

ROAMfilter™ Plus 2



INSTRUCTION MANUAL



Scan here for
downloadable e-manual



wateroam[®]

For more product information and service, please contact:

Wateroam Pte Ltd

Call us:
+65 6303 0603

Email Us:
support@wateroam.com

Find Us:
71 Ayer Rajah Crescent, #07-01
Singapore 139951

ROAMfilter™ Plus 2

Content Page

Product Information	5
Product Components	6 – 7
Set-up	8
Manual Operation	9
Maintenance	10 – 11
Filter Cartridge Replacement	12 – 13
System Integrity Tests	14 – 15
Automated Operation	16 – 18
Troubleshooting	19 – 28
Limited Warranty Guide	30 – 31

Congratulations on your new ROAMfilter™ Plus 2!

Made to ROAM, Built to LAST

The ROAMfilter Plus 2 is engineered to filter water of harsh conditions in rural regions and disaster relief zones. Designed with simplicity and requiring no electricity to run, the ROAMfilter Plus 2 excels at delivering clean drinking water to small communities quickly and efficiently.

Applications

- Rural Development
- Disaster Relief
- Emergency Preparedness
- Outdoor Survival
- Schools
- Hospitals
- Villages

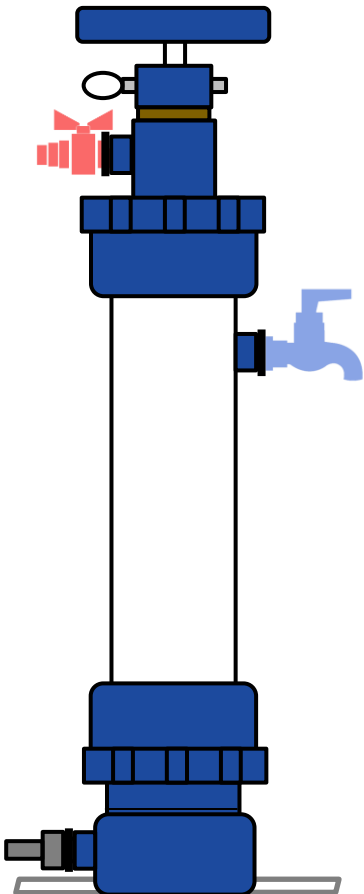
✓ Removes

- Bacteria
- Virus
- Sediments

✗ Does not remove

- Salts
- Metals
- Organics

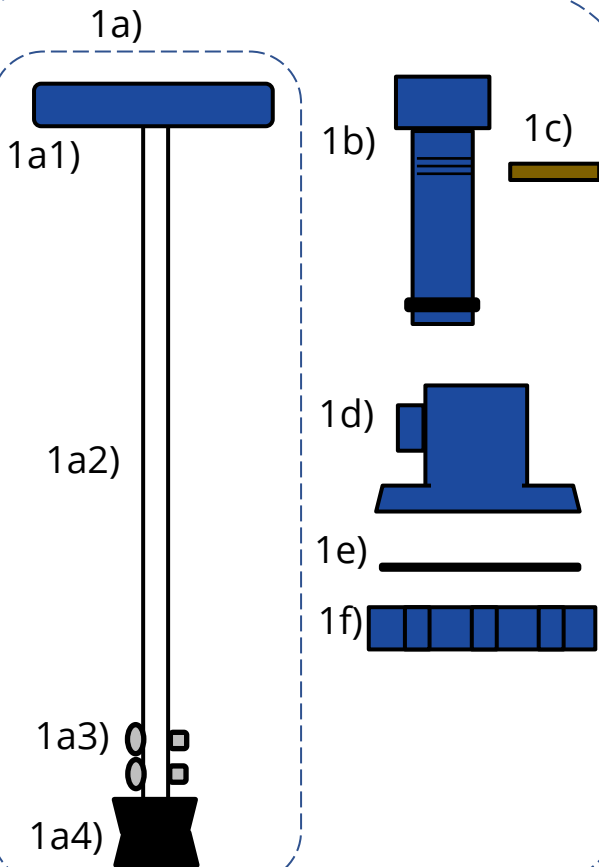
Product specification



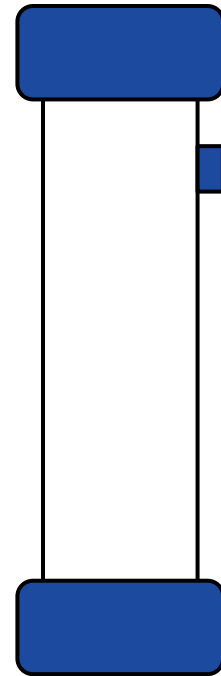
Type	Water Filter Pump	
Filter	Ultrafiltration (0.02µm)	
Weight	3.5kg	(System, dry weight)
	4.9kg	(Boxed set)
Dimension	72cm x 10cm x 10cm	(System)
	78cm x 20cm x 16cm	(System with packaging)
Material	PVC-U(External body) Polyurethane (Pre-filter) PES (Membrane)	
Removal Capability	99.999999% (Bacteria) 99.99% (Virus)	
Flow Rate	300L/h (handpump)	
Pressure	3 Bar (Max)	
Operational Method	Gravity, handpump, or electric pump	
Operating pH	3 – 10	
Temperature	5 – 40	
Electricity	Not required	
Lifespan*	2 years or 1,000,000 L	
Fittings	½ Inch BSP	

*Depends on water quality and frequency of maintenance

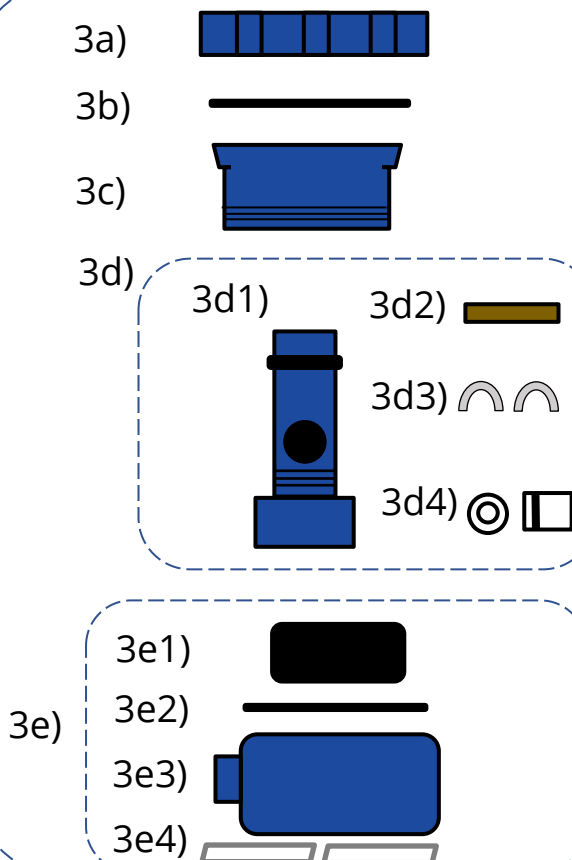
1) Top Assembly



2) Filter Cartridge



3) Bottom Assembly



Main Body Components

- 1) Top Assembly
 - 1a) Pump assembly
 - 1a1) Pump handle
 - 1a2) Pump shaft
 - 1a3) Piston nuts and bolts
 - 1a4) Piston rubber
 - 1b) Pump handle stabilizer
 - 1c) 42mm Metal bonded gasket
 - 1d) Top cap
 - 1e) 80mm O-ring
 - 1f) Union nut
- 2) Filter cartridge
- 3) Bottom Assembly
 - 3a) Union nut
 - 3b) 80mm O-ring
 - 3c) Bottom cap
 - 3d) Check valve assembly
 - 3d1) Tee connector
 - 3d2) 48mm Metal bonded gasket
 - 3d3) Circlip (x2)
 - 3d4) Check valve (x2)
 - 3e) Pre-filter cap assembly
 - 3e1) Pre-filter
 - 3e2) 67mm O-ring
 - 3e3) Pre-filter cap
 - 3e4) Metal footstand (x2)

4)

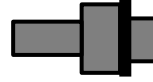
4a)



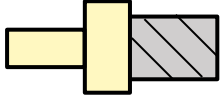
4b)



4c)



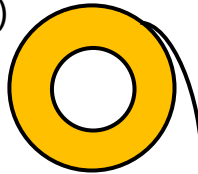
4d)



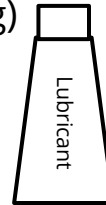
4e)



4f)



4g)



11)



5)



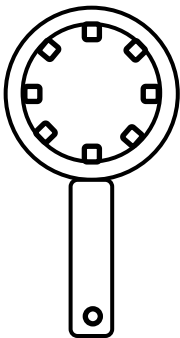
6)



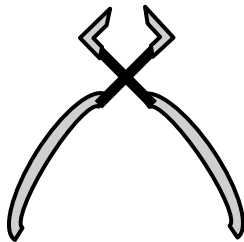
7)



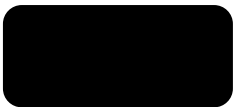
8)



9)



10)



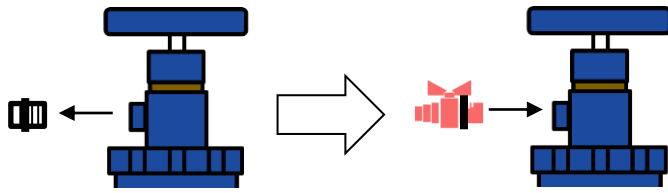
12)



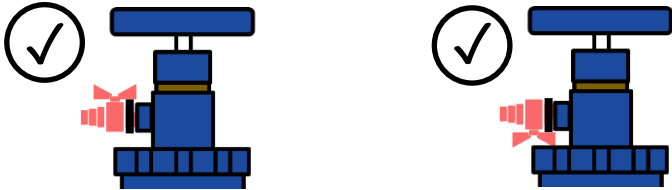
Accessories

- 4) Tap Accessory Pack
 - 4a) Drain Valve (red/white)
 - 4b) Front Tap (blue/white)
 - 4c) Inlet hose connector (grey)
 - 4d) Hose strainer
 - 4e) Handle locking pin
 - 4f) Thread seal tape
 - 4g) Silicone grease lubricant
- 5) 3.5m x 15mm Long hose
- 6) 0.3m x 15mm Short hose
- 7) 0.2m x 15mm Short hose
- 8) Filter wrench
- 9) Circlip plier
- 10) Pre-filter
- 11) 3 Filter plugs (packed on main body)
- 12) Instruction manual

Note: All pictures shown are for illustration purpose only. Actual product may vary due to product enhancement

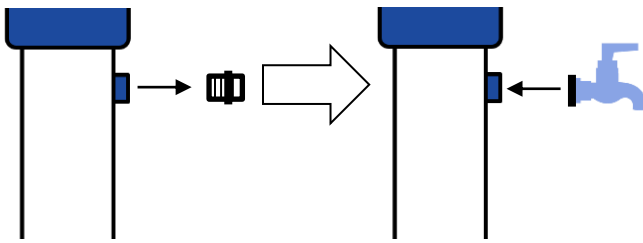


1) Remove filter plug from top cap and insert the drain valve

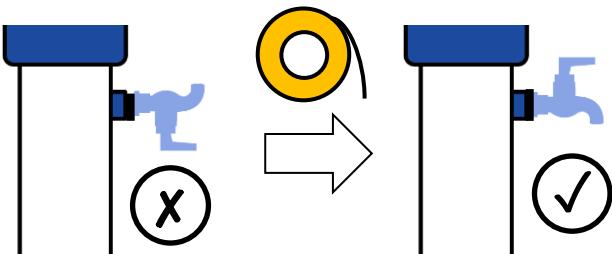


Take note that the drain valve may be facing any direction as long as the black o-ring is flushed, but not deformed or protruding

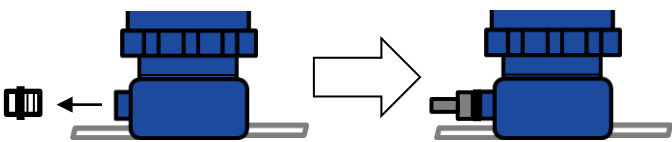
The switch facing sideways or downwards is preferable for a comfortable pumping motion



2) Remove filter plug from the filter cartridge and insert the front tap

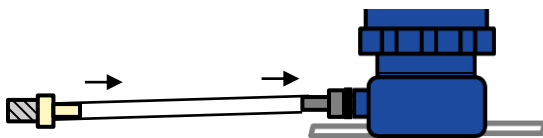


If the front tap is not facing the correct direction, apply thread seal tape to the front tap threads. Ensure the o-ring is flushed but not deformed or protruding

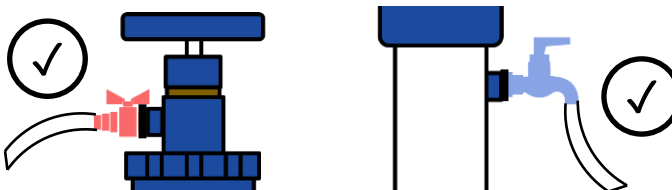


3) Remove filter plug from the pre-filter cap and insert the hose connector

Ensure the o-ring is flushed but not deformed or protruding



4) Attach long hose to hose connector and hose strainer

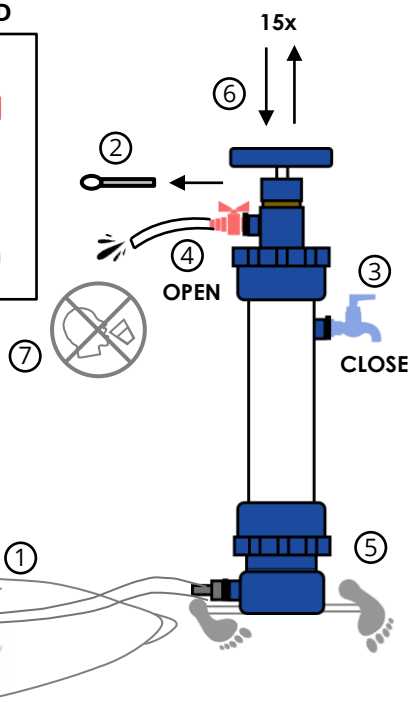
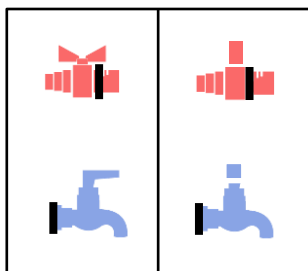


5) (OPTIONAL) Install the short hoses for the drain valve or front tap

Manual Operation



OPEN CLOSED



The ROAMfilter Plus does not require electricity to run and can filter water via a mechanical handpump motion. The water filter first has to be primed to remove air in the system and hose.

Priming the system

1. Place hose^a into water source
2. Remove the handle locking pin
3. Close the front tap
4. Open the drain valve
5. Step on the metal footstands
6. Pump the piston handle about 15x or more until there is no more air in the hose^b
7. Unfiltered water^c will be flushed out from the drain valve

^a Try to position hose away from sediments

^b There should be a steady stream of water from each pump

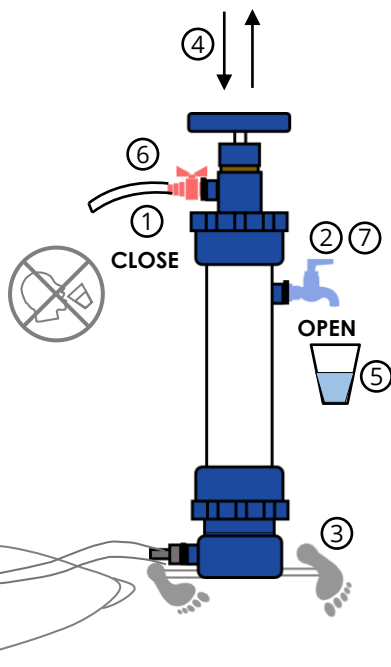
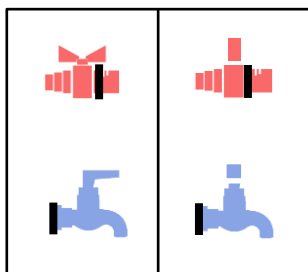
^c Do not drink water from the drain valve



REMEMBER!

The ROAMfilter Plus always works best with water with low turbidity. Always choose the cleanest source of water that is free of chemicals, heavy metals, organic substances, salts, and low in suspended solids or turbidity.

OPEN CLOSED



Filtering water

1. Close the drain valve
2. Open the front tap
3. Step on the metal footstands
4. Pump the piston handle^a
5. Filtered water^b will be produced at the front tap
6. Periodically open the drain valve to release excess air pressure
7. Close the front tap after operation^c

^a Pull the piston all the way up and push it down slowly to maximize the amount of water produced from each stroke.

^b For first-time operation, the first 4L (about 15 strokes) of filtered water might taste sweet due to the preservative added to the membranes. Just dispose of the first 4L before using the filtered water for drinking.

^c It is good practice to close all taps when the system is not in use. This prevents air from entering the system, which could dry out the membranes and damage them after a prolonged period.

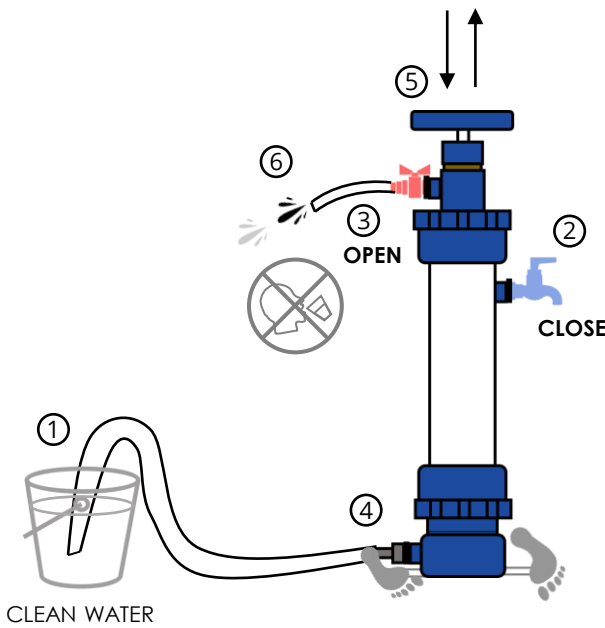
?
DID YOU
KNOW?

The preservative found in the ROAMfilter Plus 2 filter cartridges is a mixture of glycerin and propylene glycol. This preservative helps to keep the membranes wet and preserved during storage and is safe for consumption.

Maintenance by forward flushing is recommended to be performed daily^a or whenever required^b to maintain system flow rate and enhance filter lifespan.

Forward Flush Maintenance

1. Place hose into a clean water source
2. Close the front tap
3. Open the drain valve
4. Step on the metal footstands
5. Pump the piston handle. Unfiltered water will be flushed out from the drain valve
6. Conduct forward flushing until the drain water becomes clear
7. Close the drain valve



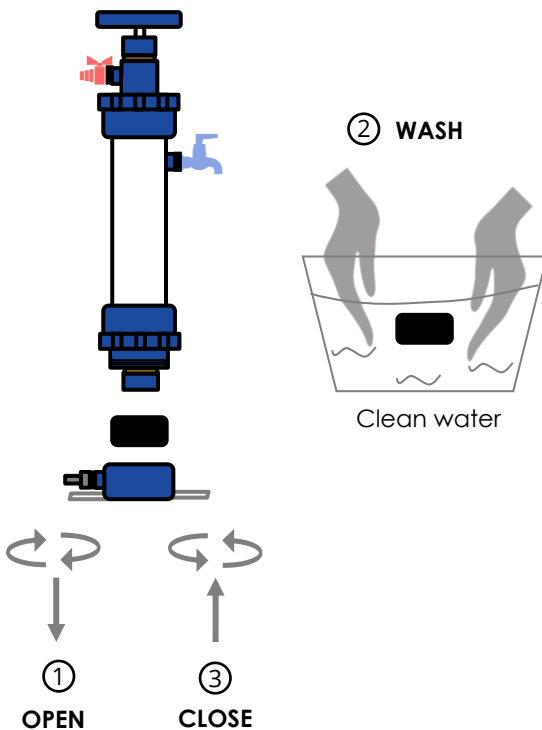
^a Daily maintenance becomes a habit and easier to manage

^b Whenever the flow rate drops or pumping feels more difficult

Pre-filter cleaning

Pre-filter cleaning is recommended to be performed once every week or whenever required^a to prevent dirt build-up, maintain system flow rate and enhance filter life span.

1. Unscrew the pre-filter cap and remove the pre-filter
2. Hand-wash and scrub out any dirt from the pre-filter
3. Place the pre-filter back^b into the pre-filter cap, and screw the pre-filter cap onto the bottom cap



^a The pre-filter removes suspended solids and large particles. Therefore, if the water is muddy, pre-filter cleaning might be required more often, even up to once a day. However, if the water is clear, the pre-filter does not need to be cleaned.

^b The pre-filter is recommended to be placed in the same orientation as when it was taken out

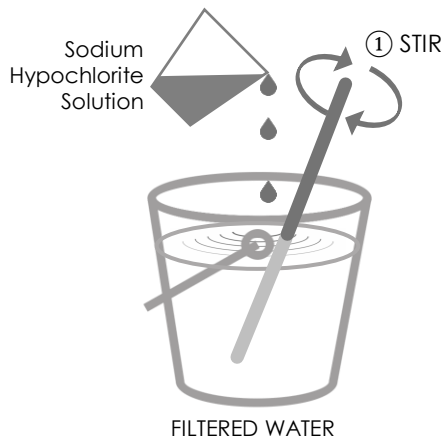
Chemical Cleaning

Chemical cleaning is recommended to be conducted once every 3 months or whenever necessary. Chemical cleaning removes biofilm buildup in the membranes. Chemical cleaning improves the product flow rate and enhances the filter lifespan.

Preparing the chemical solution

1. Create a 100ppm NaOCl (Sodium Hypochlorite) chemical solution by diluting household bleach with filtered water. Check the bleach product label to determine the concentration of NaOCl, which varies depending on the bleach product used. Follow the following table for mixing ratios.

For every 10L of clean water add the following amount of Household Bleach						
Concentration of Sodium Hypochlorite (NaOCl) in Bleach	5%	6%	7%	8%	9%	10%
Volume of Household Bleach	20mL	16mL	14mL	12mL	11mL	10mL



Type of bleach used

Sodium hypochlorite solutions (or more commonly known as Household Bleach) are produced in different concentrations in different parts of the world, and solution strength can vary between 5% and 10% NaOCl.

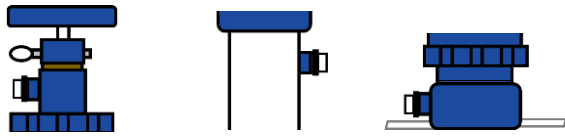
Do not use bleach solutions that have fragrance or other chemical additives for chemical cleaning purposes.

Chemical flushing

1. Connect hose to chemical cleaning solution
2. Close the front tap
3. Open the drain valve
4. Step on the metal footstands
5. Pump 5L of chemical cleaning solution
6. Close the drain valve
7. Open the front tap
8. Pump 5L of chemical cleaning solution
9. Close the front tap
10. Leave system to stand for at least 30 mins, to a maximum of 1 hour
11. Connect hose to filtered water
12. Open the drain valve
13. Open the front tap
14. Pump 4L (about 15 strokes) to remove all traces of chemical cleaning solution from the system^a

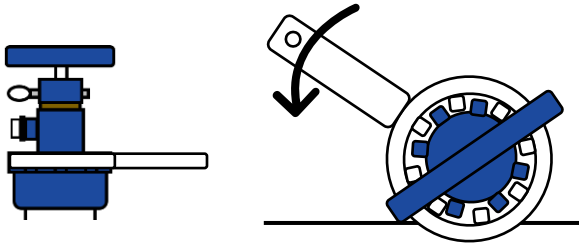
^a Continue pumping if the chlorine taste remains in the system, until it tastes normal again

Filter Cartridge Replacement



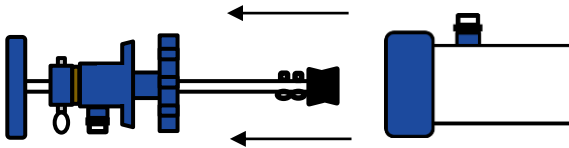
Filter cartridge disassembly

1) Remove drain valve, front tap, inlet hose connector and insert filter plugs

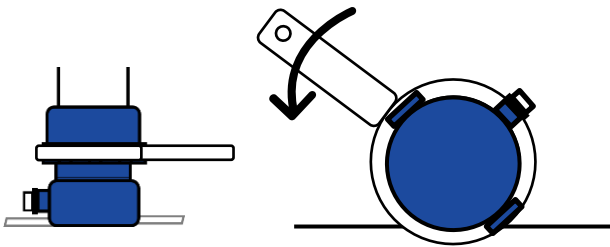


2) Insert filter wrench from the top of the system onto the top union nut and turn anti-clockwise to loosen it

The union nut may be very tight. It is easier to loosen the union nut if the filter is resting horizontally against a table

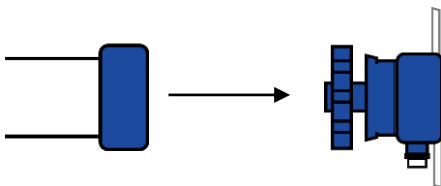


3) Separate the top assembly from the rest of the ROAMfilter Plus 2



4) Insert filter wrench from the top of the system onto the bottom union nut and turn anti-clockwise to loosen it

You will need to temporarily remove the filter plug on the filter cartridge as it blocks the filter wrench from reaching the bottom

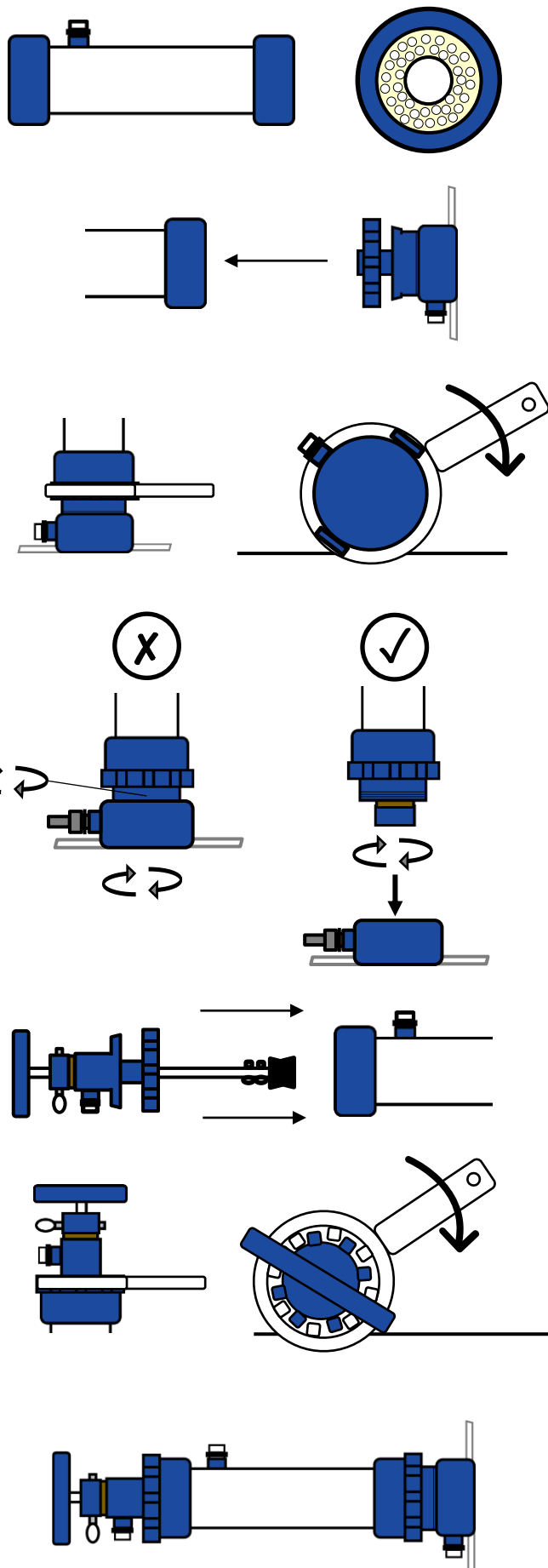


5) Separate the bottom assembly from the filter cartridge



6) The ROAMfilter Plus 2 filter cartridge is now separated from the rest of the system

Filter Cartridge Replacement



Filter cartridge assembly

1) Take your new filter cartridge and ensure that there is no external damage, and that the membrane strands are white

2) Insert the bottom assembly into the bottom of the filter cartridge, and align the inlet to your preferred orientation

The recommended orientation of the inlet is 180° from the front tap

3) Insert filter wrench onto the bottom union nut, and turn clockwise to tighten it

When tightening the union nut, it is easier to ensure the nut is tight enough by placing the filter horizontally on a table.

Check to see that the inlet is facing the desired orientation.

4) Check if the bottom union nut is tight enough

When the bottom union nut is tight enough, the pre-filter cap can be opened. Otherwise, both the pre-filter cap and bottom cap will turn together

5) Insert the top assembly into the filter cartridge

6) Insert filter wrench onto the top union nut and turn clockwise to tighten it

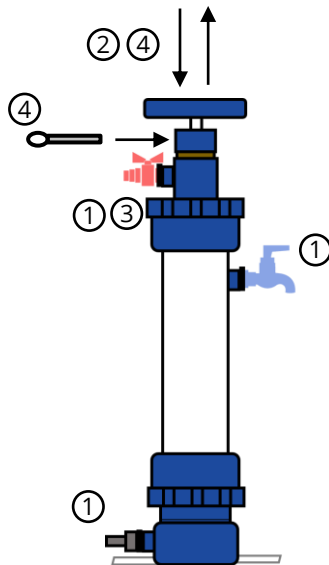
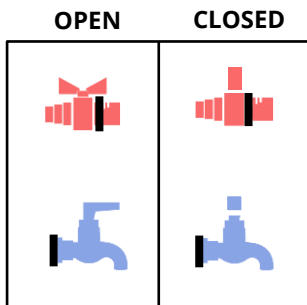
When tightening the union nut, it is easier to ensure the nut is tight enough by placing the filter horizontally on a table.

Check to see that the drain valve outlet is facing the desired orientation.

7) The ROAMfilter Plus 2 is now reassembled

External leakage test

The External leakage test is conducted to ensure that the ROAMfilter Plus 2 system is well sealed without any leakages. Leakages introduce air into the system which reduces the flow rate and makes pumping more difficult. This test can be performed after re-assembly of the replacement filter cartridge. This test is also typically performed if the system often rapidly builds up air pressure during pumping.



Pressurize the system

1. Remove the long hose, open the drain valve, close the front tap
2. Pump the system to remove any excess water through the drain valve
3. Close the drain valve
4. Pull the pump handle up to suck in air, then push it down and insert the handle locking pin
5. The system is now pressurized with air

Checking for leakages (top)

1. Invert the system and slowly submerge it into a pail of clean water. Ensure the front tap is fully submerged
2. After 5s of submerging^a, check to see if there are any air bubbles that exit from the front tap, drain valve, top union nut, or from the pump handle
3. If bubbles are observed, there is a leakage in that part and that part requires further tightening
4. Check the troubleshooting guide for detailed tightening of each component

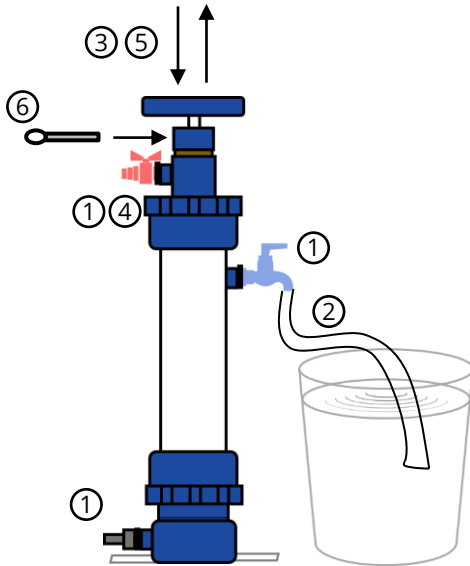
Checking for leakages (bottom)

1. Slowly submerge the system into a pail of clean water. Ensure the bottom union nut is fully submerged
2. After 5s of submerging^a, check to see if there are any air bubbles that exit from the front tap, drain valve, top union nut, or from the pump handle
3. If bubbles are observed, there is a leakage in that part and that part requires further tightening
4. Check the troubleshooting guide for detailed tightening of each component

^a Some air bubbles might be observed when system is first immersed into the water. Some of these air bubbles may be created from air pockets trapped in the cavities within the Top Chamber, Front Tap or Drain Valve. Therefore, wait for 5s before checking for leakages

Membrane Integrity Test

The Membrane Integrity Test is conducted to evaluate if the ROAMfilter Plus 2 filter cartridge is operating in good condition. If the system passes the membrane integrity test, it indicates that the membranes are not damaged. This test only needs to be done if there is a suspicion that the filtered water has bacteria or viruses.

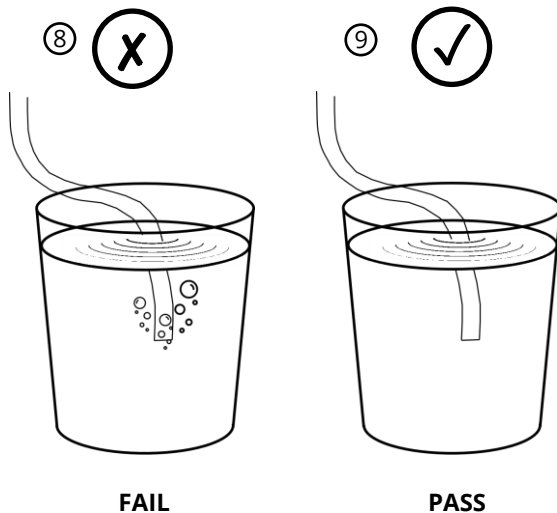


Performing the membrane integrity test

1. Remove the long hose, open the drain valve, close the front tap
2. Attach a short hose from the front tap and ensure the other end is submerged in a pail of clean water
3. Pump the system to remove any excess water through the drain valve
4. Close the drain valve
5. Pull the pump handle up to suck in air
6. Push the pump handle down and insert the handle locking pin
7. Wait 5s, then observe the open end of the short hose for 1 minute

? DID YOU KNOW?

Water permeates through the membranes better than air. The membranes are quality checked to have a pressure reduction rate of 1 kPa / min to ensure that the membranes are working as intended.



8. If there is vigorous bubbling through the short hose, that indicates that there the membrane integrity is compromised
9. If there are less than 2 bubbles within 1 minute, it means that the membrane integrity is good



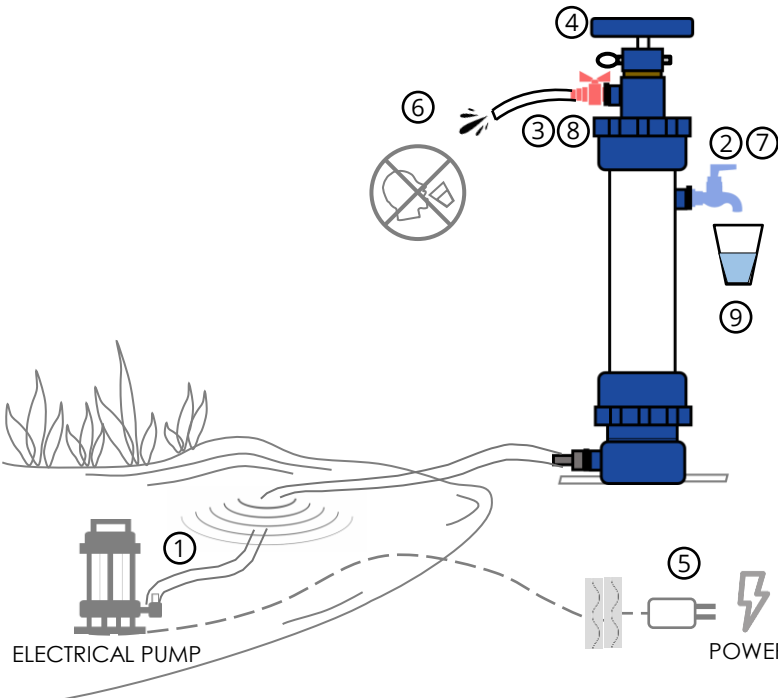
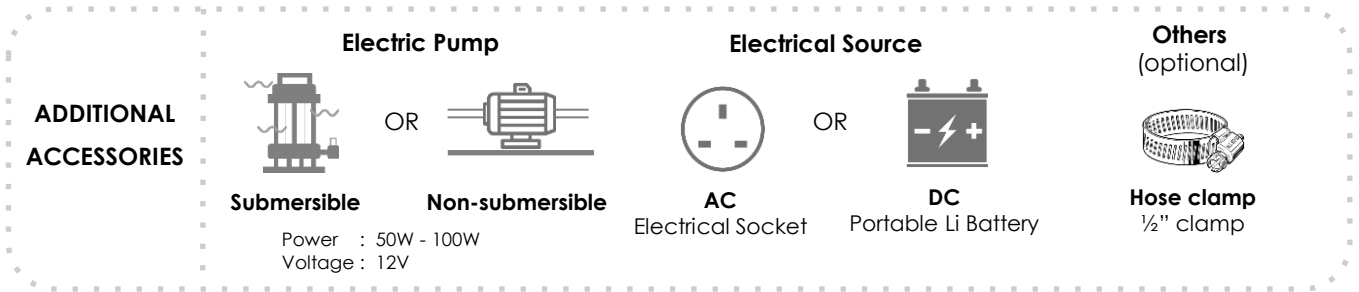
Cross contamination may occur if the membrane is compromised. Do not use if system does not pass the Membrane Integrity Test. Please refer to the Limited Warranty Guide on what to do next.

Automated Operation



The ROAMfilter Plus 2 is a versatile water filtration system that can be operated both manually via handpump or automatically via a submersible pump, water tank, or other piped system. Additional accessories may be required for the operation of the ROAMfilter Plus in the automated modes.

Electric Pump Configuration

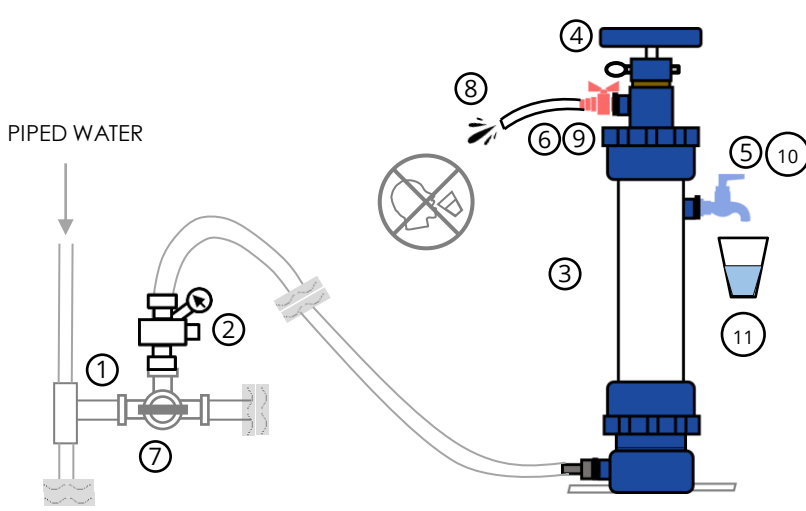
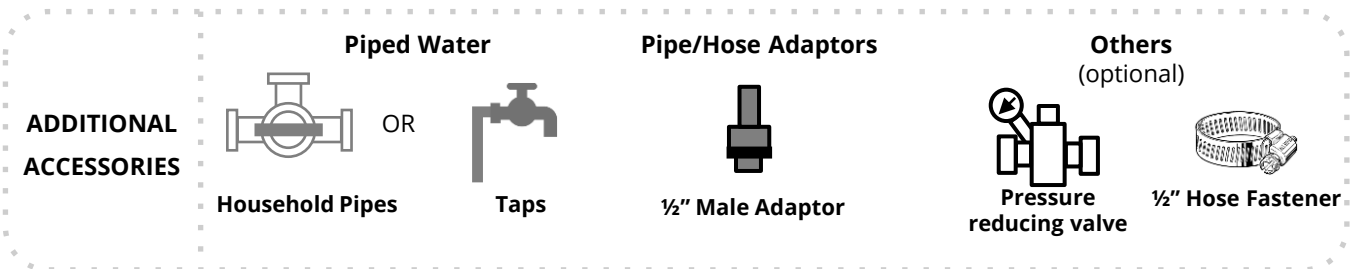


Automated operation with electric pump

1. Connect the hose^a to the electrical pump and lower pump into water source
2. Close the front tap
3. Open the drain valve
4. Insert the handle locking pin
5. Connect the Electrical Pump to the electrical source and turn on the power
6. Flush out the air & unfiltered water via the Drain Valve for 1 minute. Do not drink this water
7. Open the front tap
8. Close the drain valve
9. Filtered water will be produced at the front tap

^a A hose clamp may be used to further secure hose to electric pump)

Piped-water Configuration



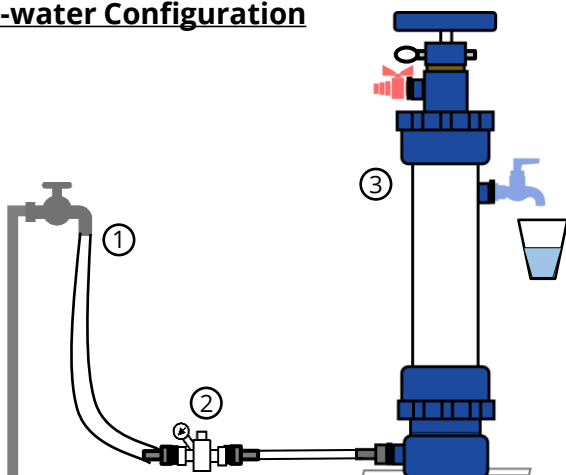
Operating with a piped connection

1. Install an appropriate adaptor based on the existing type of pipe
2. (Optional) install a pressure reducing valve^a
3. Set up the ROAMfilter Plus 2 as in the setup guidelines
4. Insert the handle locking pin
5. Close the front tap
6. Open the drain valve
7. Turn on the water mains
8. Flush out the air & unfiltered water via the drain valve for 1 minute
9. Close the drain valve
10. Open the front tap
11. Filtered water^b will be produced at the front tap

^a A pressure reducing valve is required if the piped water pressure is above the maximum pressure of the ROAMfilter Plus 2

^b For first-time operation, the first 4L of filtered water might taste sweet due to the preservative added to the membranes. Just dispose of the first 4L before using the filtered water for drinking

Tap-water Configuration

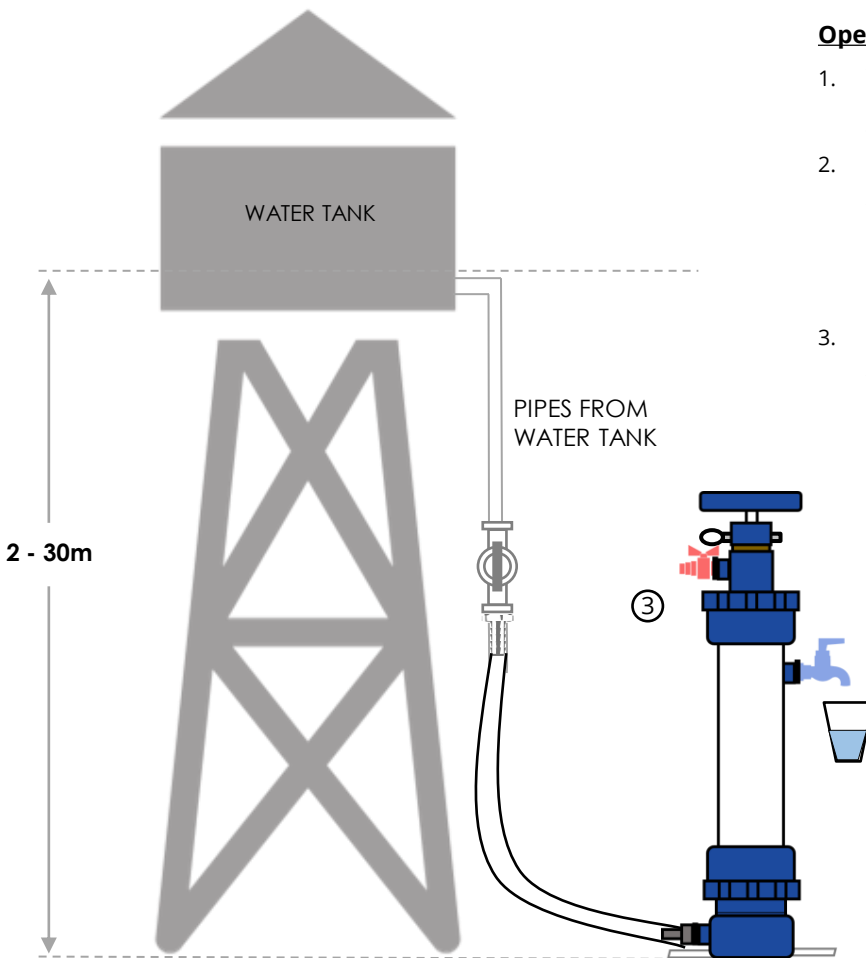
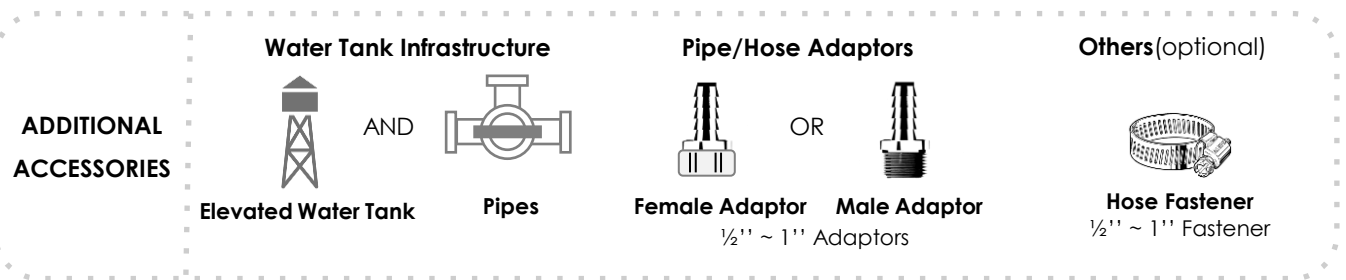


Operating with an external tap

1. Connect the hose directly to the external tap if it can fit^a
2. Install a pressure reducing valve with the appropriate connectors to fit with the hose
3. Follow the rest of the setup guidelines as with operating with a piped connection

^a Install an appropriate adaptor to fit with the external tap

Gravity-fed water tank Configuration



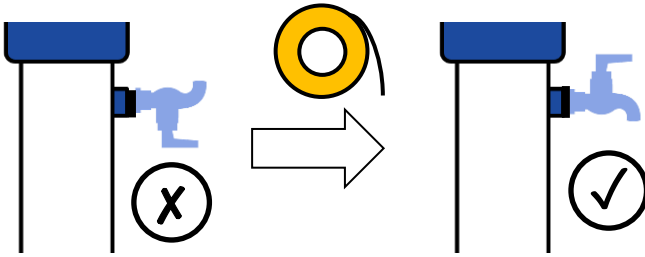
Operating with a gravity-fed water tank

1. Water tank should be situated 2-20m above ground level^a
2. Ensure the right adaptors are included so that the pipe is able to connect to the 1/2" connections of the ROAMfilter Plus 2 directly or the hose
3. Set up the ROAMfilter Plus 2 as in operation with a piped connection

^a The ROAMfilter Plus 2 can operate with a minimum pressure of 0.1 bar and a maximum pressure of 3 bar, therefore a tank height of 2-30m will be ideal.

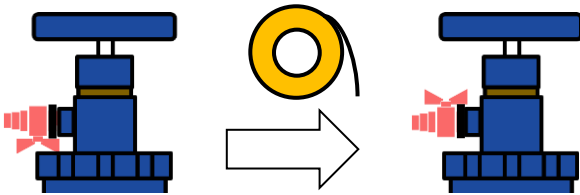
No.	Phase	Problem
1	Set-up	Front tap is facing the wrong direction
2	Set-up	Drain valve orientation is undesirable
3	Set-up	Pre-filter cap orientation is undesirable
4	Operation	Unable to push down pump handle
5	Operation	Increasingly difficult to push down pump handle
6	Operation	Able to push down pump handle but there's no water
7	Operation	Water is leaking from any of the filter openings
8	Operation	Filtered water has a weird taste
9	Operation	Filtered water did not pass bacteria test
10	Maintenance	Unable to open pre-filter cap

1. Front tap is facing the wrong direction

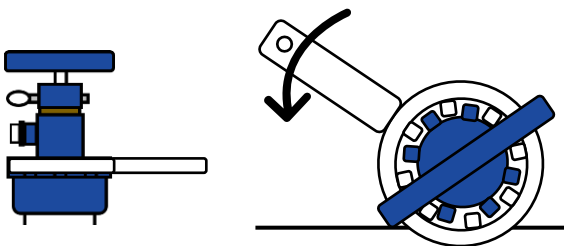


If the front tap is not facing the correct direction, apply thread seal tape to the front tap threads. Ensure the o-ring is flushed but not deformed or protruding.

2. Drain valve orientation is undesirable



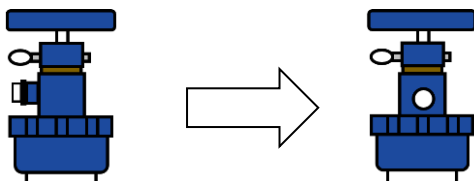
If referring to the drain valve switch orientation, apply thread seal tape to the drain valve threads. Ensure the o-ring is flushed but not deformed or protruding.



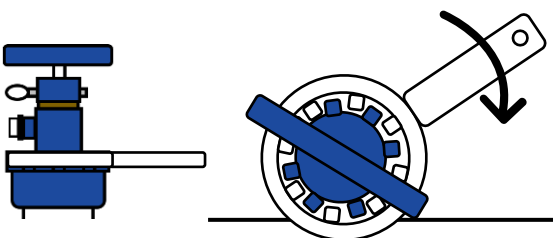
If referring to the drain valve orientation in relation to the front tap.

Insert filter wrench from the top of the system onto the top union nut and turn anti-clockwise to loosen it

The union nut may be very tight. It is easier to loosen the union nut if the filter is resting horizontally against a table



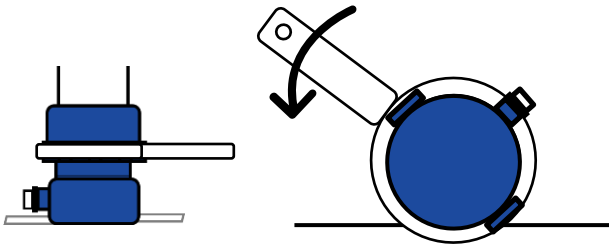
Adjust the top cap until the drain valve is facing the desired orientation



Insert filter onto the top union nut and turn clockwise to tighten it

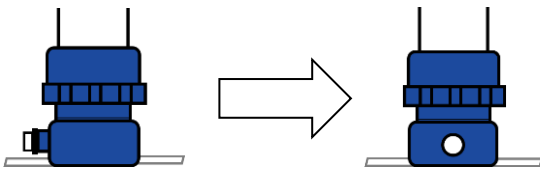
When tightening the union nut, it is easier to ensure the nut is tight enough by placing the filter horizontally on a table.

3. Pre-filter cap orientation is undesirable



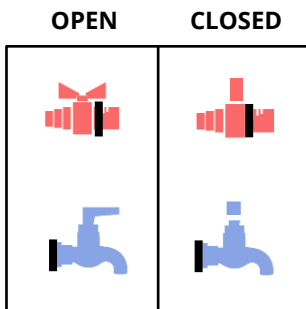
Insert filter wrench from the top of the system onto the bottom union nut and turn anti-clockwise to loosen it

The union nut may be very tight. It is easier to loosen the union nut if the filter is resting horizontally against a table



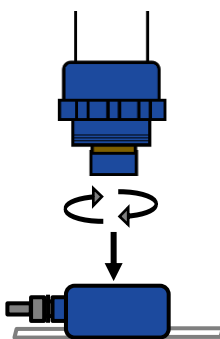
Adjust the pre-filter cap and bottom cap until the pre-filter is facing the desired orientation

4. Unable to push down pump handle



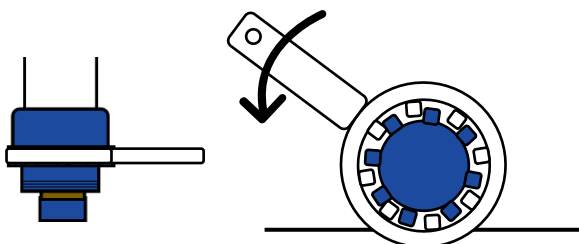
Issue 1: Air build up in the system because of closed taps

Open the front tap and drain valve and pump



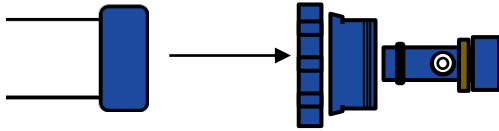
Issue 2: The side check valve is stuck shut

1. Remove the pre-filter cap

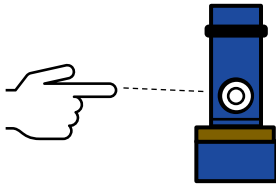


2. Insert filter wrench from the bottom of the system onto the bottom union nut and turn anti-clockwise to loosen it

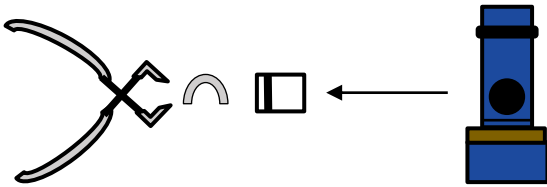
The union nut may be very tight. It is easier to loosen the union nut if the filter is resting horizontally against a table



3. Separate the bottom assembly from the filter cartridge, then separate the check valve assembly from the bottom assembly



4. Push the side check valve to see if it can be opened



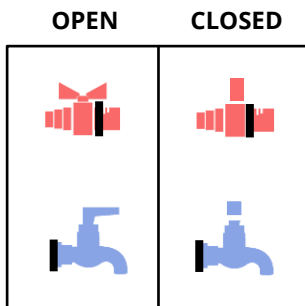
5. If the side check valve is stuck, use the circlip plier to remove the circlip that is holding the side check valve in place, then pull out the side check valve

6. Clean the check valve

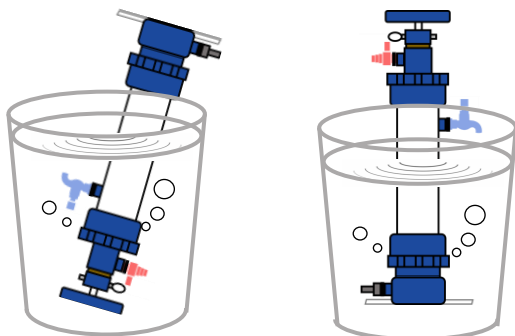
7. Reassemble the product

5. Increasingly difficult to push down pump handle

Issue 1: Air build up in the system because of leaks



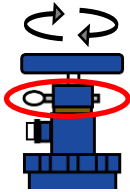
After operating the system for a while, stop pumping and open the drain valve. If there is a sound of air rushing out, that means there is a large amount of air build up during operation



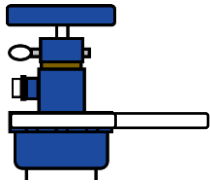
Perform the external leakage test to determine where is the air leaking into the system

Major leaks could be caused by insufficient tightening of the

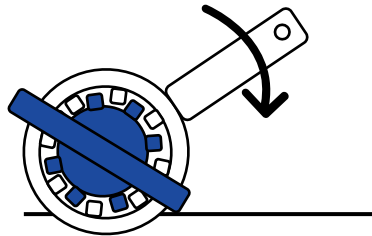
- Pump handle stabilizer
- Top union nut
- Bottom union nut
- Check valve assembly



Insert the pin and tighten the pump handle stabilizer by twisting it clockwise into the top cap

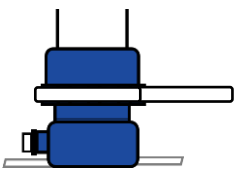


Tighten the top union nut by turning it clockwise with the filter wrench

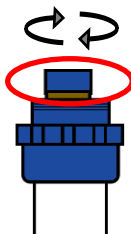
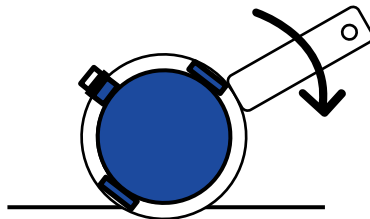


When tightening the union nut, it is easier to ensure the nut is tight enough by placing the filter horizontally on a table.

Check to see that the drain valve outlet is facing the desired orientation.



Tighten the bottom union nut by turning it clockwise with the filter wrench



Tighten the check valve assembly by twisting it clockwise (invert the system first) into the bottom cap

Issue 2: Too much friction between the handle and the pump handle stabilizer

Loosen and remove the pump handle stabilizer by twisting it anti-clockwise

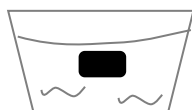
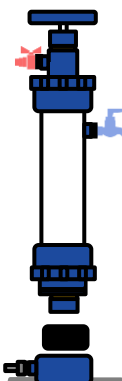
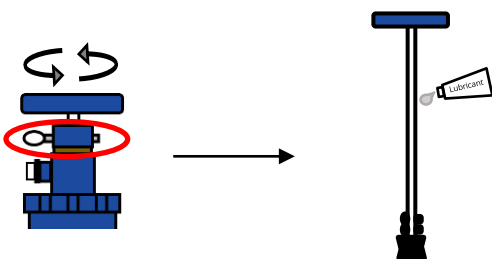
Apply silicon grease on the pump shaft and reinsert the pump handle stabilizer

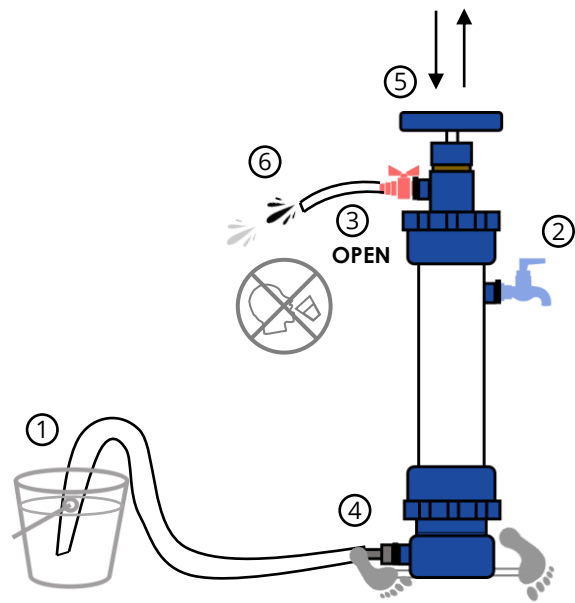
An indication of friction is heat on the pump shaft. Overheating could cause deformation of the pump shaft

Issue 3: The pre-filter is clogged

Open up the pre-filter cap to check if the pre-filter is clogged with dirt

Perform pre-filter cleaning maintenance





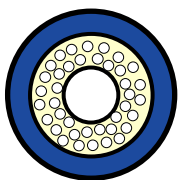
Issue 4: The membranes are clogged

Open the drain valve and check the quality of the drain water, it could be very dirty.

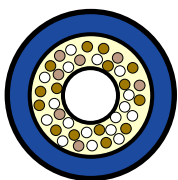
Perform forward flushing maintenance

Perform chemical cleaning maintenance

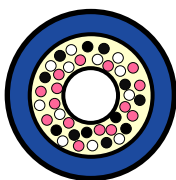
If maintenance procedures are unable to improve the ease of pumping and flow rate, it may be time to change the filter cartridge



Clean



Physical fouling
(brown strands)

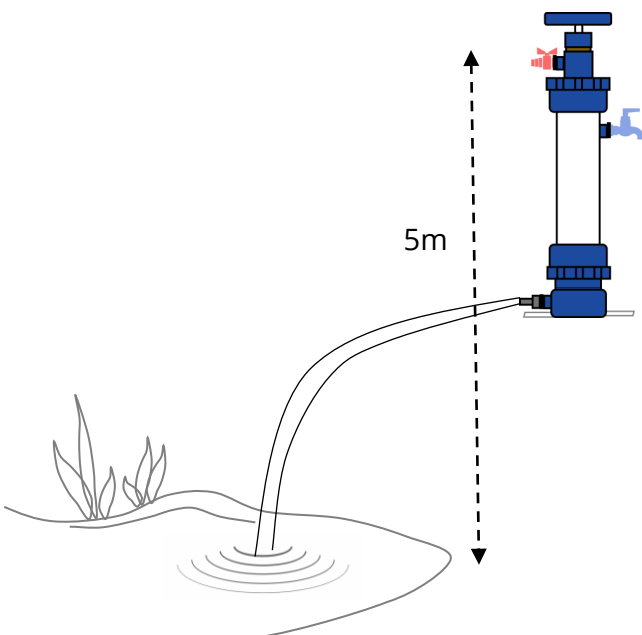


Bacteria fouling
(pink or black
strands)

Disassemble the filter cartridge and check the physical appearance of the membrane strands

If there is high physical or bacteria fouling which is not removed through the maintenance processes, it is time to change the filter cartridge

6. Able to push down pump handle but there's no water



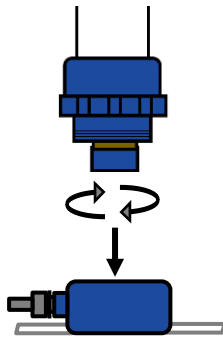
Issue 1: There is not enough pressure created by the handpump to suck up water

This happens if the water source is very far below the filter (>5m)

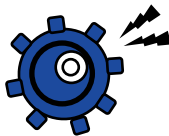
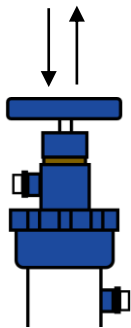
If the water source is within 5m, it can still be possible to pump the system, although it might be slower

Close the drain valve while pulling up the pump handle, and open it when pushing down the pump handle

Repeat this process until the system is primed, then continue with normal operation



From bottom-up view



Issue 2: The bottom check valve is not closing

1. Remove the pre-filter cap

2. Wash the bottom check valve, and ensure it is wet

3. Close or plug the drain valve and front tap

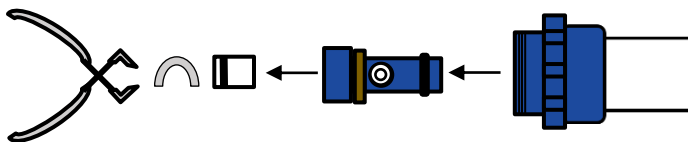
4. Pull up and push down the pump handle a few times

5. With the pump handle pushed down, the system should be pressurized, listen to hear if air is escaping from the check valve

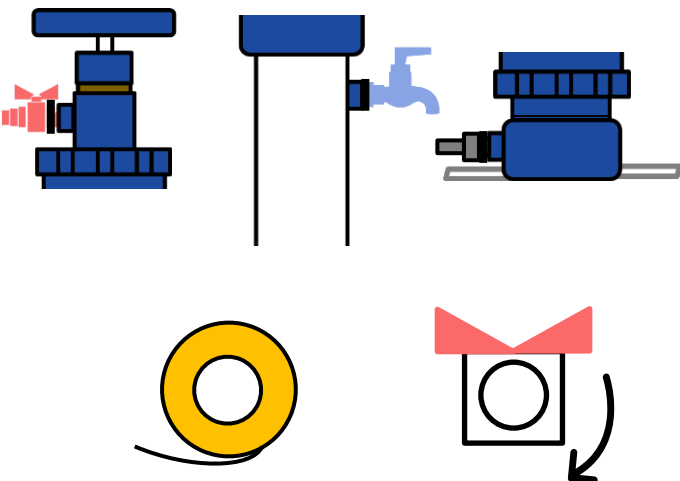
6. If air is still escaping from the check valve, remove the check valve assembly and remove the check valve with the circlip plier

7. Thoroughly wash the check valve

8. Reassemble the unit and test



7. Water is leaking from any of the filter openings



Issue 1: Tap openings are not tightened enough

1. Check to see if the drain valve, front tap, and hose connectors are sufficiently tightened and their o-rings are not deformed

2. Remove the tap accessory that is leaking, and apply a few layers of thread seal tape

When facing the threads directly, roll the tape clockwise

Issue 2: Water escaping through the pump handle stabilizer

1. Tilt the system to pour out the escaped water

2. Continue to use the system as per normal, but pump slower and in an up-and-down motion

As the escaped water is unfiltered, dispose the water properly. Do not pour this water into a clean water container. Wipe dry and sanitise the top assembly to prevent the unfiltered water from contaminating the hands of the next user or cross-contaminating with the filtered water at the front tap.

8. Filtered water has a weird taste

Issue 1: Membrane preservative not flushed out

Check whether the preservative has been fully flushed out during operation. If not, flush for another 4L or until the weird taste disappears

Issue 2: Chemical substances in piping

If the system was installed with new PVC pipes, there may be PVC glue remaining on the pipes. Continue flushing the system through the drain valve and front tap until the weird taste disappears

Issue 3: Source water has a weird taste

While the ROAMfilter Plus 2 removes bacteria and viruses, it does not remove organic compounds, salts, hardness or metals which can cause the taste. Different taste could indicate different substances in the source water which may or may not cause harmful health effects to people.

If possible, find a shallow well water source or flowing river/stream.

9. Filtered water did not pass bacteria test

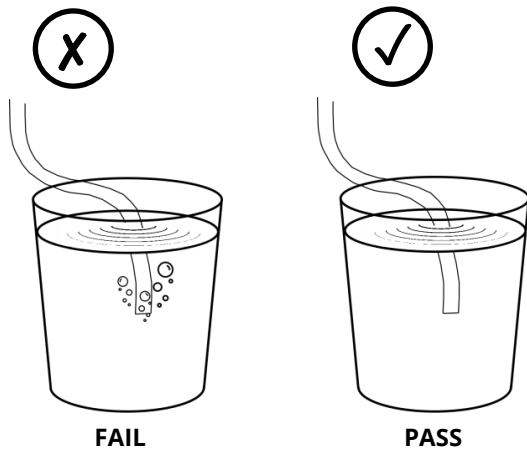
Issue 1: Filtered water sample collection not done properly

This can happen if

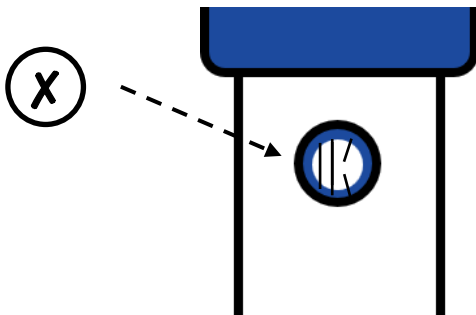
- the bottle used for collecting the water sample is not sterilized
- the collector is not using sterile gloves during sample collection
- the sample is not preserved at 4°C during transport to testing facility

- Ensure filtered water sample collection is done properly
- Use another testing facility or test kit to corroborate the result

Issue 2: Filter membrane integrity is compromised



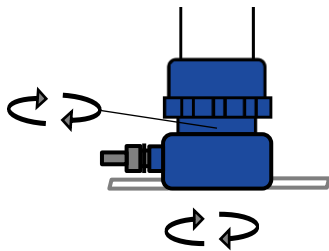
Perform membrane integrity test



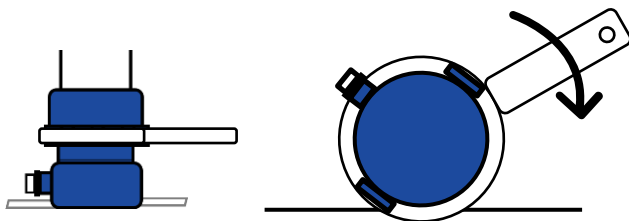
Remove the front tap and inspect the membrane strands for cuts/damage

If membrane integrity test fails, do not use the system and get a replacement filter cartridge

10. Unable to open pre-filter cap

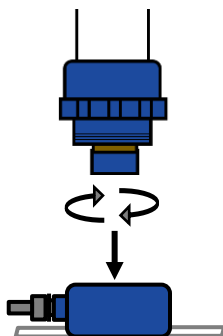


Issue 1: Pre-filter cap is turning together with the bottom cap

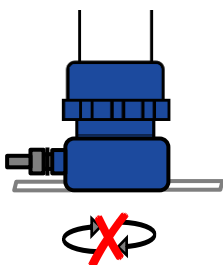


1. Insert filter wrench onto the bottom union nut from the top, and turn clockwise to tighten it

When tightening the union nut, it is easier to ensure the nut is tight enough by placing the filter horizontally on a table.



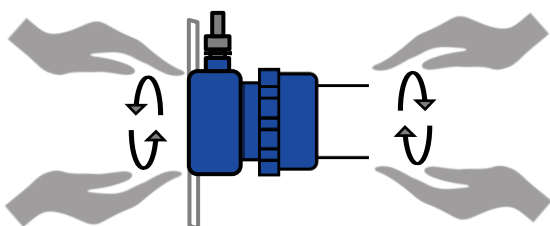
2. Twist the pre-filter cap anti-clockwise to remove it



Issue 2: Pre-filter cap is too tight

1. Ask another person to assist in providing a clockwise counter-force against the anti-clockwise turn to twist open the pre-filter cap

2. Leave the system in a warmer environment which could expand pre-filter cap and make it easier to remove



Do not use any heating element or fire to heat the system up as the PVC parts may melt, and the membranes may also get damaged

ROAMFILTER™ PLUS 2 LIMITED WARRANTY

Wateroam Pte Ltd. (hereinafter “Wateroam”) provides a limited warranty to a buyer (“Buyer”) on the materials, workmanship and performance of its ROAMfilter™ Plus 2 system (“Product”) under the following terms and conditions:

What is covered

This warranty covers defects in materials and workmanship in the Product.

What is not covered

1. This limited warranty does not cover any damage caused by the Buyer modifying, attempting to fix, or otherwise altering the product.
2. This does not cover any damage that is caused by usage of the Product outside of the scope defined by the Product Instruction Manual.
3. This does not cover any damage to the Product due to *Force Majeure*
4. This limited warranty excludes warranties from the hose, hose adaptor, drain valve, front tap.
5. This also does not warrant that the product will not become obsolete in the future.

Coverage duration

This limited warranty lasts for 6 months from the date of delivery of the Product. Extended limited warranty, of up to a maximum of 18 months from the date of Product purchase, can only be purchased or gifted within the original 6-month duration of the limited warranty.

Who is covered

This limited warranty covers only the original Buyer of the Product. This limited warranty is not transferable to subsequent owners of the Product.

How to obtain services

To obtain the benefit of this warranty, the Buyer should first contact Wateroam via the website, e-mail or telephone number as follows:

Website: <http://www.wateroam.com/contact.html>

E-mail: support@wateroam.com

Telephone number: +65 6303 0603

ROAMFILTER™ PLUS 2 LIMITED WARRANTY

The Buyer should have the following information ready before contacting Wateroam: invoice number, site of damage, extent of damage. Wateroam will run through the troubleshooting process with the Buyer. If the Product cannot be reasonably fixed by the Buyer, Wateroam will determine if the damage is serviceable under this limited warranty. If the damage is serviceable, the Buyer will have to deliver the Product to the service support centre, as designated by Wateroam.

What Wateroam will do

Wateroam will either repair or replace the Product, and deliver the Product back to the Buyer.

What Wateroam will not do under this Limited Warranty

Wateroam will not pay any shipping, insurance or transportation charges, import fees, duties and taxes, that arise from the transportation of the Product for the purpose of obtaining the warranty service. Wateroam is not responsible for any loss or damage caused during shipment of the Product.

No other Express Warranty applies

Apart from the extension of the duration of this limited warranty that can be granted based on conditions set by Wateroam, this limited warranty cannot be altered by any employee, agent, dealer, or other person. No other warranty, implied or otherwise, made by any employee, agent, dealer or other person, can apply.

Limitations on Liability

Wateroam shall not be responsible for any incidental, consequential or indirect, or unforeseeable damages and losses that arise from the transport, usage, replacement and reparation of the Product.

Other legal rights

This limited warranty gives you specific legal rights, and you also may have other rights that vary from state to state or country to country. The laws of certain jurisdictions do not allow limitations on implied warranties or the exclusion or limitation of certain damages, so some or all of the above disclaimers, exclusions or limitations may or may not apply fully to you.

