5000GPD RO Water System Manual

Catalogue

1.Brief Introduction

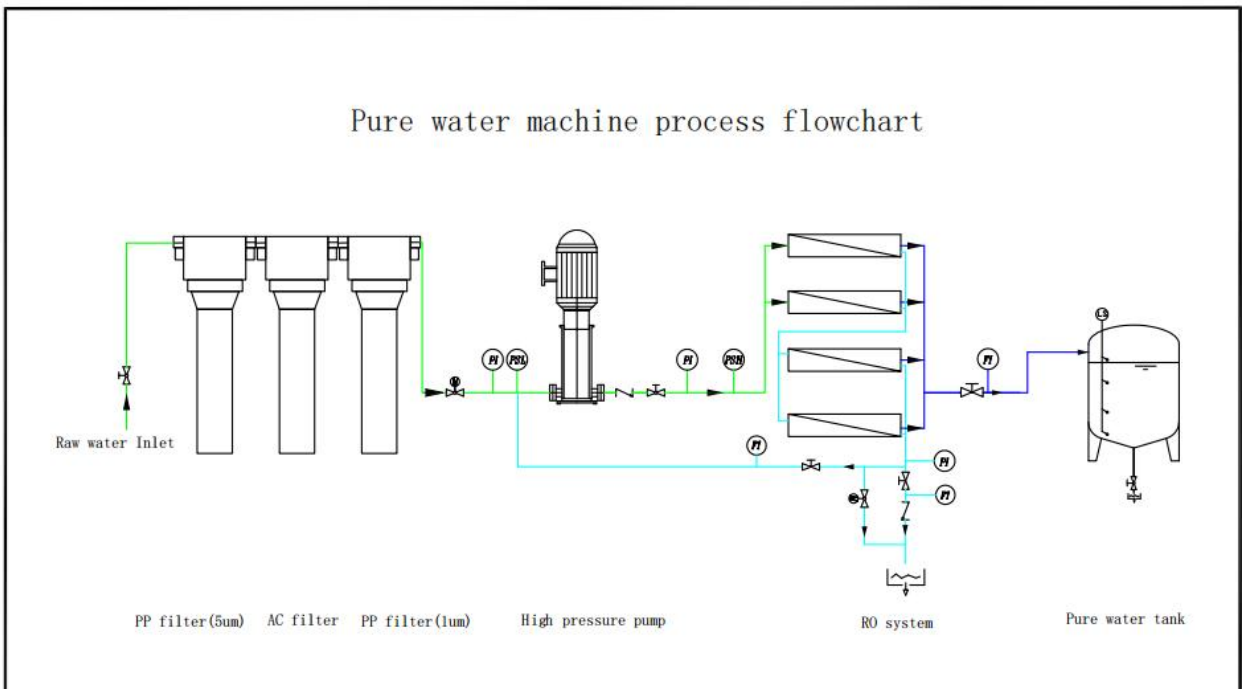
The reverse osmosis(RO）device separates the solvent (usually water) in the solution through the reverse osmosis membrane (or semi permeable membrane) with enough pressure.This process has no phase change, no heating, low energy consumption. It is suitable for all kinds of salt containing raw water, especially in the high salt water treatment project. It can be able to remove bacteria, colloids and large molecular weight organics while desalting, and obtain good technical and economic benefits.

2.Main Technology Parameters

No.	Model	Features	Total Power
1	TCA-5000-RO	Applicable Voltage 240V 1P 60HZ	2.2KW

Rated working pressure	0.3 MPa / ＜1.0 MPa
Raw water pressure&flow	≥ 0.15 MPa，≥ 450GPH
Outlet water capacity	≥265GPH
High pressure pump motor power	2.2KW，240V 1P
Equipment dimension(L*W*H)	800mm×700mm×1600mm

3.Process Flow Chart(See attachment for detailed)



4.Preparation before equipment operation

4.1Place the equipment close to the water source and power supply first;

4.2 Connecting pipe

1)According to the process flow diagram, connect the water inlet to the water source. The water source pressure must be greater than 25psi and the flow rate must be greater than 18GPM；

2)The discharge ports of concentrated water are connected to the sewer for direct discharge；

3)The product port of pure water connect to product tank.

4.3Connecting circuit:

1)Connect the liquid level switches of raw water tank and product water tank to the electric control box according to the circuit diagram;

2)Connect the main wire of the control box to the power supply. For the sake of safety, connect it reliably with the grounding wire at the grounding screw of the electric control box. Then connected to the power supply, and the power indicator light is on;

4.3Pipeline and electric control connection

Please confirm that the equipment has been connected with peripheral equipment (such as water pump, water tanks, electric, etc.) according to the process flow chart first.

5.System Operation

5.1.Preparation before system startup

1)Check that the water pump is working well and the motor direction is correct;

2)Check that the water level of the raw water tank can meet the needs of RO start-up.

3)Open the inlet and outlet valves of water pumps, precision filter.

4)Check meters for normal.

5)Check the power supply of pumps and the control's,confirm the indicator lights of the control box are normal.

5.2.RO System Manual Operation

1)Turn on the touch screen and click the Manual button.

2)Open water inlet valve and flush valve first. After running for 1-2mins,Fully open concentrated regulating valve and close the flush valve. Wait until the concentrated water flowmeter has water flow,then start the high pressure pump.

3)Slowly adjust concentrated regulating valve,concentrated return valve and high pressure pump outlet valve until the product water flowmeter reaches 4.5GPM. And then slowly adjust concentrated return regulating valve until the concentrated return flow is 5GPH,And

concentrated water flow is 3GPM. The recovery rate of RO device should be ≥60% at this time,and the device will enter to the automatic normal operation state.

4)After set the equipment in manual. Check that the raw water tank liquid level is higher than the equipment start setting, then press the " Start/Stop" button on the touch screen(HMI).

When the automatic conditions are met, the equipment is running for making water. If it does not start automatically, please check the following faults.

a. If the HMI displays the raw water failure. Please check the wiring of the liquid level switch and confirm whether there is enough water in raw water tank.

b. If HMI displays low pressure failure. Please check the supply pressure and raw water flow and adjust the low-pressure switch to 0.5 Bar.

c.When HMI shows that the water tank is full, please check whether the pure water is full and the product water tank level switch wiring.

5.3 RO System Stop operation

1)Stop high pressure pump First.

2)The water product manual valve on the device does not need to be closed, keep it normally open. If the concentrated water regulating valve is adjusted well,it generally does not need to adjust again to facilitate the next start.

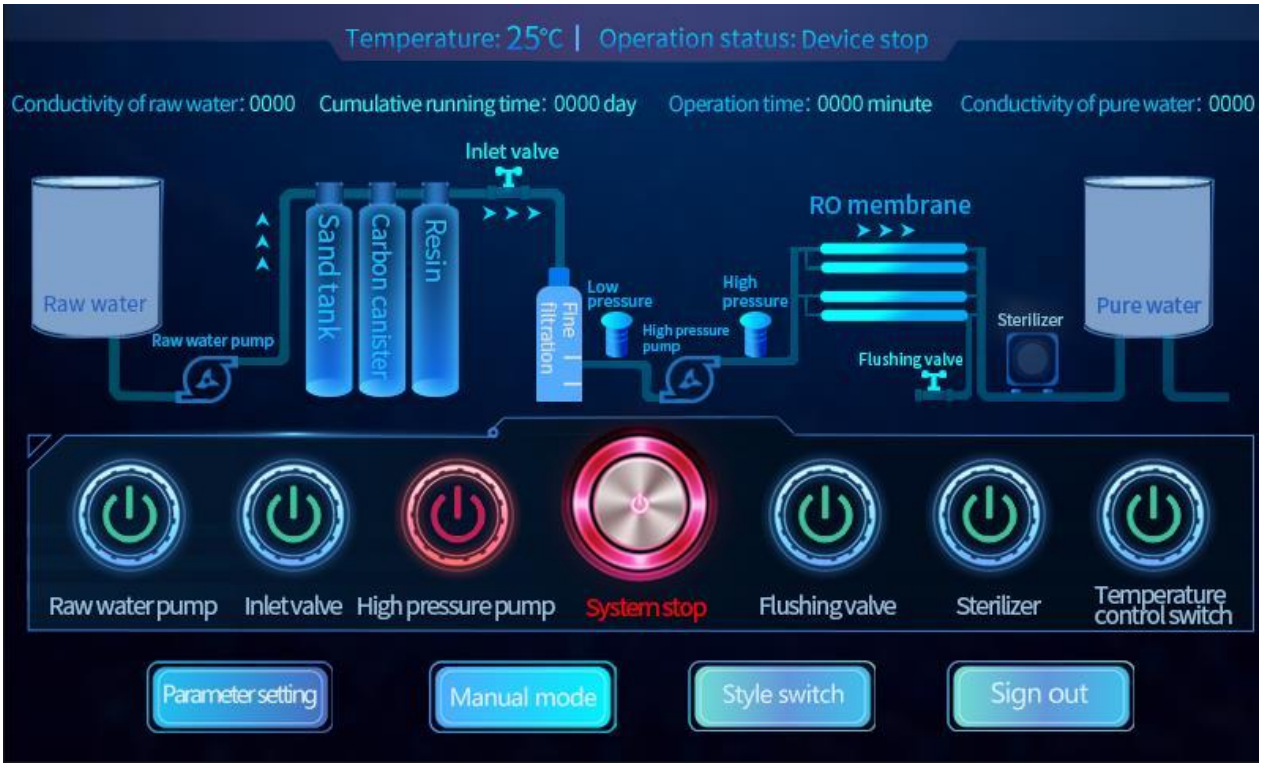
5.4 RO Shutdown for Flushing

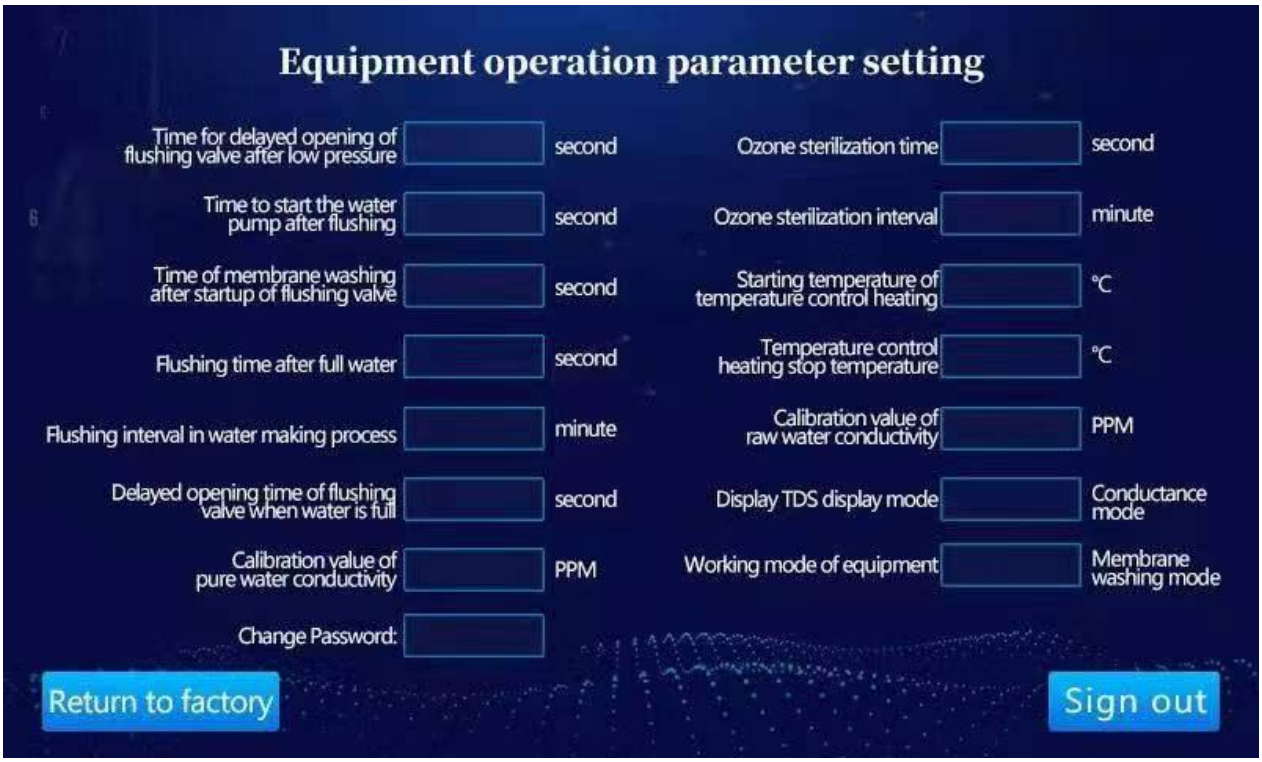
1)Purpose of shutdown for cleaning: When RO system stops running, as the water inside the membrane is already in a concentrated state, it is easy to be contaminated in a static state, so need clean water to rinse the membrane surface to prevent the deposition of pollutants, thus affecting the performance of the membrane.

Steps: Open flush valve and inlet valve, Utilize the raw water supply flow to flush for 2 minutes, then stop the pump, close the flush valve and the inlet valve.

5.5 HMI Operation Parameter Setting:

Note: Power-on password: 123456 (can be reset on the parameter setting page)





Parameter settings:

1) Time for delayed opening of flushing valve after low pressure：10~15S

2) Time to start the water pump(high pressure pump) after flushing:10~15S

3) Time of membrane washing after startup of flushing valve:60~120S

4) Flushing time after full water(pure water full):60~120S

5)Flushing interval in water making process:120~240Mins

6)Delayed opening time of flushing valve when water is full:10~15S

7)Display TDS mode:

“1” shows TDS value

“2” shows conductivity value

8)Working mode of equipment:

“1” shows low pressure cleaning membrane(select 1)

“2” shows high pressure cleaning membrane

7. Operation precautions

1)In case of water shortage or low pressure, the machine will stop automatically and work automatically after water& pressure are restored.

2)Residual chlorine content of the water entering the membrane should be strictly controlled below 0.1ppm. If the residual chlorine exceeds the standard, the activated carbon filter shall be replaced.

3)The pump must not run without water, and the equipment also can not run without water or air intake.

4)During the equipment operation, If abnormal noise occurs, stop the device immediately to avoid accidents.

5)Frequently check whether the high pressure pump, water cut-off protector and power supply system are in good condition.

6)The raw water quality and the produce capacity of purified water directly affect the service life of RO membrane. In order to ensure RO membrane normal operation, regular maintenance of RO membrane is required. This work shall be completed by professional personnel or under the instruction of them. Non professional personnel or without the instruction are not allowed to clean or disassemble the RO membrane.If the main parts such as pump, water cut-off protection and RO system are disassembled at will without the instruction of our professional personnel, our factory will not be responsible for any damage.

8)When the equipment is set aside, it shall be started at least once a day (about 1-3 minutes) for a short time to avoid the failure of RO membrane caused by water shortage for a long time.Also the equipment shall not be placed in the environment of high temperature and subzero temperature.

8. Common Troubleshooting Methods

1)High-pressure pump do not absorb water

Check whether the high-pressure pump is reversed. If the reverse is found, replace two of the three power terminals of the pump. If it is not, open the exhaust valve of the pump to vent or fill with water.

2)High pressure pump can not start

Check whether the relay connected with the high-pressure pump is pull-on, and whether the wire head of the connecting bolt loose or falling off. In order to prevent the high-pressure pump from idling and damaging, the water cut-off low-pressure protection switch is used to cut off the power supply to protect the high-pressure pump. If sufficient water source is provided to make the pressure of water cut-off low-pressure protection switch meet the set requirements, the high-pressure pump can be started.

3)Regulation of membrane working pressure

The regulating valve of concentrated water flowmeter control the total water outlet capacity and water production recovery rate(this machine recovery rate is about 50-60%).When outlet water decreases, the membrane working pressure will be increased(Max.membrane working pressure ＜1.0Mpa).

Also,the water regulating valves at the inlet and outlet of the high-pressure pump is used to adjust membrane working pressure.

Please note that making water with over-pressure will soon damage the pump and motor.

4)Abnormal sound from high pressure pump

Check whether the high-pressure pump is idling. Sometimes, the high-pressure pump will make some abnormal noise when the water is not completely entering, and it will disappear automatically in 1-3 minutes. If it does not disappear after 3 minutes, open the exhaust valve of the high-pressure pump to vent or inject water.

Customer Support
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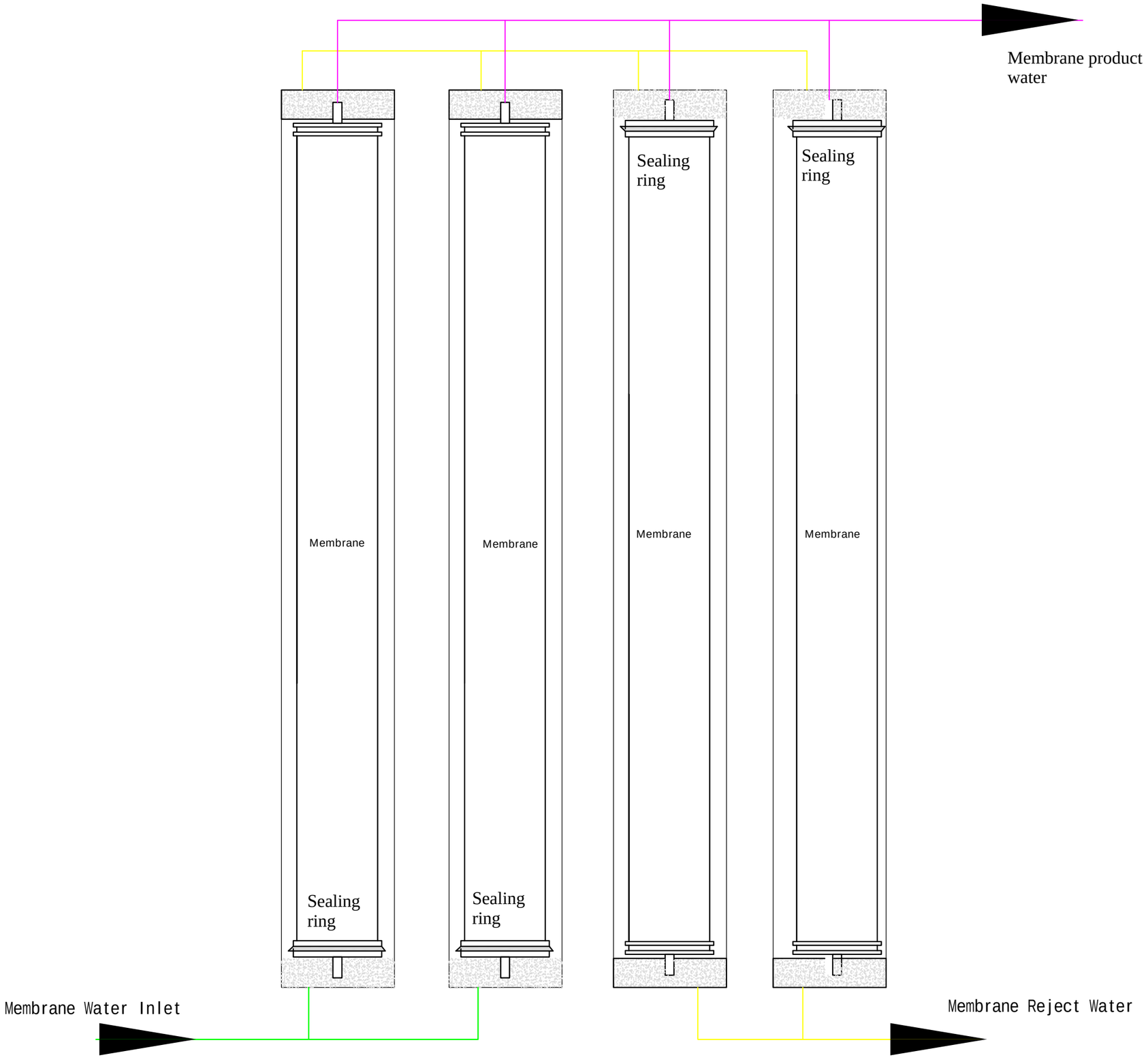
Membrane product water
Sealing ring
Sealing ring
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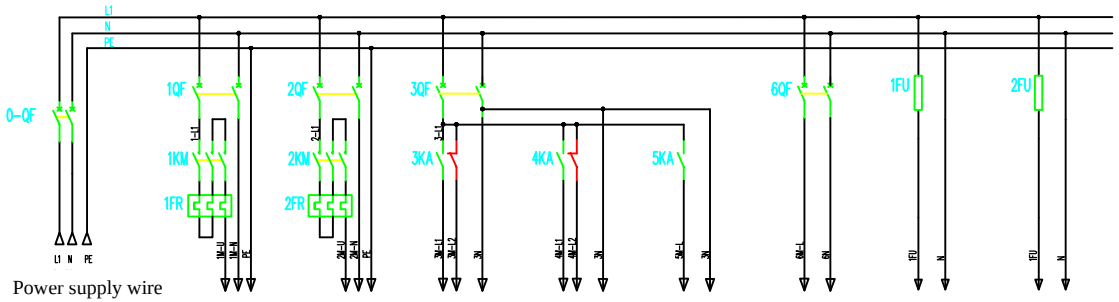
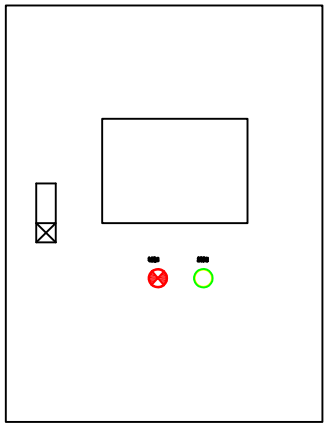
Sealing ring
Sealing ring
Membrane Water Inlet
Membrane Reject Water



Power supply wire

No.										
Process										
Main Parts	Name	Total inlet wire	Feed pump	High pressure pump	Water Inlet Valve	Flush Valve	UV Sterilizer	Auto Valve Power	Control circuit	24V Power
	Power kw	3	0.75	2.2	20W	20W	55W	60W		
	Current A		4.2	12.5	1Phase	1Phase	1Phase			
Components	Breaker / Fuse	C32A/2P	C10A/2P	C20A/2P	C10A/1P+N			C10A/1P+N		
	Contactor/Relay		LC1D09M7C	LC1D18M7C	RXM2LB2BD	RXM2LB2BD	RXM2LB2BD			
	Thermal relay		4-6A	12-18A						
Power wire	Circuit No.		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8
	Model	RVV-3×4	RVV-3×1.5	RVV-3×2.5	RVV-4×1	RVV-4×1	RVV-3×1	RVV-3×1		
	Specs		CT/PC25	CT/PC25	CT/PC25	CT/PC25	CT/PC25	CT/PC25		



Control panel