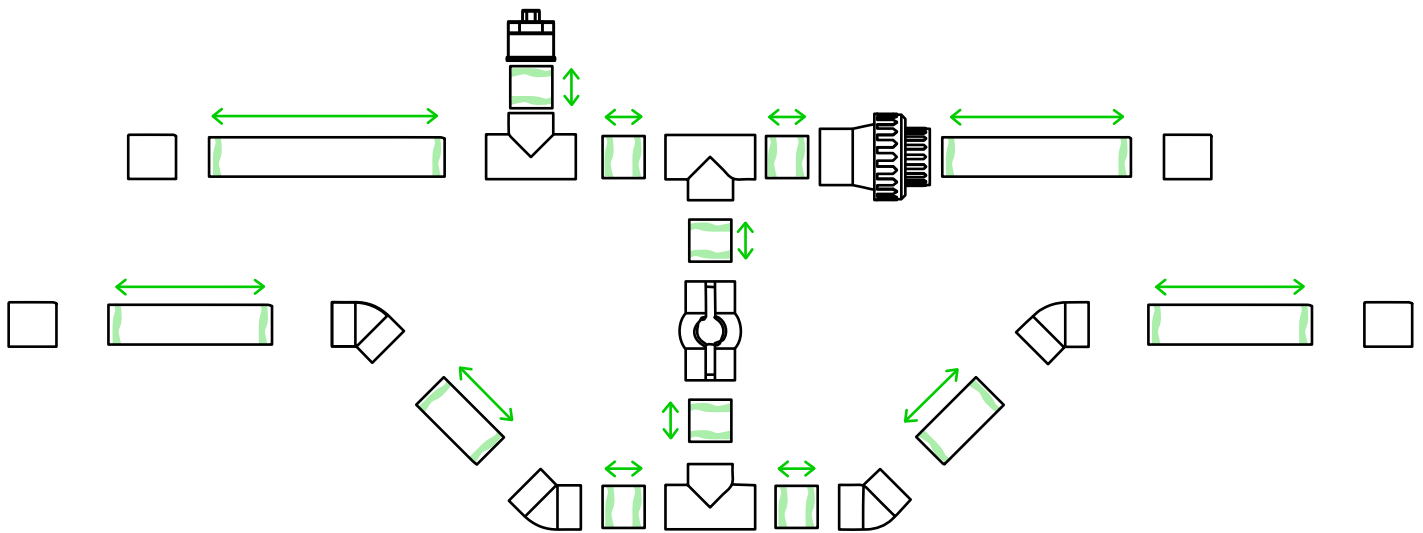
Glue Couplers and joints

To glue couplers and joints apply a liberal amount of PVC weld to the outside and inside of the joint. Press the parts together and give it a twist back and forth to ensure a seal.



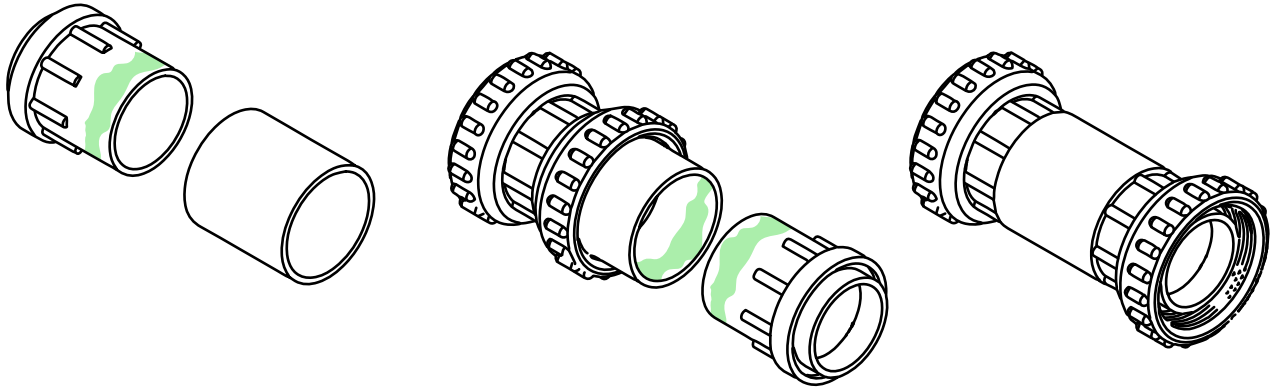
Valve assembly

On request we can supply an unglued valve assembly. Refer to the illustration and glue the valve assembly together with the parts provided in the valve kit



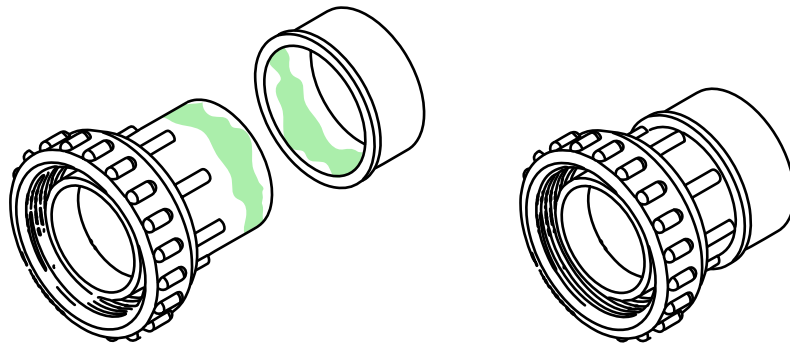
Coupler assembly

Glue the Coupler assembly together as shown in the illustration



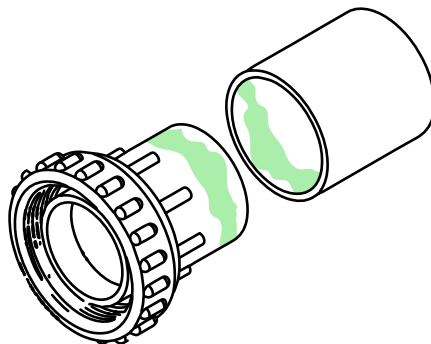
End stop assembly

Glue the endstop together as shown in the illustration



Pipe union assembly

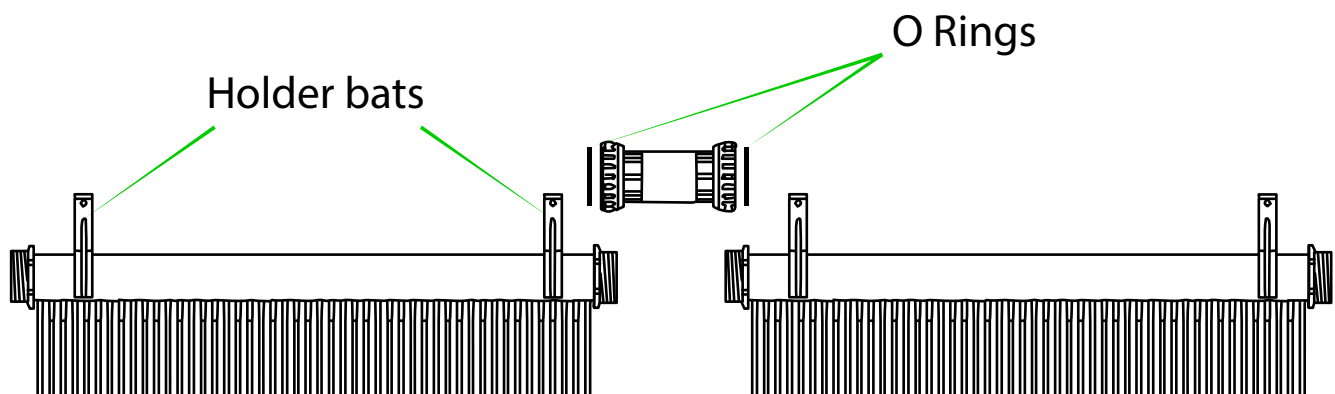
Glue the union assembly together as shown in the illustration



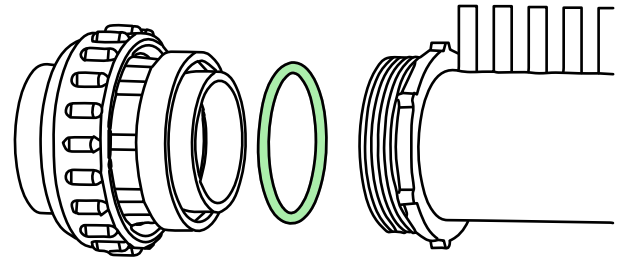
Installation Guide

Position panels

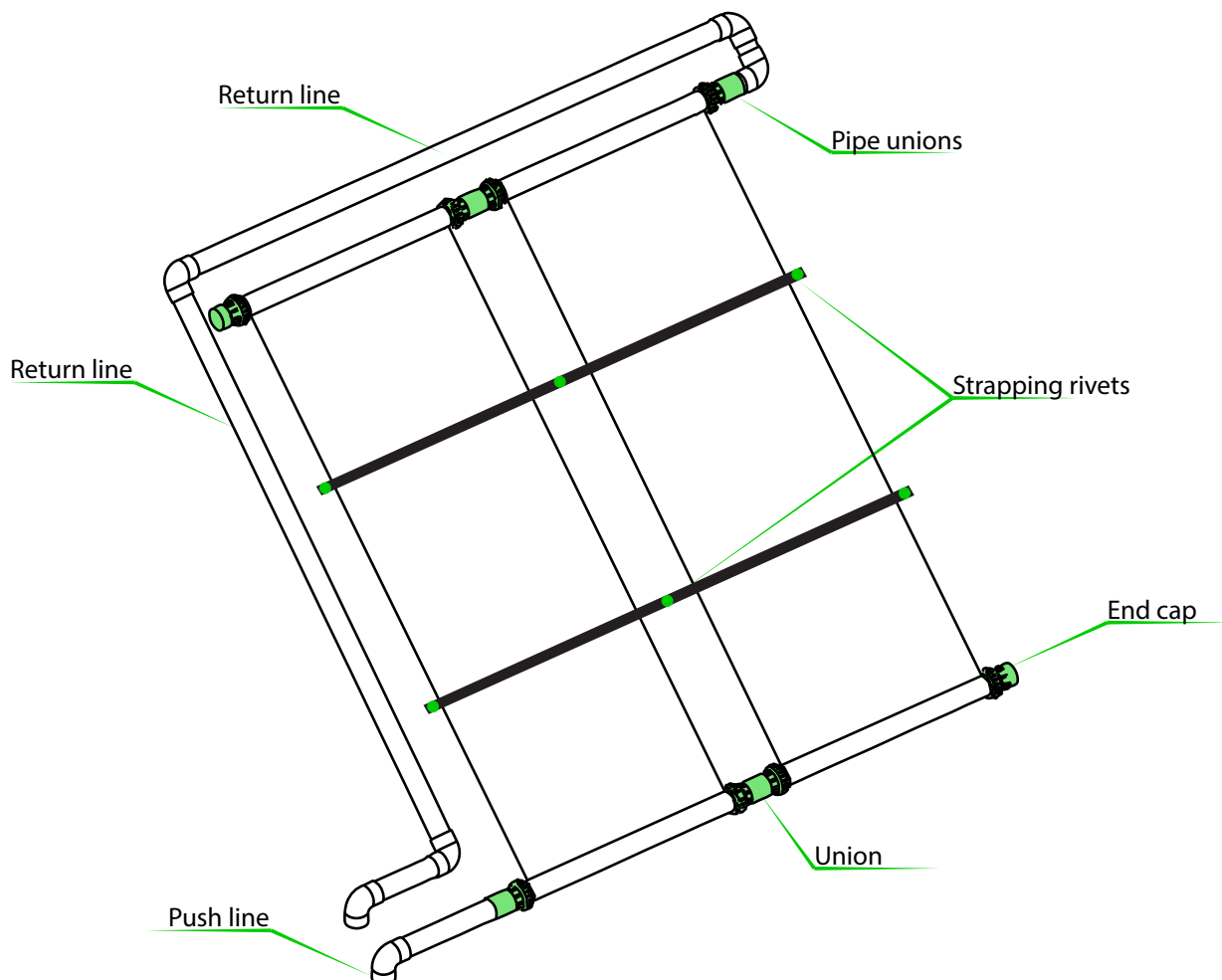
1. Start by slowly rolling one panel open slowly closest to the roofs edge where your pipes will come up.
2. When your panel is in place clip on the holder bat.
3. Position them on a ridge and not in a valley, this will avoid leaks.
4. Leave some space for the panel pipe to move a bit, this will make it easier later to screw in the unions.
5. With your panel and holder bat held in place make holes in the roof panels using the claw holes as your guides
6. Put a dab of silicone in the holes you just made in the roof, line the holder bracket holes up and fasten it to the roof with a pop rivet
7. Roll down the second panel in the same way as the first leaving space for the union in between
8. Repeat steps 2 - 6 for however many panels you have
9. Attach holder bats to the bottom panel pipes in the same fashion as above to secure the panels to the roof



Unions

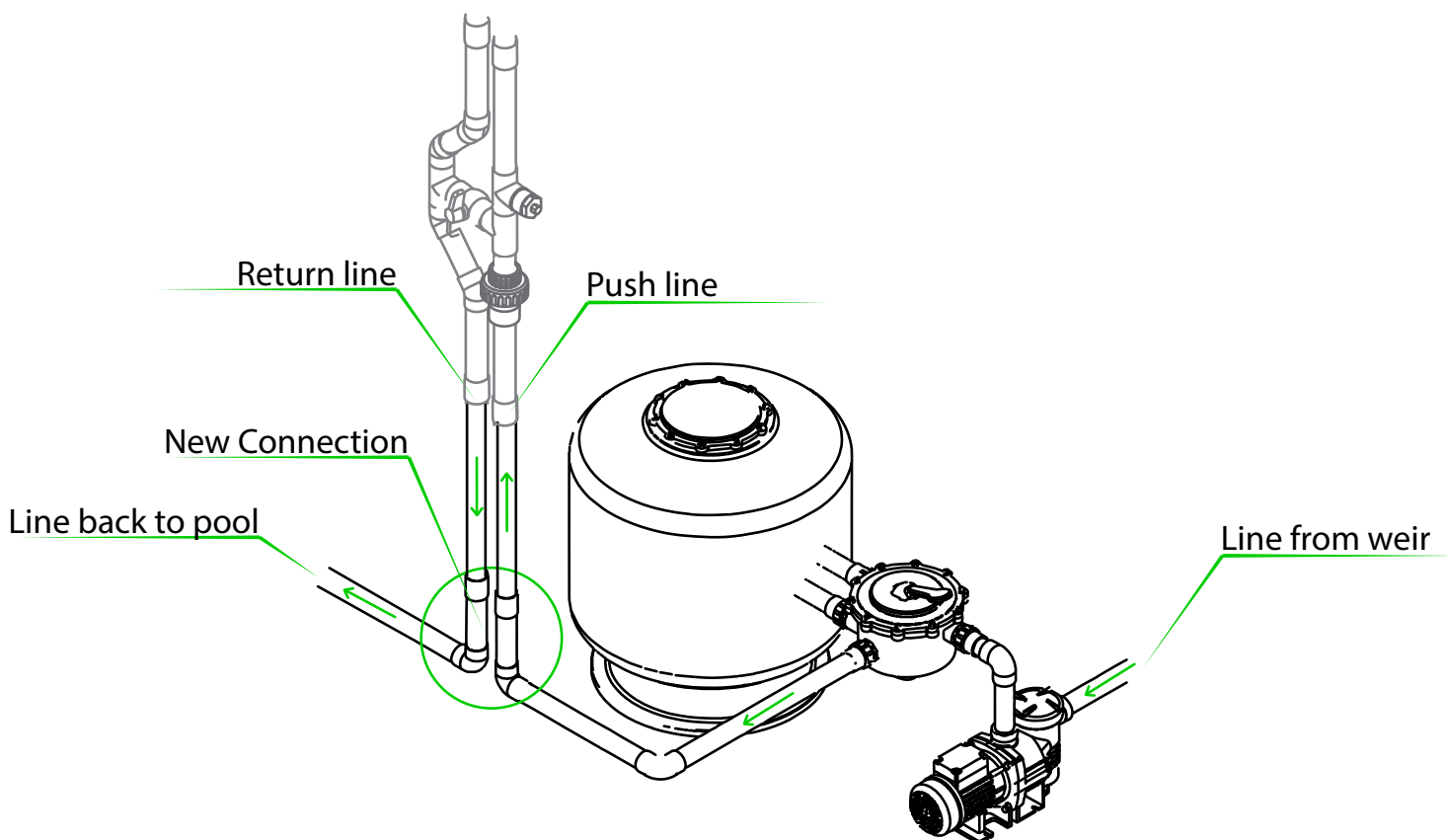


1. Screw in the unions to connect the panels horizontally, remember to add o rings
2. Screw on the pipe connecting unions to diagonal opposite ends
3. Screw on the end caps to the remaining open ends
4. Plumb the push line and return line as shown in the illustration. Position the pipes and elbows as shown in the illustration before applying any glue to make sure everything fits and reaches
5. Strap down your rubber strips on the panels with the webbing provided in the kit. Secure it down with pop rivets where shown in green



Pump box and underground piping

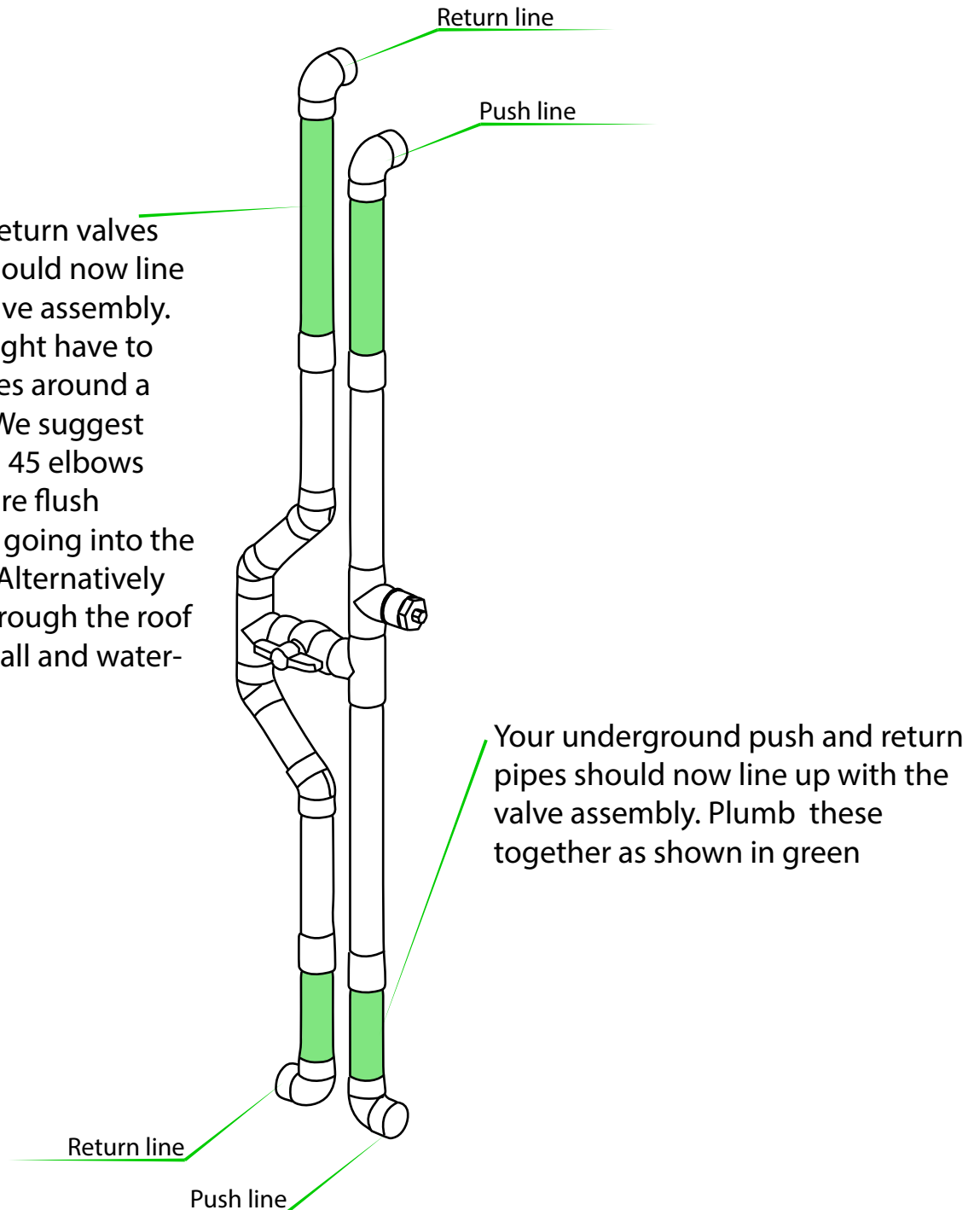
1. Cut the new connection as shown in the illustration. In reality your setup will be different as every pool is setup unique, you might make the connection inside your pool pump box or underground en route back to the pool depending on what is closer to your panels. Alternatively this new connection can be made directly after the multi valve where the piping goes back to the pool
2. Dig out where your pipes will lay from your new connection to under your panel pipes. Try to make as few 90 turns as possible to not restrict the waterflow. Polly pipe type should be used underground to avoid cracks as the ground moves and settles. You can find polly pipe fittings and unions at hardware stores. Get the pipes as close to the wall as possible where they come out of the ground, this will make it easier to install the valve assembly and brackets to hold it flush to the wall before going up to the panels. Make sure the push and return lines line up.



Valve

1. Position the valve assembly at a convenient height to operate. Make sure the push and return lines line up. Your setup should look something like this.

Your push and return valves from the roof should now line up with your valve assembly. In reality you might have to plumb these lines around a roof overhang. We suggest you do this with 45 elbows until the pipes are flush against the wall going into the valve assembly. Alternatively you could go through the roof flush with the wall and waterproof it.



Operating Information

- 1.The system is only operational when the pump is running and the valve is set to closed, this allows water to flow through the panels.
- 2.The panels can be bypassed by setting the valve to the open position allowing water to flow through the valve, bypassing the panels.
- 3.It is important to make use of sunlight as this is when the panels will be doing the heating. It is also important to not let the system stand dry during sunlight hours as this will overheat the panels and shorten the lifespan. In Colder weather we recommend keeping the system flowing but later in the day incase the water is frozen inside the sytem. Eg. 10 or 11 am to 3 pm or before it gets cold.
- 4.Set your pump timer to run in sunlight hours, In summertime your pool will heat up quicker and you might want to decrease the time the panels are flowing if you feel your pool is too hot for you. Dont let the system stand dry between 11:00am and 15:00pm to ensure the longest lifespan of the system.
- 5.Make sure you clear any trees casting shadows on the panels and any plants that might grow over the panels.
- 6.The water coming out of your pannels wont be hot immediately, this does not mean its not working, the panels will cycle the volume of your pool multiple times throughout the day and will heat it proportionally to the surface area of panels you have

Disclaimer

ProAuto Rubber does not accept responsibility or liability whatsoever for any adverse consequences that may arise from using the assembly instruction or during the Solar Panel installation or by the Solar panel itself, including but not limited to, financial loss, injury, interdicts and Court orders.





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