



MANUAL

FR80S&FR105S

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1. INTRODUCTION

Thank you for choosing Pure Ocean Marine's water maker. POM's RO system is designed for yachts, ocean cruise boats, sailboats and fishing boats. We understand the value of space on board, and this split desalination system can flexibly allocate components to install on your boat, which is a good space saving. POM water maker chooses the industry's highest quality parts, each POM water maker before the factory has been strictly tested, can provide a strong guarantee for your boat life.

The water produced by this system is odor-free and very clean for daily use. However, if you need to drink the produced water directly, it is recommended to do further treatment to meet the drinking demand.

Please read this manual carefully before installation and use, and strictly follow the instructions in this manual to use the equipment. Improper operation may cause damage to the components of the equipment and affect the warranty.

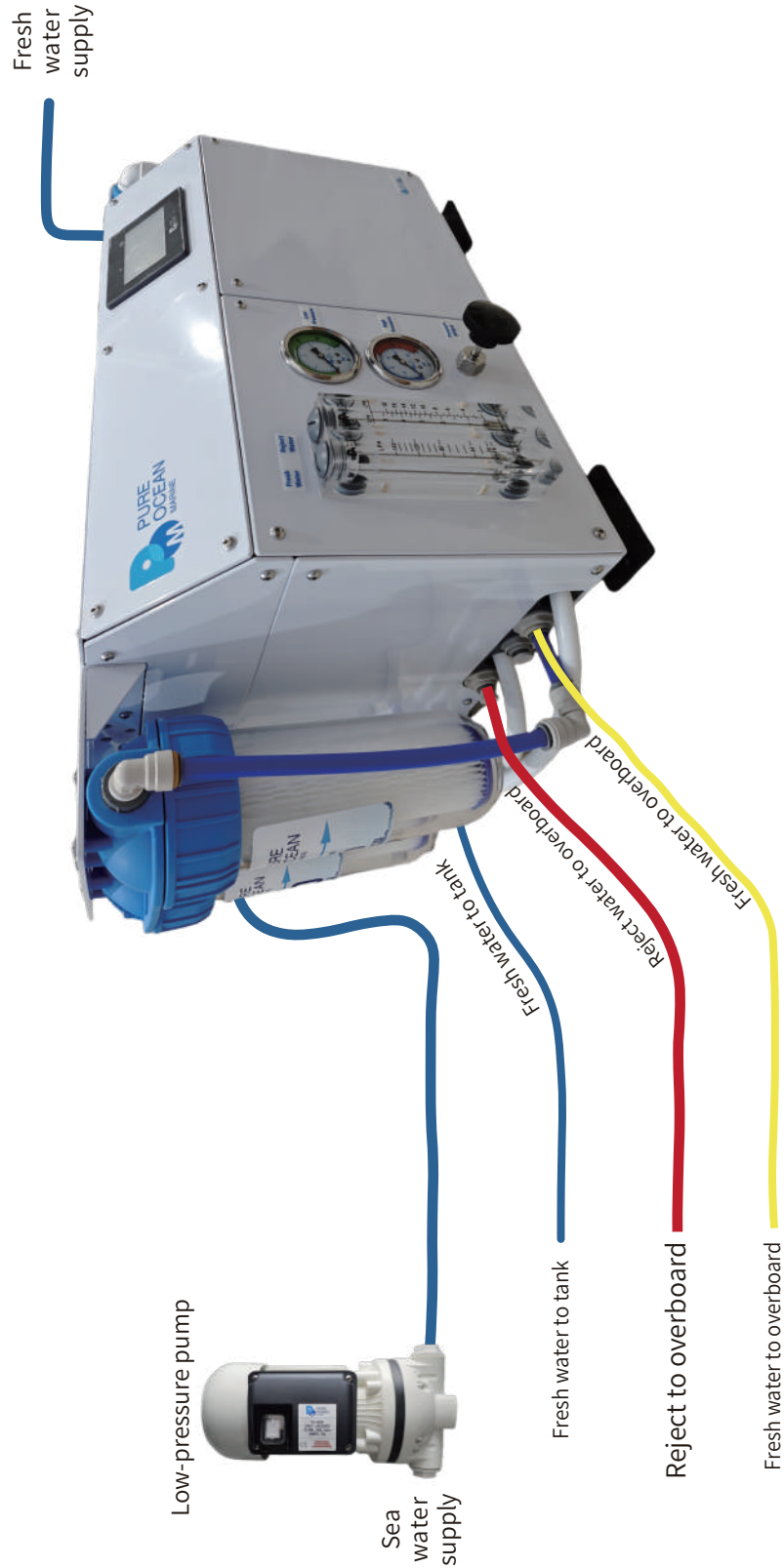
If you have any questions about the installation, operation or maintenance of the water maker, please feel easy to contact us.

2. PARAMETERS

Model	POM-FR80S	POM-FR105S	POM-FR140	POM-FR200	POM-FR300
Membrane type	SW-2521×2	SW-2521×3	SW-2540×2	SW-2540×3	SW-2540×4
Product water quality	<500ppm				
Minimum Salt Rejection	99.5%				
Effective area of the membrane	24ft ² (2.2m ²)	36ft ² (3.9m ²)	56ft ² (5.2m ²)	84ft ² (7.8m ²)	112ft ² (10.4m ²)
Working pressure	800psi (55bar)				
Seawater temperature range	+4°C~38°C				
Maximum inlet flow	6.0gpm (1.4m ³ /h)	6.0gpm (1.4m ³ /h)	6.0gpm (1.4m ³ /h)	12.0gpm (2.8m ³ /h)	12.0gpm (2.8m ³ /h)
Free Chlorine Tolerance	<0.1ppm				
Influent pH range during continuous operation	3~10				
Water inlet pH range for chemical cleaning	2~12				
Maximum SDI15	5				
Water production (3.5% salinity, 25°C, 800psi working pressure)	80L/h	105L/h	140L/h	200L/h	300L/h
Material of membrane vessel	FRP				
High-pressure pump power supply	0.75kW	1kW	1.5kW	2kW	3kW
Low-pressure pump power supply	0.3kW	0.3kW	0.45kW	0.45kW	0.75kW
Operating time	continuous duty up to 35°C ambient temperature				

3. DIAGRAMS

FR80S



1/2" Blue PE hose	3/8" Yellow PE hose
3/8" Blue PE hose	1/2" Red PE hose

4. SAFETY GUIDELINES

This user manual includes important safety information and instructions for commissioning, operating, and maintaining Pure Ocean Marine water maker components. Therefore, before starting any work on the equipment, the responsible staff must read and refer to the manual.

To ensure the installation of the device, please read this user manual carefully. If the installation does not meet this requirement, the warranty will be void. Ignoring warnings/instructions in the user manual and incorrect installation may result in injury or possible property damage. In this manual, the following symbols and their meanings must be observed.

Please follow the instructions and take appropriate measures.

 WARNING	Failure to follow warnings could result in serious personal injury and death or property damage.
 WARNING	Risk of electric shock, resulting in serious personal injury or death, if warnings are not followed. -
 ATTENTION	Remind to follow the instructions, otherwise it may cause personal injury or equipment damage.

5. INSTALLATION

5.1 Machine

5.1.1 Please reserve enough space to place the frame type watermaker.



ATTENTION The standard installation method is horizontal installation.



WARNING

Make sure to install the machine firmly, if the machine falls, it will cause serious damage or casualties

5.1.2 Fasten the black rubber shock-absorbing pad to the horizontal base with screws.



5.2 Low-pressure pump

5.2.1 Low-pressure pump are recommended to be installed below the water line. The low-pressure pump has a self-priming function with a suction range of 1m, so the installation position should not exceed 1m above the water line.

5.2.2 Position the shock mounts and mark them. Fix the shock-absorbing base on the horizontal base with screws.

5.2.3 Bolt the low-pressure pump to the shock-absorbing base.



WARNING

The low-pressure pump cannot be installed more than 1m above the waterline, otherwise the low-pressure pump will not be able to supply water to the system normally!!



WARNING

The power must be cut off during installation, otherwise it may cause personal injury or death due to electric shock.

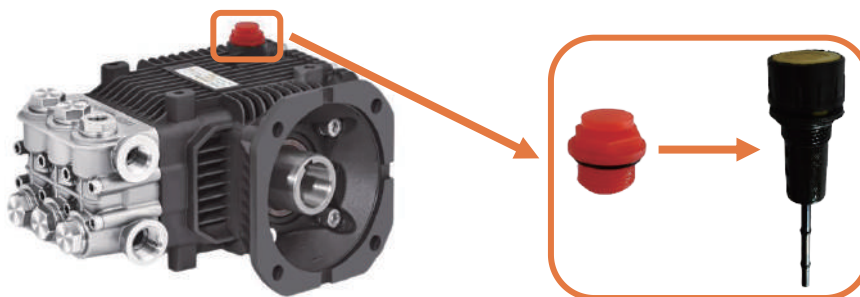
5.3 High-pressure pump

5.3.1 After the machine is installed, the high pressure pump needs to be checked.



WARNING

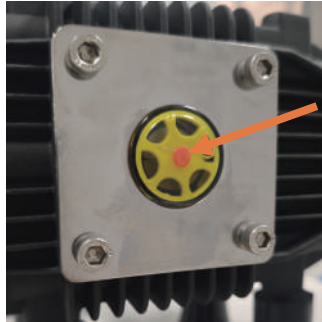
The (red) oil plug must be replaced with the (yellow) oil dipstick after a new pump is installed.





WARNING

Check whether the lubricating oil in the pump has been filled to the specified position, if the lubricating oil in the pump is insufficient, please fill the oil to the marked line.



WARNING

The power must be cut off during installation, otherwise it may cause personal injury or death due to electric shock.

5.4 Pre-filter & Carbon filter

5.4.1 Check and install filter elements: 【Carbon filter】and 【Pre-filter】(5micron, 20micron) according to the labels.



【Carbon filter】



【Pre-filter 20 micron and 5 micron】



ATTENTION

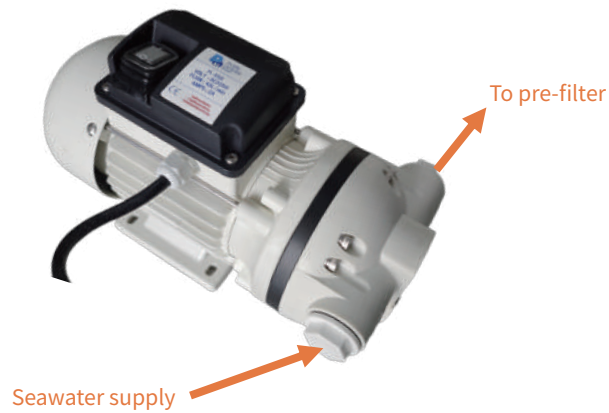
Please make sure use the accompanying tools to tighten the filter bottle to prevent water leakage or air intake.

5.5 Hose connection



ATTENTION Please read the system diagram in the manual before connecting the hoses

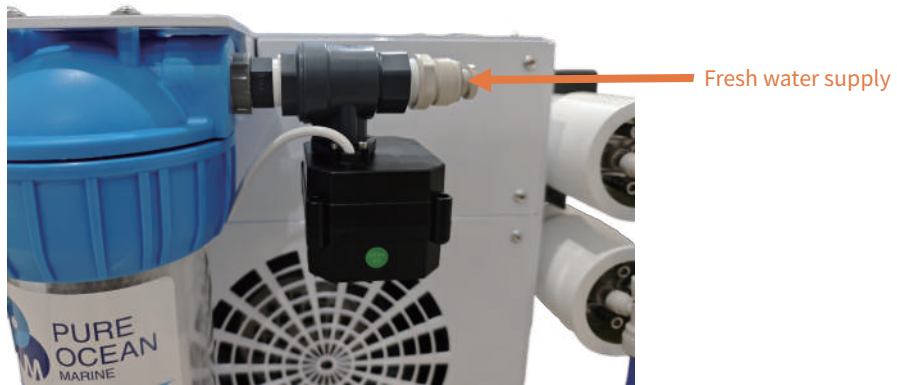
Low-pressure pump



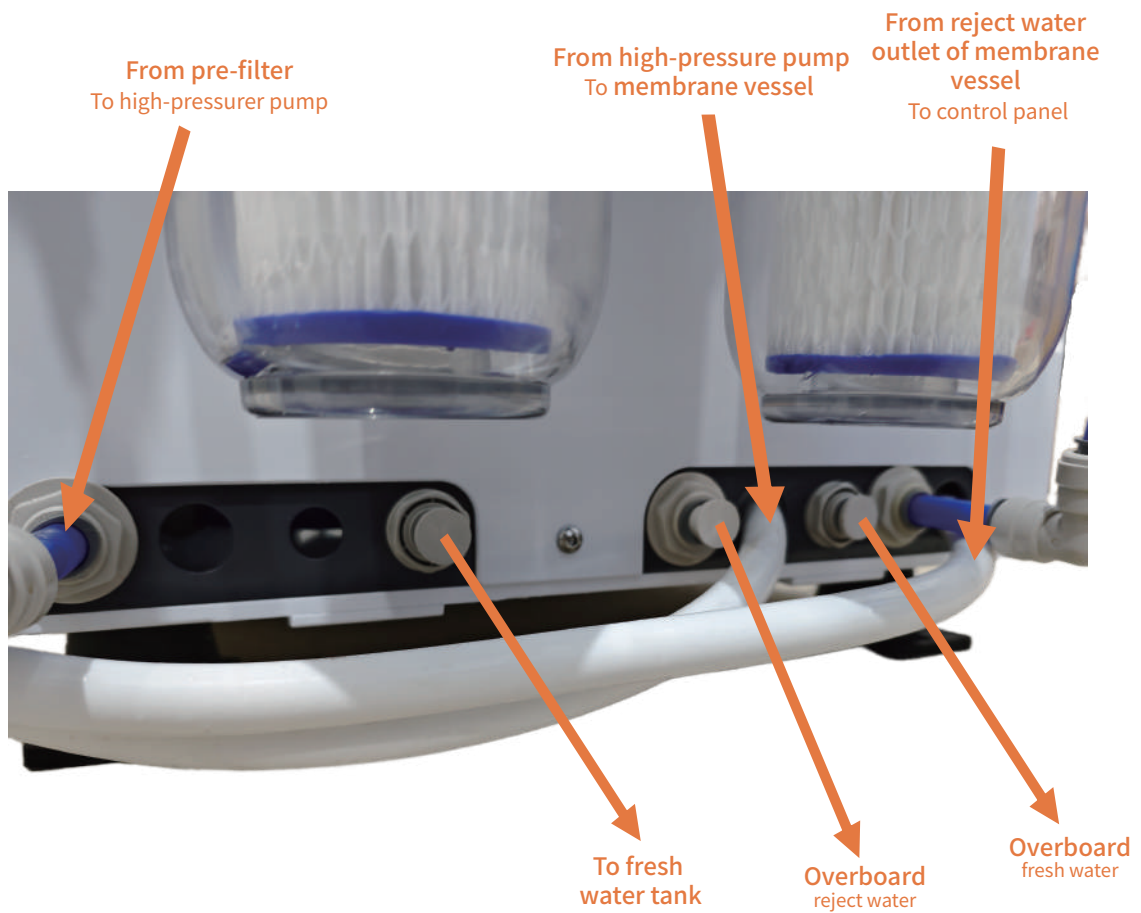
Pre-filter



Carbon filter



Connection on frame



Quick connector

The hose can be inserted directly into the fitting



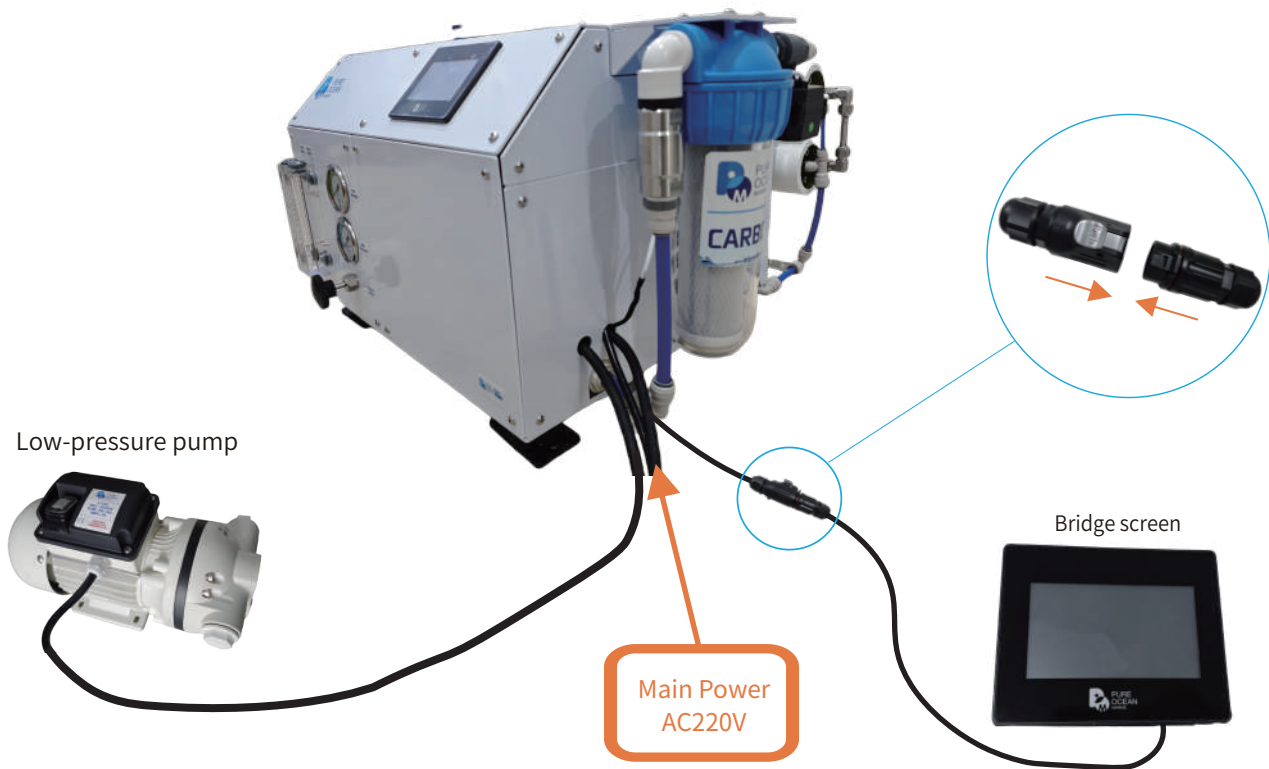
High-pressure hose

High pressure hose needs to be installed with wrenches



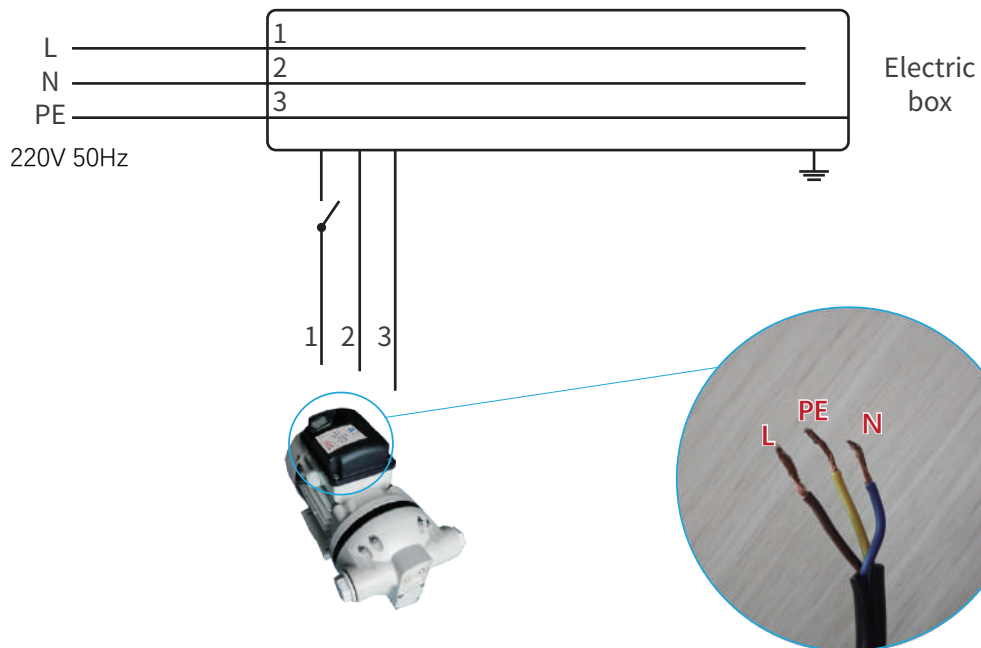
5.6 Power connection

Connect the cables to 【Main power】 ,【Low-pressure pump】 and【High-pressure pump】 according to the labels on the panel.



WARNING

When connecting the wires, the power must be cut off, otherwise it may cause personal injury or death due to electric shock



6. OPERATIONS

6.1 Precautions for first use & manual make water

6.1.1 Check whether the seawater inlet valve is fully opened.

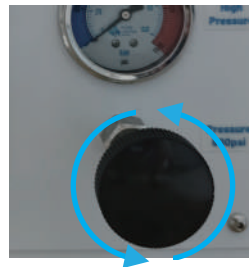
6.1.2 Check whether the pressure regulating valve is fully opened.



WARNING

If the pressure regulating valve is not fully opened, starting the system directly may cause irreversible damage to the RO membrane.

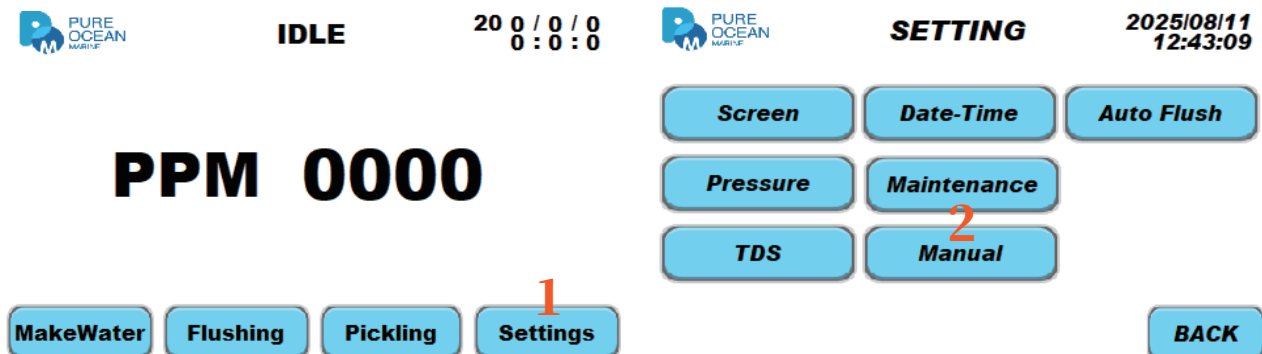
6.1.3 Verify that all hoses are properly installed and secured.



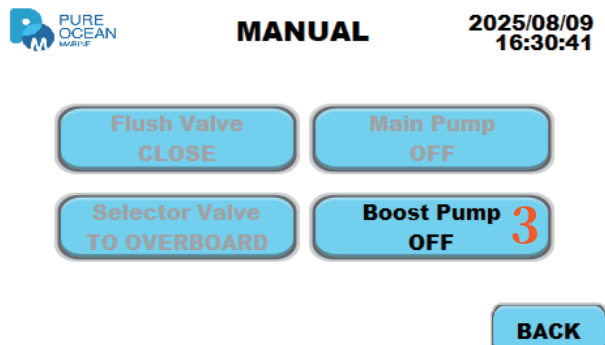
6.1.4 After power on, the screen on the machine lights up

6.1.5 Press the button [Settings]

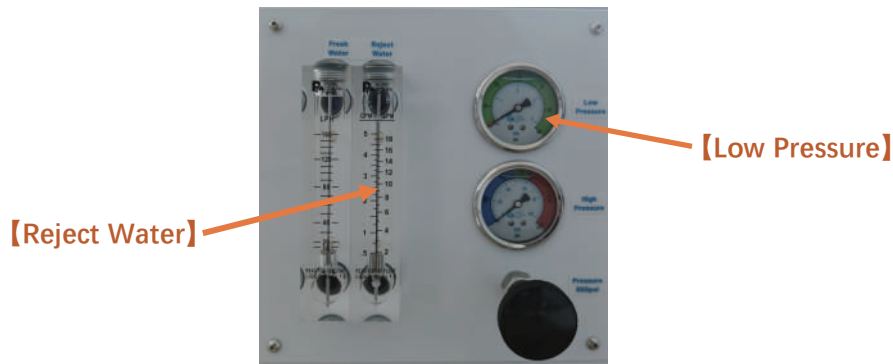
6.1.6 Press the button [Manual]



6.1.7 Turn on the [Boost Pump] and let it run for 5~8min



- 6.1.8 Check the【Reject Water】flow meter for bubbles.
Check the【Low-pressure】gauge.
Observe the overboard water.



- 6.1.9 Check for air in the 【20micron】 and 【5micron】 pre-filter. If there is air inside, please turn counterclockwise to loosen the exhaust cap to empty the air.

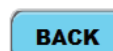


- 6.1.10 After all the air in the system is emptied, start 【Main Pump】
Observe whether there are air bubbles in the【Reject Water】flowmeter.



MANUAL

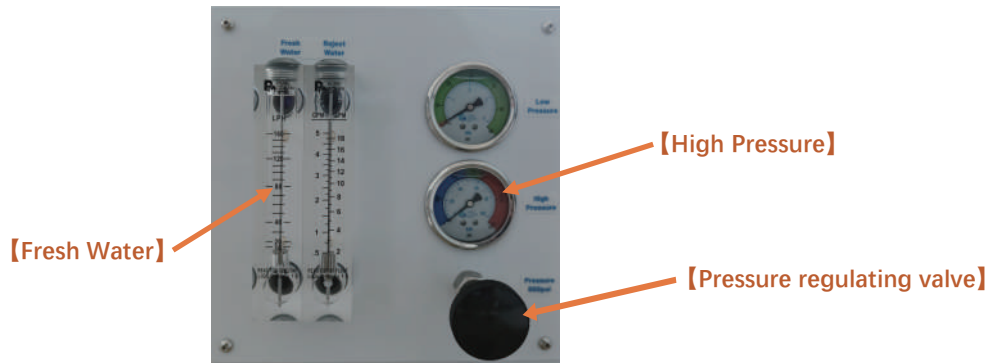
2025/08/09
16:30:41



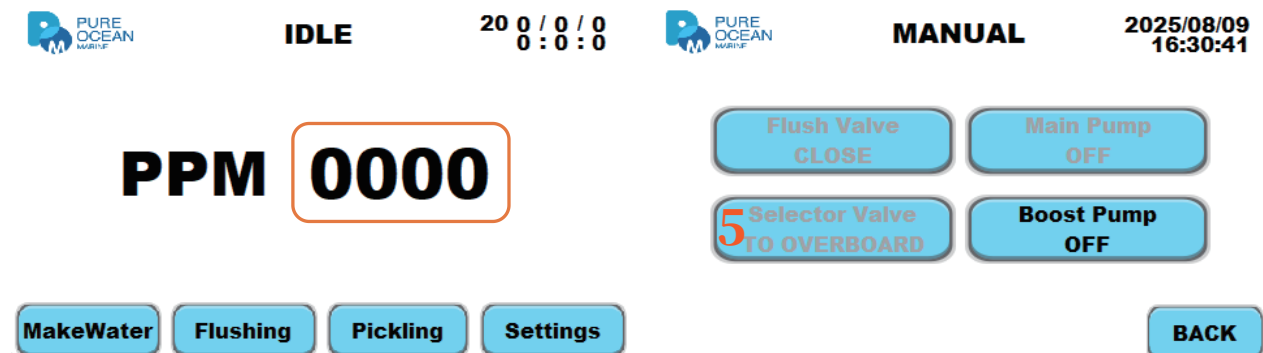
WARNING

Before starting the high-pressure pump, check whether the lubricating oil in the pump has been filled to the specified position. If the lubricating oil in the pump is insufficient, please fill it to the level with the line mark

6.1.11 When it is confirmed that there is no excess air in the system, turn the pressure regulating valve and observe the【High-pressure】meter.



- ① Adjust the pressure to 200psi, check whether there is any leakage at all joints of the hoses, and stop the leakage in time.
- ② Adjust the pressure to 400psi and repeat the above operation.
- ③ Adjust the pressure to 650psi and repeat the above operation; Now the system begins to produce fresh water. Observe water production through 【Fresh Water】 flow meter. Check the ppm value displayed on the TDS.
- ④ Adjust the pressure to 800psi and repeat the above operation; Now The system reaches the rated working pressure. Observe water production through 【Fresh Water】 flow meter. Check the ppm value displayed on the TDS. When the ppm value is lower than 500ppm, please press that 【Selector Valve TO OVERBOARD】 to 【Selector Valve TO TANK】.
- ⑤ At this time, the system enters the normal water production state, please observe whether the ppm value of the TDS table is qualified, and observe the water tank capacity; if the water tank is almost full or the ppm value is too high, please turn the selector valve back to 【Selector Valve TO OVERBOARD】 and stop the system.



ATTENTION

The system contains a pickling preservative when it is used for the first time. Please discharge the fresh water produced in the first **at least 30 minutes** overboard.



WARNING

The rated working pressure of the system is 800psi (55bar)
 The maximum working pressure is 850psi (58.6bar)
 Excessive system pressure can cause equipment damage, possibly resulting in personal injury or death.

6.2 Manual stop system

6.2.1 Press the **【Selector Valve TO TANK】** turn back to **【Selector Valve TO OVERBOARD】**.

6.2.2 Turn the **【Pressure regulating valve】** to reduce system pressure.

- ① Adjust the pressure to 600psi, let the system run for 5min.
- ② Adjust the pressure to 400psi, let the system run for 5min.
- ③ Adjust the pressure to 200psi, let the system run for 5min.
- ④ Release the pressure completely, let the system run for 5~10min.



ATTENTION

The system pressure should not be fully released directly from 800psi, otherwise it will cause damage to the RO membrane.

6.2.3 Turn off the **【Main Pump】** let the system run for 3~5min.

6.2.4 Turn off the **【Boost Pump】**.

6.2.5 Flush the system (Refer to the steps **【Flushing】** in Page 18-19).

6.3 Automatic maker water

6.3.1 Check whether the seawater inlet valve is fully opened.

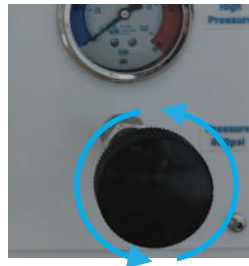
6.3.2 Check whether the pressure regulating valve is fully opened.



WARNING

If the pressure regulating valve is not fully opened, starting the system directly may cause irreversible damage to the RO membrane.

6.3.3 Verify that all hoses are properly installed and secured.



6.3.4 After power on, the screen on the machine lights up

6.3.5 Press the button **【Make Water】**

6.3.6 Press the button **【START】** and wait. Boost pump and Main pump will start in sequence.



IDLE

20 0 / 0 / 0
0 : 0 : 0



MAKE FRESH WATER 20 0 / 0 / 0
0 : 0 : 0

PPM 0000

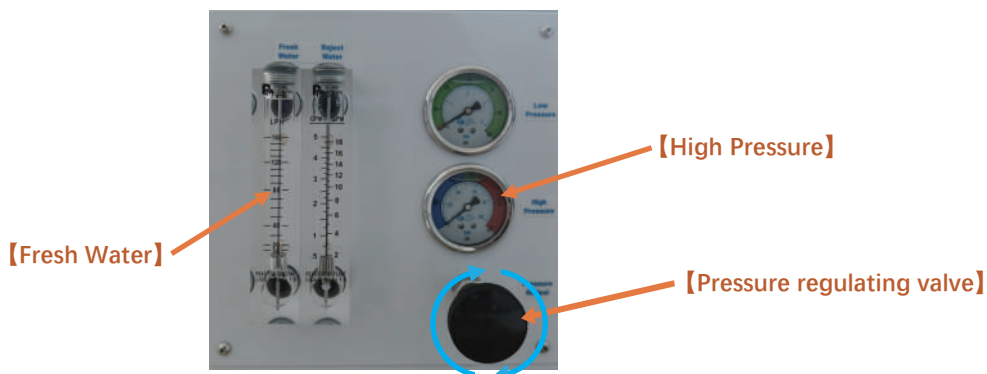
PPM0000

To Overboard
00 : 00 : 00



6.3.7 Check for air in the [20micron] and [5micron] pre-filter and make sure there is no air inside.

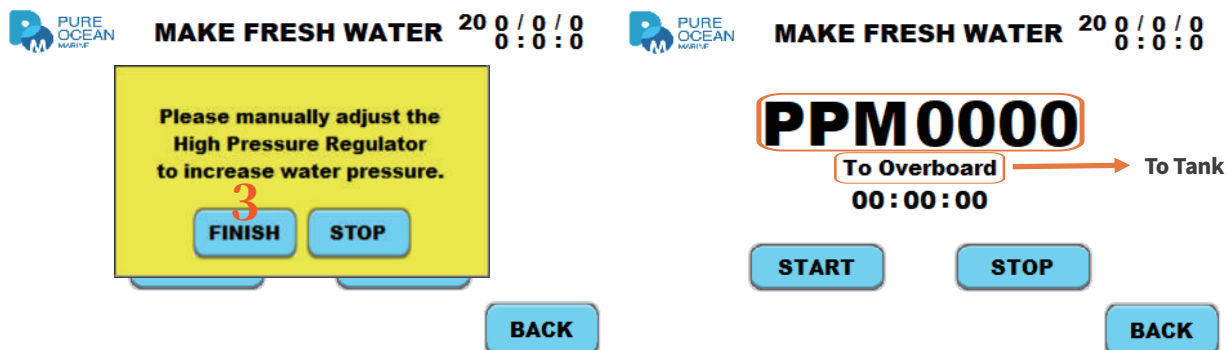
6.3.8 When it is confirmed that there is no excess air in the system, turn the pressure regulating valve and observe the [High-pressure] meter.



6.3.9 Adjust the pressure regulating valve **SLOWLY** to 800 PSI. Then press the [FINISH].

6.3.10 Observe the PPM value and the **selector valve** status. When the PPM value reaches the set qualified threshold, the selector valve will automatically turn [To TANK].

For details on TDS threshold setting, please refer to P23.



6.3.11 If a high pressure warning pops up on the screen, please immediately lower the pressure to a safe range!



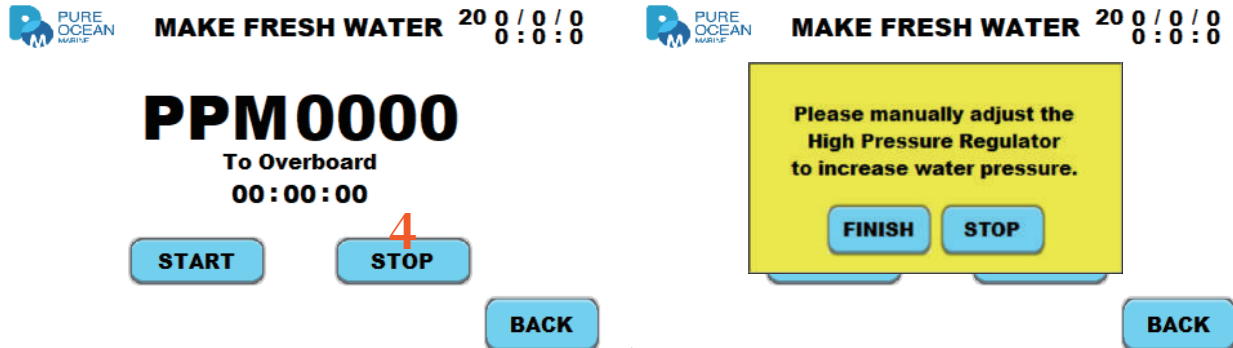
WARNING

The rated working pressure of the system is 800psi (55bar)
The maximum working pressure is 850psi (58.6bar)
Excessive system pressure can cause equipment damage, possibly resulting in personal injury or death.

6.4 Stop system

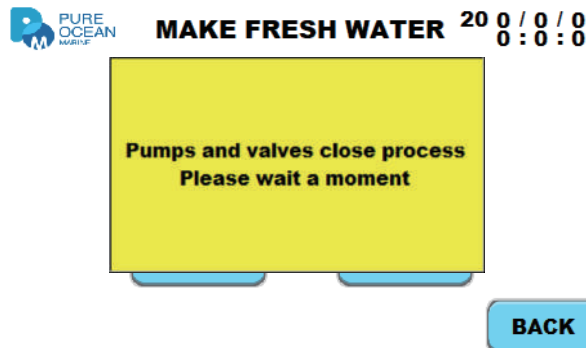
6.4.1 Press the [STOP] button.

6.4.2 Depressurize the system to 0 PSI **SLOWLY**.



6.4.3 The system has a high-pressure protection function.

When the system pressure drops to 0 PSI, the Main pump and Boost pump will be shut down in sequence.



6.4.4 Flush the system (Refer to the steps [Flushing] in Page 18-19).

7. MAINTENANCE

Short-time maintenance

7.1 Flushing

When the system is not in operation, seawater stays in the system hose and may breed bacteria and microorganisms when it contacts the RO membrane. Therefore, our system needs to be flushed with fresh water regularly to prevent bacteria and microorganisms from clogging the RO membrane, which results in a significant reduction in the total water production of the system. Fresh water will wash out the seawater (salt water) stagnant from the membrane, thereby reducing the probability of membrane fouling and prolonging the service life of the RO membrane.

The system should be flushed with fresh water every 5 days when the unit is not in use or in "standby" mode. Flush every 3 days when the system is idle in hot tropical climates



ATTENTION After each water making, it should be flushed with fresh water once.



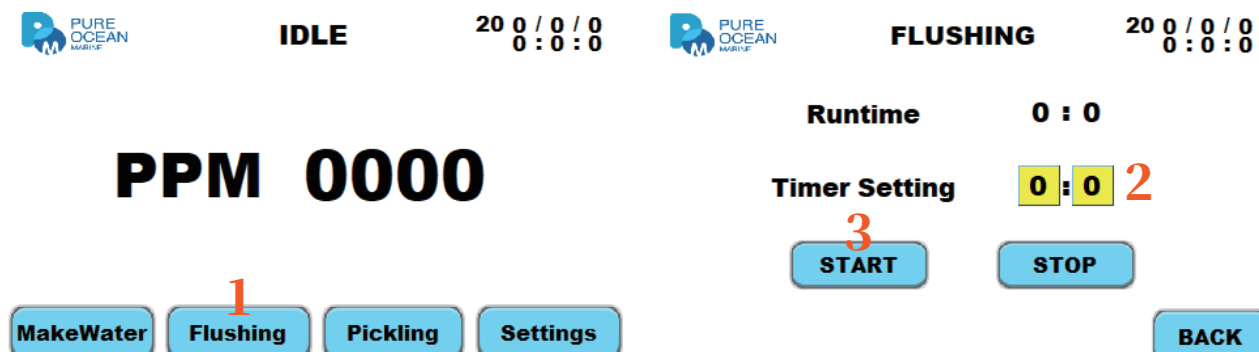
WARNING

It is forbidden to flush the RO membrane with fresh water that has not been dechlorinated. Exposing the membrane to chlorinated water can cause irreversible damage and void the system warranty. Therefore, fresh water flushing requires a carbon filter in front of the system to remove chlorine from the water.

Our system is equipped with a carbon filter with a chlorine removal rate of up to 4L/min, and the water required to flush each RO reverse osmosis membrane is 8-20L, so we recommend a flushing time of 4-8 minutes (2×2521 RO membranes).

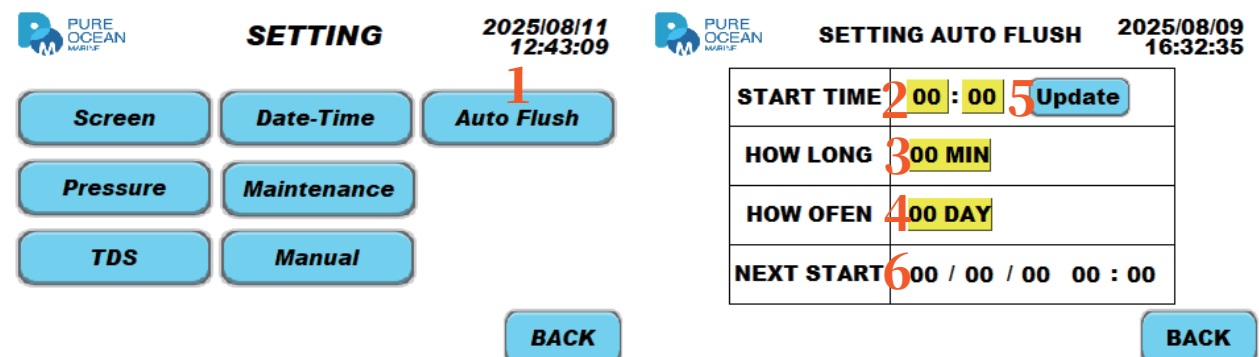
7.1.1 Manual flushing

- ① Press the [Flushing] button.
- ② Setting the timer.
- ③ Press the [START] button. The flush valve will then slowly open.
- ④ Observe whether there is air in the [CARBON] filter. If there is air inside, turn counterclockwise to loosen the exhaust cap to empty the air.
- ⑤ Wait until the system flushing is complete and shut down the fresh water system.



7.1.2 Auto flushing

- ① Open the [Setting] page and press the [Auto Flush] button;
- ② Set your "SATART TIME" for each flushing;
- ③ Set "HOW LONG" for each flushing. (suggust 4-5 mins);
- ④ Set "HOW OFEN" for each flushing;
- ⑤ The setup is complete after pressing the [Update] button;
- ⑥ The next flushing time will be displayed on the screen.



7.2 Medicated washing

When the reduction of water production exceeds 15% of the standard water production, chemical agents should be used to clean the RO reverse osmosis membrane once.

- When you find that your product water has a foul smell, you should perform a chemical wash.
- Chemicals ① Alkaline powder, used to remove grease, microorganisms, bacteria and dirt on the surface of the membrane (please check the label and precautions on the chemical packaging bag before use).
- Chemicals ② Acidic powder, used to clean the mineral dirt on the surface of the membrane (please check the label and precautions on the chemical packaging bag before use).



WARNING

During the cleaning with chemical, please wear rubber gloves, glasses and masks to ensure personal safety.



WARNING Make sure to turn the selector valve to **[Reject Overboard]** to prevent water with chemicals from entering your freshwater tank.

Medicated washing steps:

- ① Fully open the pressure regulator valve.
- ② Operate according to the steps of **[Manual flushing]**, turn on the fresh water to flush for 6-10 minutes, and stop flushing after all the seawater in the system pipeline is discharged.
- ③ Prepare a chemical flushing barrel (10-20L), remove the outboard hose on the panel, and replace it with a special flushing hose; turn the three-way valve at the front end of the low-pressure pump, and put the other end of the hose into the flushing barrel.
- ④ Add 5L of dechlorinated fresh water at about 25°C to the chemical flushing bucket, and add the chemical ① into the flushing bucket for mixing according to the proportion requirements on the packaging of the chemical ①.
- ⑤ Start the low-pressure pump and high-pressure pump separately, and after 30-45 minutes of running, turn off the high-pressure pump, then turn off the low-pressure pump.
- ⑥ Remove the special flushing hose on the panel and replace it with the hose to overboard. Start the low-pressure pump and the high-pressure pump, drain the water with chemicals in the system overboard, please pay attention that there should be no air in the line, turn off the pump before sucking air.
- ⑦ Turn on fresh water again and rinse for 6-10 minutes.
- ⑧ Start the system normally, and let the system run for 15 minutes without pressurization to remove residual chemicals in the system.



WARNING Pressurize the water according to the step **[Start the system]**, and discharge the production fresh water in the first 30 minutes overboard.



WARNING Test whether the water production volume returns to the standard volume, if not, please use chemicals ② to flush the system, and repeat the above process of steps **[1-8]**

Long time storage

7.3 Pickling

If you plan to not use your water maker for a long time, before shutting down the water maker, you need to use a chemical ③ (sodium metabisulfite) for an acid wash to inhibit the growth of bacteria and microorganisms. After pickling, your water maker can be stored for 6 months.



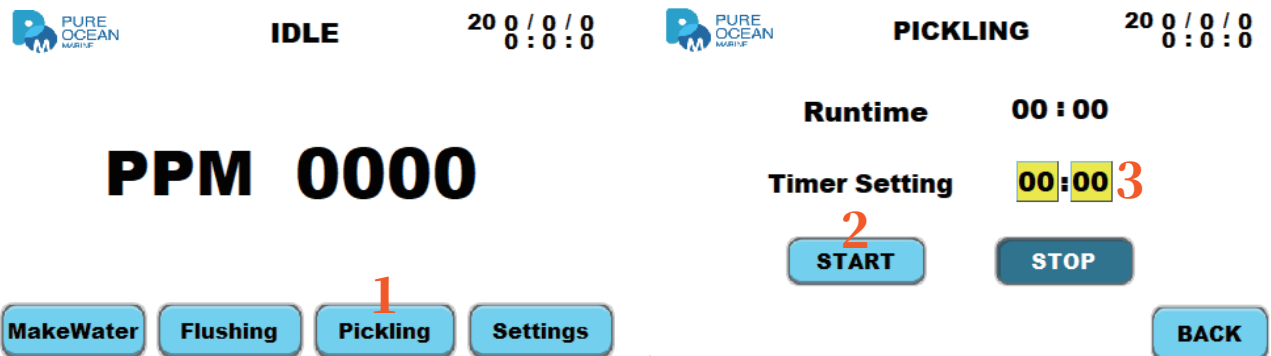
WARNING During the cleaning with chemical, please wear rubber gloves, glasses and masks to ensure personal safety.



WARNING Make sure to turn the selector valve to [Reject Overboard] to prevent water with chemicals from entering your freshwater tank.

Pickling steps:

- ① Fully open the pressure regulating valve.
- ② Prepare a chemical flushing bucket (10-20L), dismantle the outboard hose on the panel, and replace it with a special hose for flushing; turn the three-way valve at the front end of the low-pressure pump, and place the other end of the hose into the flush bucket.
- ③ Add 10L of dechlorinated fresh water at about 25°C to the chemical washing bucket, add 15 spoons of chemicals ③ (5g per spoon) into the washing bucket for mixing, and control the concentration of chemicals at 0.15%~0.2% (If you need antifreeze measures, please add 6.3L antifreeze (food grade propylene glycol) to the pickling solution to make the concentration 50%).
- ④ Press the [Pickling] button.
- ⑤ Setting the timer. (At least 10 mins)
- ⑥ Press the [START] button. The boost pump will then start.
- ⑦ Wait until the system flushing is complete and shut down the fresh water system.



⑧ Dismantle the special flushing hose on the panel and replace it with the outboard hose. Start the low-pressure pump and high-pressure pump to drain the water with chemicals in the barrel overboard, please pay attention that there should be no air in the line, and turn off the pump before sucking up.

⑨ At this point, your system pickling has been completed, and the membranes can be stored for up to 6 months. If you need to continue sealing after 6 months, please repeat the above steps and perform another pickling.



WARNING Before starting the system for normal use next time, turn on the fresh water and rinse for 6-10 minutes. Let the system run for 15 minutes without pressurization to remove residual chemicals from the system. After draining, pressurize the water according to the step [Start the system], and discharge the fresh water produced in the first 30-40 minutes overboard.

7.4 Winterization

The RO membrane is likely to be irreversibly damaged in a cold environment. If your PO reverse osmosis system will be in an environment below 0°C, it is recommended to take antifreeze measures in advance to prevent the RO membrane from being damaged by freezing.



WARNING

Do not use ethylene glycol as antifreeze, ethylene glycol is a toxic substance and should not be used in RO reverse osmosis systems.



WARNING

Do not use propylene glycol with additives, always use pure food grade propylene glycol as antifreeze

Method 1: Use Antifreeze

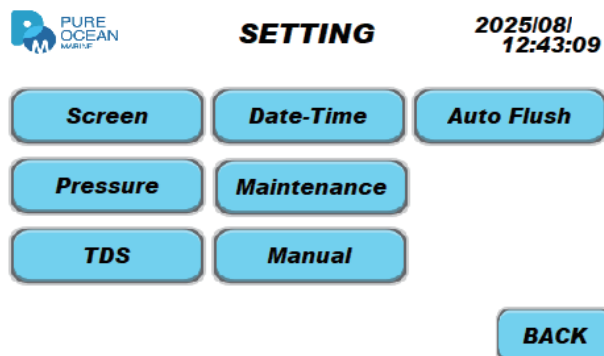
During the pickling process, add antifreeze (food-grade propylene glycol) to the pickling solution to achieve a concentration of 50%. For detailed steps, please refer to the [Pickling] section.

Method 2: Store membranes above freezing without using antifreeze

- ① Please [Pickling] your water maker first (no need to add antifreeze).
- ② Remove your RO membranes and membrane vessels from the system, and use the plugs to seal the joints at both ends of the membrane vessels. Make sure that the RO membrane is soaked in the pickling solution.
- ③ Store the RO membrane and membrane vessels in an environment above freezing point

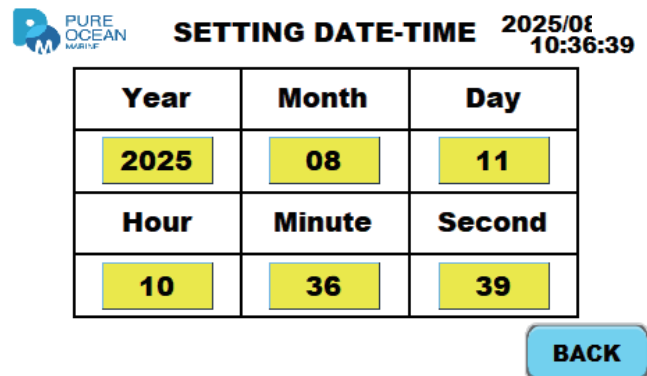
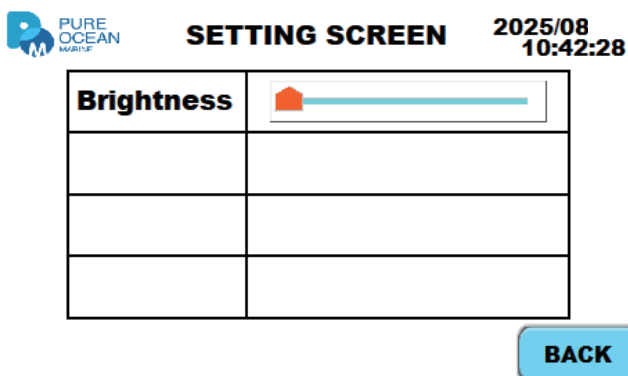
7.5 Setting

The Setting page supports the setting and adjustment of various data



7.5.1 Screen & Time

Set the time according to your time zone



7.5.2 Water pressure setting

Adjust the pressure threshold setting according to the actual situation of the sea area where the device is located.

Here are our recommended settings:



WATER PRESSURE

Make Water Pressure LOW	0000.0	650
Make Water Pressure HIGH	0000.0	900
Stop Pressure LOW	0000.0	0
Stop Pressure HIGH	0000.0	100

BACK



SETTING TDS

TDS OK Threshold	0000	300
TDS Bypass	OFF	
TDS Good Delay	00.0S	10

BACK

7.5.3 TDS setting

Adjust the TDS threshold setting according to the actual situation of the sea area where the device is located.

The above are our recommended settings:

If you find that the TDS is damaged and you need to continue making water, you can turn on TDS Bypass.

7.5.4 Maintenance setting

The system will count the operating time of the main components and remind users to check and maintain them.

Please reset the time after each inspection and maintenance so that the system can recalculate the next maintenance time.



MAINTENANCE SETTING

	Current	Threshold	Reset
Flush Valve	00000	00000	Reset
Selector Valve	00000	00000	Reset
LP Pump	0000:00:00	00000	Reset
HP Pump	0000:00:00	00000	Reset

BACK

Main Pump
has reached maintenance interval.
Please change the oil !!

DETAIL RESET CANCEL

Boost Pump
Reach the
set maintenance usage time

DETAIL RESET CANCEL

Flush Valve
Reach the set maintenance
usage times

DETAIL RESET CANCEL

Selector Valve
Reach the set maintenance
usage times

DETAIL RESET CANCEL

7.6 Replacing the RO membranes:



WARNING

RO membranes are stored with chemicals. When disassembling, please wear protective gloves to ensure personal safety. In case of accidental contact with chemical liquid, the touched skin area must be thoroughly rinsed with water.



Attention

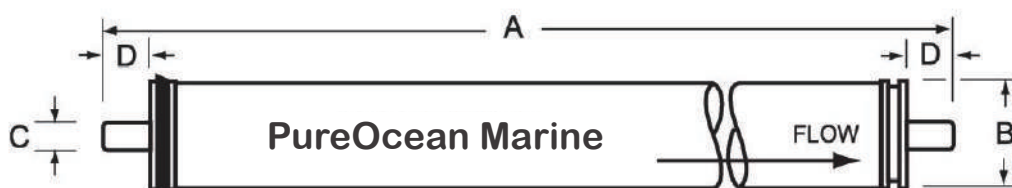
The RO membrane needs to be kept moist at all times to prevent the new membrane from drying out and being damaged. After unpacking the new RO membrane, it should be installed immediately and passed through water.

Remove the old membranes

1. Disassemble the hoses at the seawater inlet end of the membrane vessels.
2. Remove the fastening screw, take out the snap ring with pliers, and take out the metal head.
3. Repeat the above steps to take out the head at the other end of the membrane vessels.
4. Slowly push the membrane out of the membrane vessels according to the direction of the arrow on the membrane vessels (That is the flow direction of seawater).
5. Repeat the above steps to remove the second membrane.

Install new membranes

1. Before installing the new membrane, the accompanying rubber V-shaped sealing ring must be installed on the seawater inlet side. When installing, the open side of the V-shaped ring must face outward, pointing toward the seawater inlet side.



2. All joints of sealing rings and membranes should be coated with a layer of food-grade silicone grease or glycerin.
3. Slowly push the membrane into the membrane vessel from the seawater inlet side according to the direction of the arrow on the membrane vessel (that is the seawater flow direction).
4. Install the head, if the head cannot be installed, you need to continue to push the membrane inward. After pushing the membrane into a suitable position, install the head and the snap ring, and lock the fastening screw.
5. Connect the seawater inlet hose to the seawater inlet end of the membrane vessel.
6. Repeat step 4 to install the head on the other side, install the snap ring and lock the fastening screws.

7.7 High-pressure pump maintenance:

Maintenance:

1. Pump crankcase oil type: SAE15W-40
2. The oil level should not be lower than 1/2 of the marked line of the dipstick.
3. During the operation of the high-pressure pump, please pay attention to the temperature of the crankcase, and the oil temperature should not be higher than 75°C.
4. After 50 hours of normal operation of a new machine, the first oil change is required. The oil needs to be changed every 500 hours of operation in the future.



Attention:

1. The (red) oil plug must be replaced with the (yellow) oil dipstick after a new pump is installed.
2. Check whether the lubricating oil in the pump has been filled to the position in marked line.
3. It is strictly forbidden to replace or increase or decrease lubricating oil for the pump when the pump is turned on.
4. Avoid dry running, and must maintain continuous liquid supply during operation, so as not to cause damage to the seals inside the machine.



Warning:

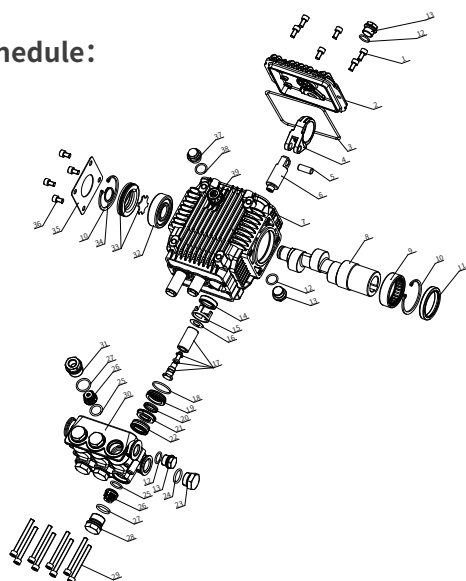
Once the oil in the crankcase is found to emulsify (turn into milky white), it must be replaced with new oil immediately.

Oil Change Procedure:

1. Unscrew the oil drain cock at the bottom of the pump, prepare an oil barrel, drain the old oil into the oil barrel. After drain the old oil, then screw on the cock.
2. Unscrew the cock on the top of the pump, fill the new engine oil to above the red line of the dipstick on the visible window, and finally screw on the cock.

Exploded diagram and schedule:

When ordering high-pressure pump accessories, please refer to the accessories diagram below:



No.	Description	No.	Description	No.	Description
1	O-ring	17	BM Connecting Rod	33	Φ18 Main Water Seal
2	LB 3/8 Plug	18	BM Pin of plunger	34	Φ18 Support Washer
3	Hexagon screw	19	LBΦ18 Plunger pole	35	LB Φ18 Cylinder
4	BM Rear Cover	20	Ball Bearing	36	O-ring
5	O-ring	21	Axis circlip	37	BM1/2 Plug
6	O-ring	22	O-ring	38	O-ring
7	BM Oil Level	23	BM Side Oil Level	39	BM Checkign Valve
8	BM Oil Indicator	24	BM Side Oil Indicator	40	O-ring
9	BM Circlip	25	BM Side Plate	41	LB Valve Nut9(with hole)
10	BM Crankcase Φ18	26	Hexagon screw	42	LB Valve Nut
11	BM Dipstick	27	Oil Seal of plunger	43	Washer
12	BM Dipstick Gap	28	BM Guide Ring	44	Hexagon screw
13	BM Crankshaft N14	29	O-ring	45	LB WIPER
14	6205 Needle Bearing	30	LB Φ18 Aus. Water Seal	46	LB ss gasket
15	Circlip.52	31	LB Φ18 Support Ring	47	LB Φ18 ceramic tube
16	Crankshaft Oil Seal	32	Φ18 Gaskets of Main Water Seal	48	split washer
				49	O-ring
				50	LB locking bolt
				51	LV Pressure Regulator

7.8 Filter replacement

There are three filter elements in the POM system, which are carbon filter element, 20μm pleated filter element, and 5μm pleated filter element

There are two options for the material of the pleated filter element: paper filter element & SS316L filter element.

Pre-filter

Paper pleated filter element (the paper filter element needs to be replaced with a new filter element and cannot be reused).

- ① Regular replacement every 4-6 months.
- ② The pressure value of the low-pressure gauge is lower than 20% of the normal value and the filter element needs to be replaced.
- ③ Observe that the filter element has obvious dirt and black color through the filter bottle, and the filter element needs to be replaced.

SS316L pleated filter element (you can continue to use it after cleaning the dirt on the surface of the filter element, it is recommended to keep a set of spare filter elements on board).

- ① The pressure value of the low-pressure gauge is lower than 20% of the normal value, and the filter element needs to be removed for cleaning.
- ② Observe the filter element with obvious dirt and black color through the filter bottle, then the filter element needs to be disassembled for cleaning.

Carbon filter

- ① Replace every 3-5 months.
- ② If you observe obvious green deposits on the surface of the filter element through the filter, the filter element should be replaced.

Replacement steps:

1. Use the accompanying tools to remove the bottle body of the filter bottle and take out the old carbon filter cartridge.
2. Replace with a new paper filter cartridge (or clean the SS316L thoroughly before reinstalling it) and install it back into the filter bottle.
3. To ensure that the filter has good sealing properties, apply acid-free silicone grease or Vaseline to the white sealing ring inside the filter before installation.



ATTENTION

The carbon filter must be installed in front of the 20MICRON filter&5MICRON filter. The filter can remove chlorine from fresh water, and the protective film is not damaged by chloride ions floating in the water.

8. TROUBLE SHOOTING

SYMPTOM	CAUSE	SOLUTION
High-pressure cannot build. 1. There are bubbles in the brine level gauge. 2. The high-pressure pump runs noisily. 3. The value of the high-pressure gauge is unstable, and the high-pressure tube vibrates. 4. The low-pressure gauge shows insufficient pressure.	1. There is air in the system that has not been emptied. 2. Air leakage in the system hoses and connectors. 3. The seawater valve is closed or blocked. 4. The one-way valve of the high-pressure pump is damaged or blocked. 5. The low-pressure pump is blocked or damaged. 6. The seawater filter or coarse and fine filter is clogged.	1. Press the red button on the top of the coarse and fine filter to empty air. 2. Tighten leaking hoses and connectors. 3. Open or clean the seawater valve. 4. Clean, overhaul or replace the one-way valve of the high-pressure pump. 5. Clean or overhaul the low-pressure pump. 6. Clean the seawater filter or coarse and fine filters.
Oil leakage at the plunger seal of the high-pressure pump.	1. The plunger rod is worn. 2. The oil seal is damaged.	1. Replace the plunger rod (requires a professional). 2. Replace the oil seal (need to use special tools to disassemble).
Water leakage at the plunger seal of the high-pressure pump.	1. The ceramic tube is damaged. 2. Damaged water seal.	1. Replace the ceramic tube. 2. Replace the water seal.
High-pressure pump crankcase oil temperature is too high (more than 75 °C).	1. Too much, too little lubricating oil or oil emulsification. 2. The grade of lubricating oil is wrong. 3. There are sundries in the crankcase, the bearing bush is damaged, and the crankshaft is rough.	1. Increase, decrease or replace lubricating oil. 2. Replace lubricating oil (SAE15W-40). 3. Remove debris and replace the crankcase assembly.
Low-pressure gauge pressure shows pressure drop.	1. There is air entering the system from the hose or connectors. 2. There is air entering the system from the sea water inlet valve.	1. Find the leak point and tighten the connectors or hose clamps 2. Connect the seawater inlet pipe to the lower sea water inlet valve.
Product water TDS≥500ppm.	1. RO membrane damage 2. RO membrane installation error. 3. The O-ring of the RO membrane is damaged.	1. Replace the RO membrane with a new one. 2. Follow the instructions to reinstall. 3. Replace the O-ring.
The produced water has a bad smell.	1. Seawater filters or coarse and fine filters breed algae or bacteria. 2. RO membrane adheres to dirt.	1. Clean or replace the seawater filter and the filter elements of the coarse and fine filters. 2. Cleaning the system with Chemicals.
Water production is too low. 1. The reading of the fresh water flow meter is lower than the normal value. 2. The reading of the seawater flow meter is lower than the normal value.	1. The RO membrane is blocked or damaged. a. Inadequately flushing the system after each use. 2. The carbon filter was not replaced in time, resulting in excessive chloride ion content in the system. 2. Coarse and fine filters are clogged. 3. High-pressure pump performance decline. a. One-way valve blocked. b. The power supply voltage is too low. 4. The seawater temperature is lower than 25°C or the seawater salinity exceeds 35000ppm.	1-a. Cleaning the system with Chemicals. 1-b. Replace the new carbon filter element. 2. Replace the new filter element (stainless steel filter element needs to be taken out and cleaned). 3-a. Clean or replace the check valve of the high-pressure pump. 3-b. Check the supply voltage, check the circuit breaker, fuse and connector of the high-pressure pump motor. 4. Start the water maker test again after moving to a new environment.

9. WARRANTY

This warranty agreement is limited to the repair and replacement of the product. Direct or indirect damage to personal and property safety due to failure to use the equipment in accordance with this manual is not covered by the warranty.

This warranty agreement is limited to the repair and replacement of the product and does not include any compensation to consumers

1. The warranty period of this product is 2 years. Calculated from the day the product is shipped, the warranty service is only provided to the original purchaser of the product, and is transferred or resold to a third-party purchaser, and the manufacturer does not provide warranty.
2. In the event of a defect, malfunction or failure during the warranty period, POM will, at its option, repair or replace products or components that have been inspected by POM as defective or not in compliance with factory specifications. To obtain warranty service, the defective product or part must be returned to a repair service center designated by POM. The buyer is responsible for any shipping and labor costs for disassembly and reinstallation that may arise.
Return Merchandise Authorization must be obtained prior to shipment of any parts or assemblies. The warranty does not apply to any system component that has been used as a result of misuse, neglect, accident, improper installation, or violation of instructions provided by the POM. Warranty does not apply to parts whose serial numbers have been removed, defaced or altered. Any issues with the device will be checked by a POM authorized service to determine if there is a problem and if it is under warranty. Failures not covered by the warranty will be charged additionally.

WARRANTY EXCLUSIONS

1. Parts not guaranteed

Parts	Consumables
Membranes	High-pressure pump crankcase lubricating oil
Paper filter element	Chemical①
316L filter element	Chemical②
High-pressure pump check valve assembly	Chemical③
carbon filter element	Antifreeze
Pump Seals and Packing	
Pump bushings and bearings	

1. The manufacturer does not provide warranty for system or component damage caused by failure to install according to the instructions
2. Failure to follow the instructions of the manual, improper operation caused by system damage, the manufacturer does not provide warranty
For example:
 - 2-a Working pressure exceeds the tolerance range of the system
 - 2-b Sea water supply valve is not opened, resulting in the system running without medium
 - 2-c Running the system with air in the system that has not been purged
 - 2-d Damage to the high-pressure pump caused by the high-pressure pump lubricating oil not being replaced or supplemented in time
 - 2-e Membrane damage caused by failure to maintain the membrane according to the instructions
 - 2-f Improper use of chemicals
 - 2-g Damage caused by operating the system on a dock or other location containing sewage, petroleum waste, etc. and other situations that are not used in accordance with the instructions
3. The use of third-party parts not provided by the manufacturer, including but not limited to accessories, wearing parts or consumables, will cause damage to the system, and the manufacturer will not provide warranty
4. The manufacturer will not provide warranty for any damage caused to the system by unauthorized service providers for repair, installation or maintenance.



MAKE YOUR BOAT LIFE PLEASANT

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