

**MUCH
MORE
WATER**

BlueBox 150 RO Wall



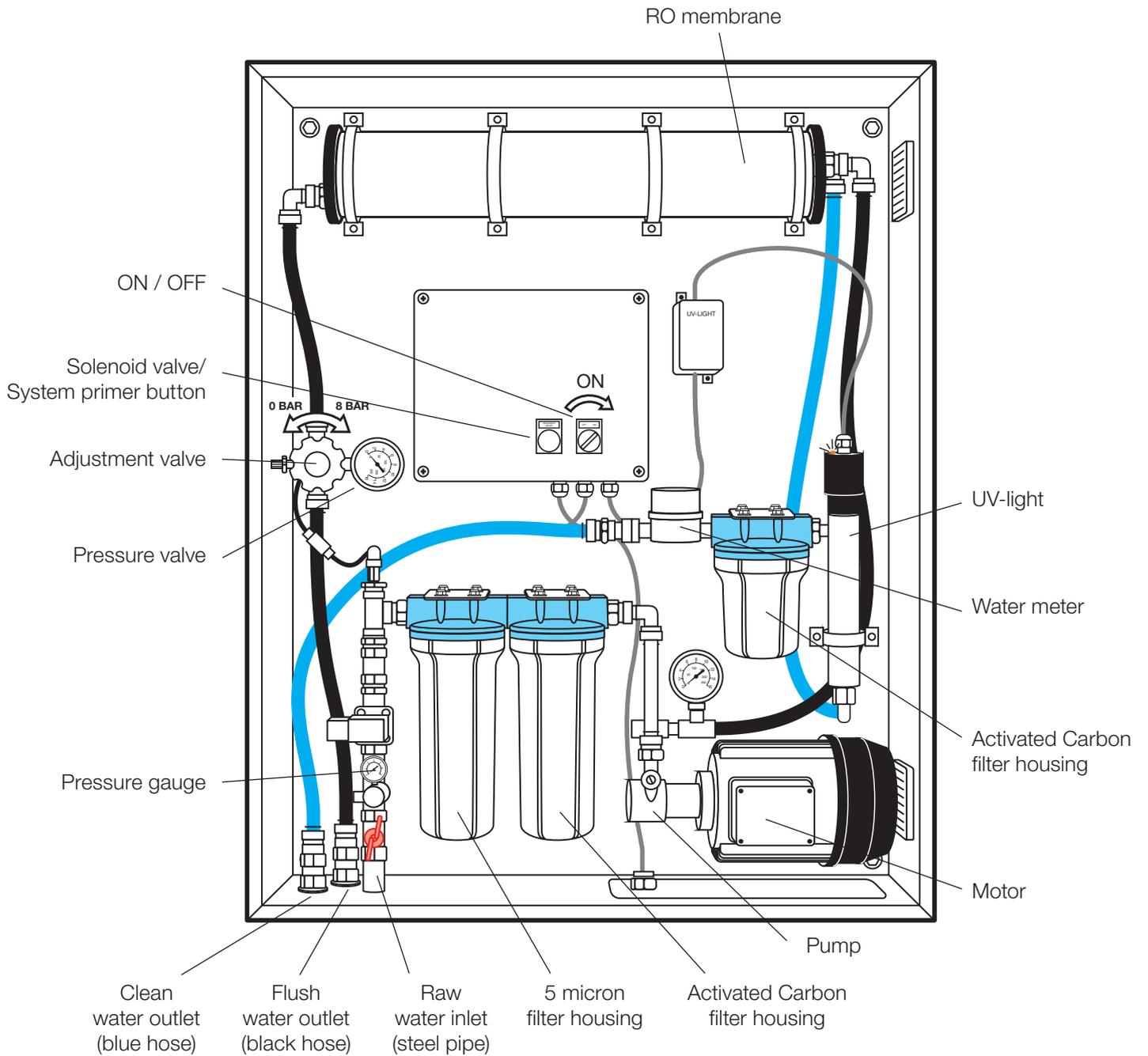
Operating manual



PURE WATER – ANYTIME – ANYWHERE

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BlueBox 150 RO Wall



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INTRODUCTION

The BlueBox150 RO wall mounted water purifier from MuchMoreWater A/S is a device for purifying non-potable water from centralised (public) water distribution supply grids into pure drinking water. The system is designed for rack-mounting onto a suitable wall.

The BlueBox 150 RO Wall will provide approximately 150 litres per hour of pure drinking water.

The unit is delivered ready for operation; only leaving wall-mounting, connection to power and water inlet, as well as water outlet.

This guide provides important information on setup, operation, and shut-down procedures. MuchMoreWater recommend reading this guide carefully before taking the system into operation. Feel free to contact our support team or your local contact for clarifications and assistance.

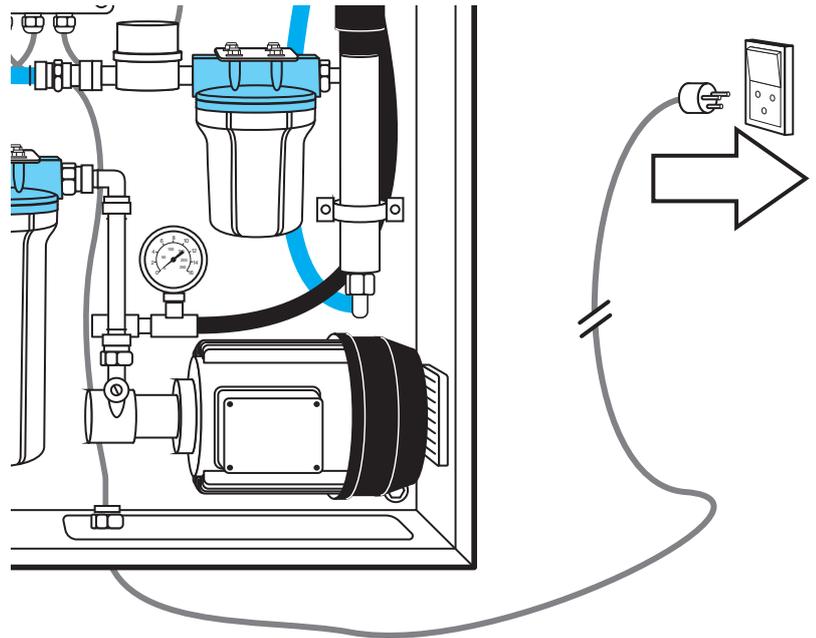
DISCLAIMER

- The BlueBox150 RO Wall purifier is not designed for heavily polluted water sources, such as untreated water from water holes. The equipment is designed for connecting to the existing water distribution network. Using this equipment for other water sources can damage the equipment, and lead to change of critical parts, such as the pump, filters and membrane.
- The BlueBox150 RO Wall is not for sea water or water with salinity levels over 1500 PPM (mg/l).
- The BlueBox150 RO Wall must be fed fresh water at all times. Dry-running the pump can create serious damage to the pump.
- Only a skilled technician should open the control unit. Risk of high voltage, which can damage your health.
- Daily maintenance of the particle filters must be undertaken for optimal performance. Allowing the particle filters to clog up poses a serious risk of damaging the pump and membrane.
- Do not operate the system without particle filters. Neglecting to operate with particle filters can seriously damage the RO membranes.
- Only water coming out of the appropriately labelled outlet is drinkable. Do not drink water from the flush water outlet pipe.

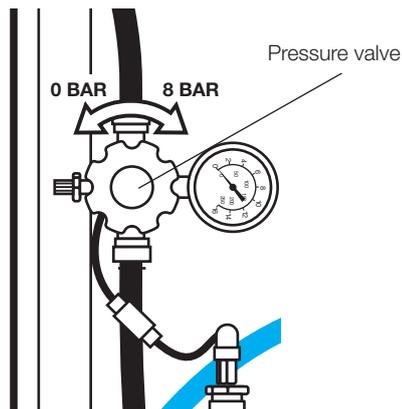
PART 1 STARTING THE BLUEBOX

- 1 Mount correct electrical plug to the supplied mains wire.

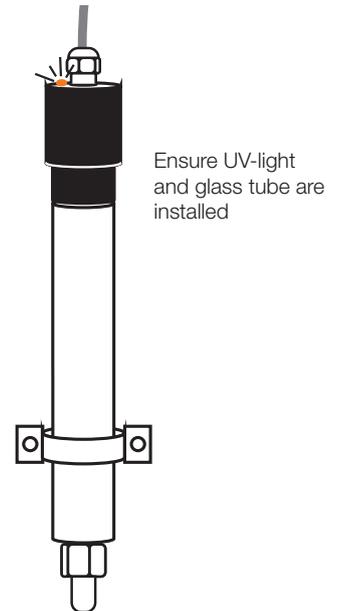
Connect the unit to a 230 V power supply.



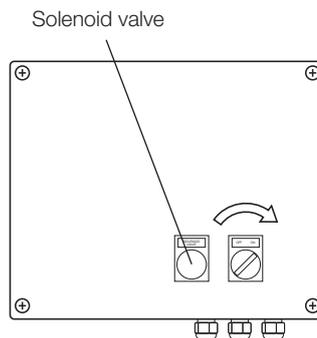
- 2 Before starting the pump, the blue pressure valve must be opened by turning it all the way **counter-clockwise to 0 BAR**.



- 3 Please ensure that the UV-light and glass tube has been installed prior to operating the unit and that the LED light is activated.

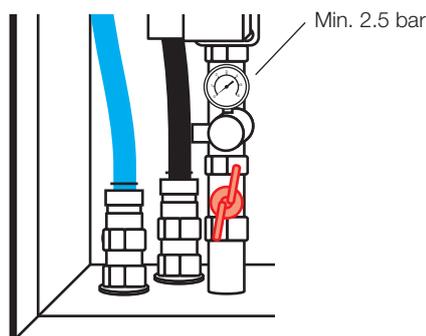


- 4 Press the solenoid valve button until you can see water coming out of the Flush water outlet.



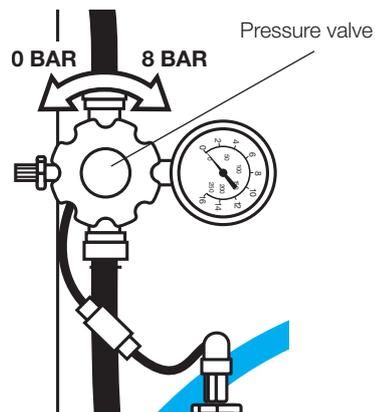
- 5 Turn the black power switch clockwise to the **ON** position.

- 6 Ensure that the pressure of inlet water is at min. 2.5 bar (400l/h)



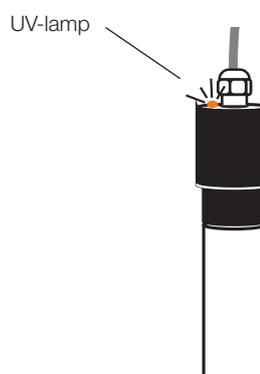
5 Let the pump run for 1-2 minutes until no more bubbles are detected from the red hose.

6 Turn the blue pressure valve **clockwise** until pressure is approximately 8 bars.



7 Check that the UV lamp is active, indicated by the LED light located at the top of the UV-light housing.

The UV light must be changed after 365 days of operation. Please see maintenance section.

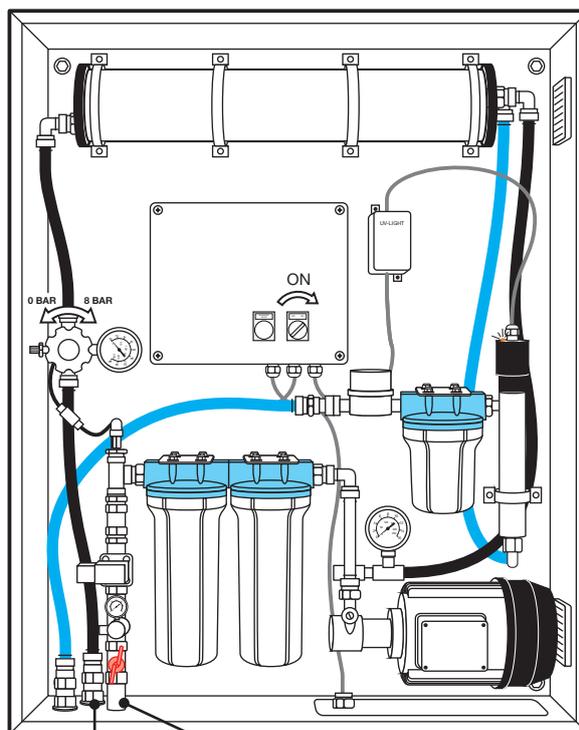


8 Non-potable (not suitable for drinking) water will come out of the black hose (Flush water outlet).

Drinking water can be tapped from the blue hose (Clean water).

The flow meter shows the volume of clean water.

WARNING!
Never drink the water from the blue fresh-water tube before the BlueBox has been working for at least 3-5 minutes!

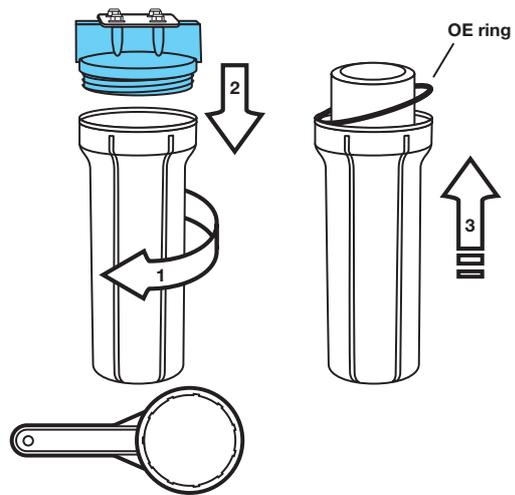


Wait 3-5 minutes

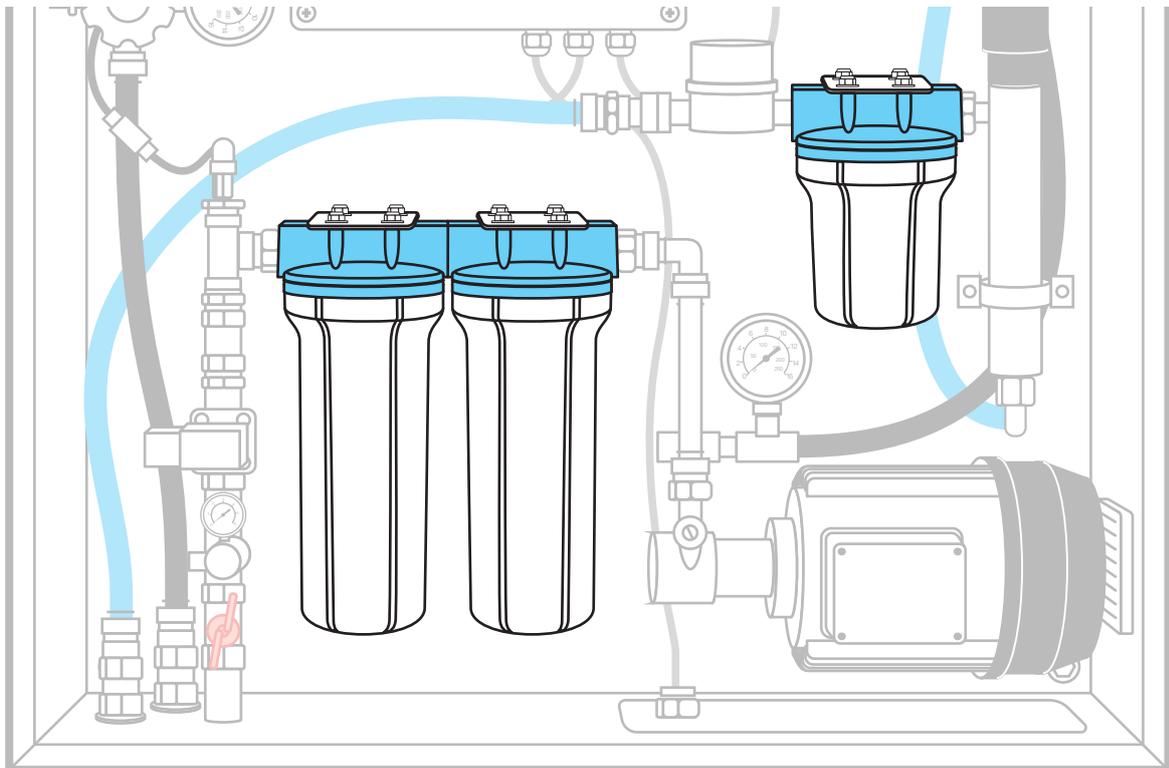
PART 4 MAINTENANCE

Daily

- 1 Cleaning of the three filters cartridges:
 - a) Screw off the three filters housings using the supplied tool.
 - b) Remove the filter from the housing and rinse both with clean water.



IMPORTANT
The filters must **NOT** be wrought or squeezed.



- 3 Grease the OE rings lightly before reinstalling the used or new filter cartridges in the housings and screw them back onto the sockets.
- 4 The filters should be changed when plant pressure is becoming too high or when they are judged to be too dirty. Max. 6 months operating time.
- 5 The air filter mounted in the door of the electrical cabinet must be inspected every day ensuring the filter is not clogged.

EVERY MONTH

- Check that all the connections and clamps are tightened correctly.
- Ensure that filter cartridges, membranes and UV-light bulb are fitted correctly.
- Check that the drainage pipes in the container are not blocked.
- Check all hoses for holes, tears and other signs of damage and water leakage.
- Check the pump's membrane. If there is water leaking out of the small hole at the bottom of the pump, the membrane in the pump is not watertight and must be changed.

EVERY YEAR

We recommend that the UV glass tube is removed from the chamber and cleaned using a damp cloth infused with a solution of a mild cleaning agent.

PUMP MAINTENANCE

The membranes must be renewed once a year.

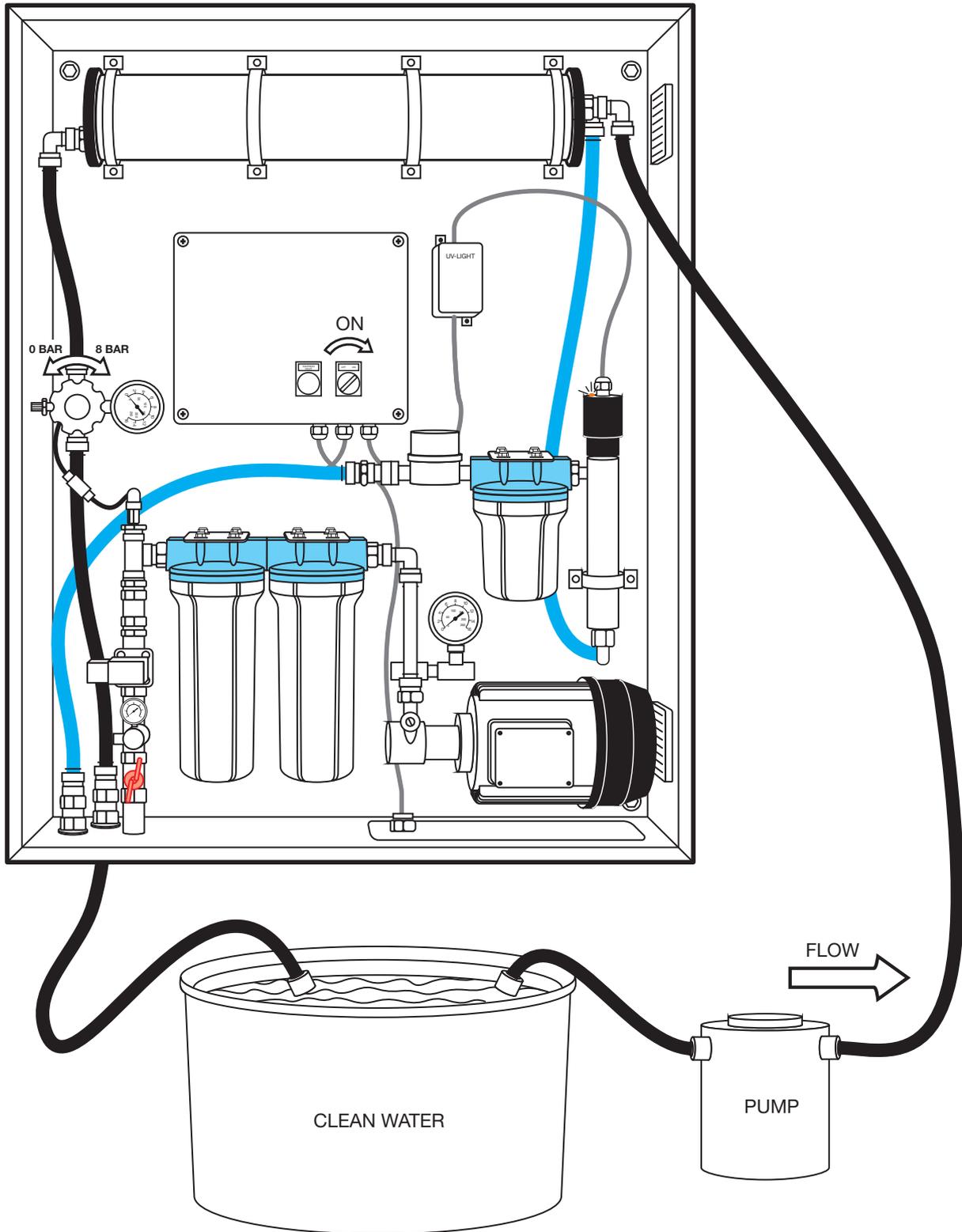
- ① Remove the two bolts on top of the motor and replace filter.
- ② Remove the four bolts either side of each cylinder and replace filter.
- ③ Assemble in reverse order.

IMPORTANT

The BlueBox 150 RO must be started every 3 months in order to maintain flexibility in rubber parts and to avoid build up of contaminants.

Ensure to drain the unit before storing it away.

PART 5 CLEANING



After more than 14 days of standstill and before storing, the BlueBox 150 RO Wall must undergo a complete cleaning process.

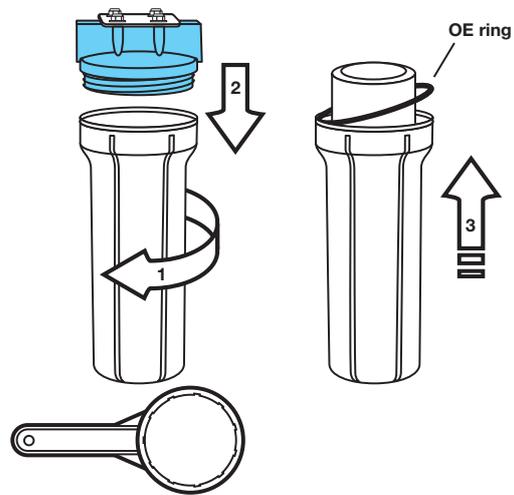
To clean the unit, plug in an external pump to the black hose as indicated in this illustration. Run for 15 min. Reconnect the black hose and run the system for 5 minutes.

Please ensure that you have approximately 50 litres of clean water available before you start the cleaning process.

Cleaning procedure with Sodium Hydroxide and Nitric Acid

(For example RoClean P303 and RoClean P111)

- 1 Un-screw the three filter housings and pull out the filter cartridges. Screw the filter housings back onto the mounts without the filters in.
- 2 **Acid Cleaning (RoClean P303)**
Dilute 200 gsm of RoClean P303 in 10 litres of water.
Insert all three hoses into the container with the cleaning fluid (Flush water outlet, Raw water inlet and Clean water).
Start the BlueBox and let the system rinse without pressure (open the blue pressure valve) for 10 minutes.



- 3 Turn the blue pressure valve clockwise to show approximately 8 bars of operating pressure.
Run the BlueBox at this setting for 30 minutes.
- 4 Open the pressure valve all the way and run the system with clean water for 10 minutes without pressure, and then again for 10 minutes with 8 bars of pressure.
- 5 **Alkali cleaning (RoClean P111)**
Dilute 200 gsm of RoClean P101 in 10 litres of water.
Insert all three hoses into the container with the cleaning fluid (Flush water outlet, Raw water inlet and Clean water).
- 6 Start the BlueBox and let the system rinse without pressure (open the blue pressure valve) for 10 minutes.
- 7 Turn the blue pressure valve clockwise to show approximately 8 bars of operating pressure.
Run the BlueBox at this setting for 30 minutes.
- 8 Open the pressure valve all the way and run the system with clean water for 15 minutes without pressure, and then again for 15 minutes with 8 bars of pressure.
- 9 Turn off the BlueBox, following the procedure in 'PART 3 After using BlueBox'.
If the first filter, 25 micron, is not too damaged (clogged), it can be rinsed and brushed down and reinstalled.

NOTE For a thorough cleaning, please repeat step 2, 3, 6 and 7, 2-3 times and/or let the membranes soak for up to 4 hours.

Preservation of membranes during storage or period of stand-still.

If the unit is to be stored (not used) for longer than 14 days, the membranes must be treated with a 20 % glycol solution or RoCide preservation mixture, which will also protect it against freezing temperatures. Remember to run a cleaning process of the system before taking into use.

IMPORTANT

The cleaning fluid must not exceed 45 °C

The pH value of the cleaning fluid must remain within 2-11 pH

PART 6 UV-LAMP

Potential Hazard Safety Measures

UV Exposure	Never illuminate UV Lamp outside of the UV Chamber. Never look directly at illuminated UV Lamp, even when using protective gear. Always use protective gear, including gloves and UV safety glasses. If accidental exposure occurs, immediately cool affected area and consult physician.
Electrical Shock	Disconnect power to system before performing any maintenance or repair. There may be more than one source of power.
Impalement	Never perform any physical inspection, repair or maintenance on UV Chamber unless UV chamber has been isolated and depressurized. Never service UV Lamps, Sleeves or associated hardware until depressurization of UV chamber has been confirmed.
Hot chamber	Allow UV Lamps, UV Chamber to cool for a minimum of 10 minutes before handling.
Cut or ingestion	Ensure the quartz sleeve or lamp is not broken, cracked or damaged in any way when handling equipment.
Scald from water	When there is no water flow, the water in the chamber will become hot. To prevent scalding, allow the system to cool before draining the system.
Fire	Do not store any combustible or flammable material close to the system.
Hg Exposure	The UV lamp contains mercury. If the lamp breaks, then avoid inhalation or ingestion of the debris and avoid exposure to eyes and skin. Never use a vacuum cleaner to clean up a broken lamp as this may scatter the spilled mercury. Obey local regulations and guidelines for the removal and disposal of mercury waste.
Water leak	Use proper plumbing materials to avoid potential material degradation from UV exposure.

Symptom	Possible cause	Possible solution
No power	GFCI and/or breaker tripped. Transient voltage surge suppressor (TVSS) damaged Power supply damaged	Reset GFCI and/or breaker Replace TVSS Replace power supply and use a TVSS
GFCI or breaker repeatedly trips	Connection between lamp and lamp plug is wet Short-circuit in the electrical assembly	Clean and dry lamp pins and lamp plug, check unit for leaks or condensation Replace power supply
Leak at inlet or outlet	Threaded pipe fittings are leaking	Clean threads, reseal with Teflon tape and retighten
Leak detected from area of UV chamber	Condensation of moist air on cold chamber (slow accumulation) O-ring damaged, deteriorated or incorrectly installed Lamp/sleeve assembly not properly installed (too tight or not tight enough)	Control humidity or relocate unit Inspect and replace if deteriorated Tighten assembly hand-tight
Leak detected at sensor (if so equipped)	UV sensor o-rings are damaged, deteriorated, or incorrectly installed	Inspect and replace o-rings if deteriorated
Alarm	See Display section	See Display section
System is operating but water tests reveal bacterial contamination	Equipment downstream of UV system is acting as a breeding ground for pathogens Pathogens are residing in the distribution lines post-UV Recontamination from pipe dead-ends	Ensure UV is the last piece of treatment equipment Ensure all distribution lines have been disinfected with chlorine Remove any pipe dead-ends and flush with chlorine
Lamp timer does not read anything	Unit is unplugged No power at AC power outlet Power cord is damaged Power surge caused damage to electrical assembly	Plug unit into AC power outlet Replace fuse or reset breaker Replace power cord Replace power supply and use a surge protector

Display

Lamp timer display	Counts down from 365 days to show time for annual lamp replacement.
Lamp timer reset	After installing a new lamp, press and hold for five seconds to reset Lamp timer to 365.
Alarm	Press to silence audible alarm. When the alarm is due to the lamp's age, the mute button will silence the audible alarm for 7 days; this may be repeated up to a maximum of 4 times. After that, the button will silence for only 24 hours. When the alarm is due to any other issue, the mute button will silence the audible alarm for 24 hours.

SLEEVE CLEANING & LAMP REPLACEMENT

Lamp replacement

Unplug the BlueBox from the electrical socket.

Let the unit cool for 10 minutes.

Remove the UV-lamp from the container.

Sleeve cleaning

Minerals in the water slowly form a coating on the sleeve. This coating must be removed because it reduces the amount of UV light reaching the water, thereby reducing purification performance.

Equipment required

Clean cotton Latex or plastic gloves are preferred

Scale remover Vinegar or a citrus-based product

Cloth Must be soft, lint-free, and chemical-free. No clean-wipes must be used

Cotton swab

Lamp life

The amount of UV light created by the lamp decreases over time, requiring a replacement of the lamp every 12 months. The controller displays the total lamp life remaining in days.

At 0 (zero) days, the controller will display 'A3' and supply an intermittent audible chirp (1 second on, 5 seconds off), indicating the need to change the lamp.

NOTE

The UV system is designed to operate continuously and should not be shut off for short periods of time, such as over a period of less than three weeks.

If any faults should occur...

SYMPTOM	REASON	SOLUTION
Pump cannot produce any pressure	Absorption tube is not filled with water.	Dismantle black absorption hose and fill with water.
	Contra vent in absorption tube is stuck.	Take apart contra vent and clean inside.
	Membranes in pump are defective.	Pump is dismantled by loosening the bolts – membranes are loosened and changed. (see Motor maintenance on page 8).
	Vent valves in pump Are defective or clogged.	Pump is dismantled by loosening bolts and vents are cleaned or changed.
	The pump is letting in air.	Tubes are tightened on absorption side of pump.
	Check reasons in pump section.	Check solutions in pump section.
Clean water capacity fails	The system must undergo a cleaning process.	Follow the cleaning guide. (see Part 5, 'Every month')
	The system is not working at normal work pressure.	Adjust work pressure to 8 bars (see ill.) and check that the manometer on main-block shows 8 bar.
	The lifting height (max. 6 meters) has been exceeded.	The lifting height must be reduced to under 6 meters.
	Clean water tube is blocked or clogged.	Make sure that there is free passage in the blue clean water hose and that the flow meter are not clogged by obstacles.
UV-light bulb gives no light	Plug for light is not connected.	Insert plug.
	UV-light bulb is not connected.	Dismantle UV-housing and tighten bulb in its socket.
	Defective bulb.	Change bulb and check if the light housing is tight (avoid looking directly at UV-light for more than a couple of seconds).
There is water coming out from the bottom of the pump	Defective membrane -or membranes.	Change membrane- or membranes.

IMPORTANT NOTE

Please be aware of the following:

- Make sure that the electricity supply is stable.
- The Reverse Osmosis membranes (RO filters) in the BlueBox system normally have to be changed every 2 years depending on the working hours and quality of feed water.
- Please do not place the system in directly sunlight. Heat may affect the electronics in the switch board box.
- As the UV-light contains glass, the system must not be affected by hard shock.
- The system must be free of dust and dirt.
- The system must not be exposed for frost. Temperatures below 0 °C (zero degrees Celsius) can ruin the RO membranes. E.g. during a long-haul flight, the BlueBox should be started with low pressure for a while in order to defrost the membranes without damaging them. For long term storage in freezing temperatures, please contact Much More Water at info@muchmorewater.com.
- As an industrial standard for Reverse Osmosis, the output of the membranes decreases in proportion with the temperature of the raw water: 3 % reduction per 1 °C measured from 25 °C.
- Beware of silt, humus and high levels of iron in the raw water. These compounds will eventually spoil the membranes, since very small 'plates' from these compounds will fill up the membranes over time. The only way to deal with this is to install an improved pre-filtration system.
- Beware of high content of iron/manganese. Especially coming from boreholes, high levels of iron and manganese will clog the membranes and render them useless. It may be advisable to install an improved pre-filtration system, using anti-scalants.



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