

Reverse Osmosis System
INSTALLATION AND MAINTENANCE HANDBOOK

Please read through this handbook in detail
before using, and keep it for your reference.



CATALOGUE

Something for our respectable clients

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Something for our respectable clients

Thank you for purchasing a Reverse Osmosis Water Purifier System.
Now you own one of the most advanced reverse osmosis water treatment systems available. The Reverse Osmosis system is the pioneer in the world water treatment industry. The reverse osmosis water purifier system (RO system) can produce pure and tasty drinking water.

Before the installation, please read the installation instructions carefully. And with proper maintenance, your RO system can give you high quality and tasty drinking water for many years.

1. Function Characteristic

- ◆ Using our famous brand reverse osmosis membrane (RO Membrane), the RO system applies the most advanced reverse osmosis water treatment technology currently available in the world. The RO system can distinguish foreign particles, colloid, organic substance, heavy metal, soluble solid, bacteria, virus, pyrogen and other harmful impurities from raw water, and only retain water molecules and dissolved oxygen, more than 96% of above substances will be removed.
- ◆ Using our famous-branded high-pressure, low noise, low vibration, long service life and reliable quality pump is an further advantage.
- ◆ Pre treating, low cost cartridges can be replaced with ease to ensure continuous great performance.
- ◆ The system also have a function for the high pressure washing of the reverse osmosis membrane, this function can extend the service life of RO Membrane.
- ◆ Automatic-control of the purification process ensures that when the raw water supply stops, the machine stops automatically. Also when water storage tank reaches the maximum capacity, the machine also stops automatically.

2. Operation Principle & Technical Process

1) Operation Principle:

The RO system adopts U.S. high-tech reverse osmosis technology. This automatic reverse osmosis system is composed of five filtration stages. First, the raw water is filtered by three pre positive cartridges.

The **first stage**: PPF cartridge, remove suspended substance and other substances up to 5 micron in raw water;

The **second stage**: granular activated carbon cartridge;

The **third stage**: high density activated carbon cartridge, to remove odor, chlorine and its outgrowth in raw water.

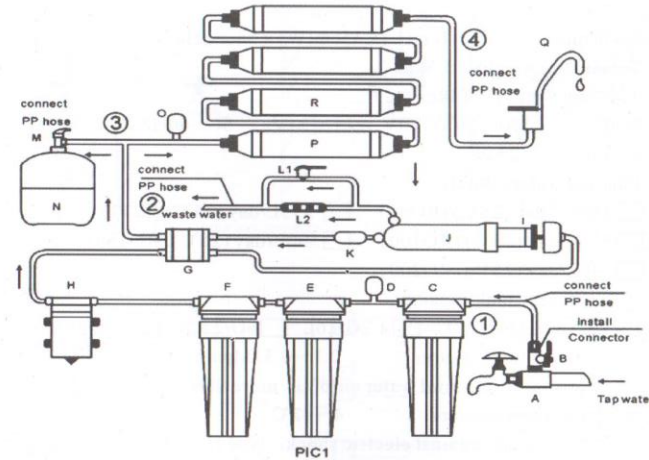
After above three stages of filtration, the filtered water is pushed into the **fourth stage**: the reverse osmosis (RO) membrane by a high-pressure pump. Since the aperture of the RO membrane is only 0.0001 micron, bacteria and filterable virus can pass the RO membrane only if the bacteria would be reduced in size 4000 times, and filterable virus would be reduced in size more than 200 times. Consequently, any super fine impurities, harmful soluble solid, bacteria and virus in water is blocked by the high density RO membrane. The RO membrane can also filter other impurities and contamination from the filtered water. The harmful substance is automatically removed by means of a waste water outlet. The water filtered through the RO membrane enters a pressure tank for storage. When the user turns on the goose-neck faucet, the purified water will go through the **fifth stage**: post positive bacteriostatic activated carbon filtration and into the **Sixth and Seventh stage**: mineral ball stage adding necessary minerals to the water before it goes to the faucet.

The system controls the water purification process automatically. When the pressure of raw water is too low or the water storage tank is full, the system will stop the purification machine automatically; When the water pressure returns to the normal level, the purification machine will turn on automatically. The water purified by the RO system is pure drinking water without bacteria and impurities, rich in oxygen, tasty and excellent for your health.

2) Technical Process:

- Tap water
- PPF filter
- low pressure switch
- granular activated carbon filter
- high density activated carbon filter
- high pressure pump
- four way valve
- RO system
 - ↳ waster water outlet
- four way valve
- high pressure switch
- postpositive bacteriostatic activated carbon filter
- 2 mineral ball stages
- purified water
- flow out from goose-neck faucet
- pressure tank ↗

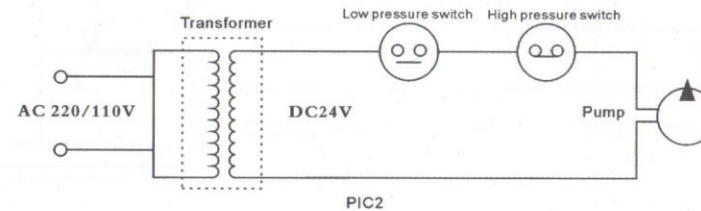
3) Reverse osmosis system layout and components:



4) Parts List

A. Three way feed water connector	B. Ball valve
C. Filter housing PP sediment cartridge	D. Low pressure switch
E. Filter housing granular activated carbon cartridge	F. Filter housing block carbon cartridge
G. Four way valve	H. Booster pump
I. RO membrane	J. Membrane housing
K. Check valve	L1. Flush valve
L2. Drain restrictor	M. Tank valve
N. Pressure tank	O. High pressure switch
P. Post in-line carbon cartridge	Q. Goose-neck faucet
R. Mineral ball filter	1, 2, 3, 4: connect plastic hose

5) Operation Principle:



3. Main Technical Parameter

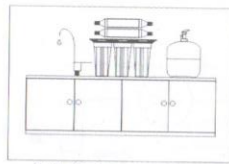
- 1) Main unit: 41cm(L) x 35cm(W) x 58cm(H)
- 2) Total gross weight: 15.8kgs
- 3) Total net weight: 14kgs
- 4) Volt: AC220V/110V --- DC24V / 50~60HZ
- 5) Power: 25W
- 6) Purified water output:

<input type="checkbox"/> 185L / day (25°C) (RO50)	<input type="checkbox"/> 275L/day (25°C) (RO75)
<input type="checkbox"/> 370L/day (25°C) (RO100)	<input type="checkbox"/> 500L/day (25°C) (RO150)
<input type="checkbox"/> 740L/day (25°C) (RO200)	
- 7) Water storage tank capacity:

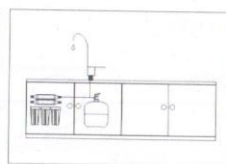
<input type="checkbox"/> 3.2GALLON / 12L	<input type="checkbox"/> 4.2G/16L	<input type="checkbox"/> 6G/22.5L	<input type="checkbox"/> 11G/40L
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- 8) Applying water pressure: 0.1~0.35Mpa
- 9) Pretreatment filters total water output: more than 1000L
- 10) Inlet water temperature: 4~42°C
- 11) The type of guard against electric shock: type II
- 12) Water supply: tap water or ground water TDS 1000ppm less

4. Installation

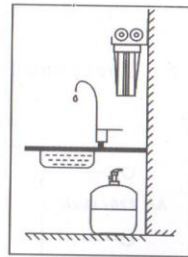
The system installation method should be determined in accordance with the layout of your kitchen. Please refer to the installation maps as follows. If the RO unit would be suspended on the wall, it should be fixed with two M6 swelling screws or two concrete steel nails according to the aperture on the RO unit hanger plate.



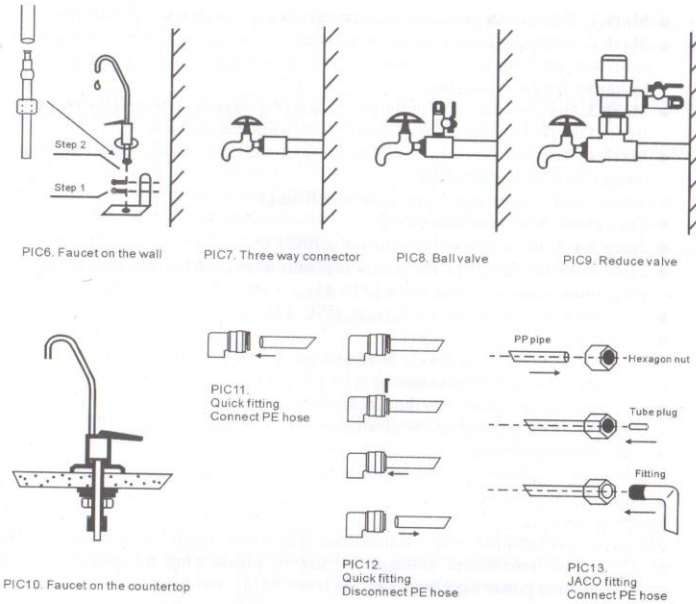
PIC3. On the countertop



PIC4. Under the countertop



PIC5. Mount on the wall



PIC6. Faucet on the wall

PIC7. Three way connector

PIC8. Ball valve

PIC9. Reduce valve

PIC10. Faucet on the countertop

PIC11. Quick fitting
Connect PE hose

PIC12. Quick fitting
Disconnect PE hose

PIC13. JACO fitting
Connect PE hose

- 1) To install the ball valve, fit a three way feed water connector (A) and place the ball valve(B) on the three way feed water connector(A), then connect the tap water faucet with three way feed water connector (PIC 1,7 and 8).If you use reduce valve, you should connect the reduce valve (PIC9).
- 2) To install the RO membrane: screw off the cap of RO housing (J), put the one end with two sealing rings of RO membrane (I) first into the RO housing, screw on the cap tight.
- 3) The goose-neck faucet (Q) should be positioned for good aesthetics, function and convenience, it connects to the outlet fitting of the mineral ball filter by means of the white plastic hose.
- 4) To install the plastic hose at following positions according to technological process. There are marks numbered 1, 2, 3, 4, on the *Reverse osmosis system layout and components* chart (PIC 1). **You can also find these marks on the RO machine.**

- ◆ **Mark 1:** Between the water tap and the PPF filter(C) with white plastic hose.
- ◆ **Mark 2:** Installing a drain tubing white plastic hose linking to the off let of drain restrictor and flush valve. Put the drain tubing to sewer or connect with a container for usual washing.
- ◆ **Mark 3:** Between the valve outlet(M) on water storage tank(N) and the tee in front of the post in-line carbon filter(P) with white plastic hose.
- ◆ **Mark 4:** Between the goose-neck faucet (Q) and the post in-line carbon filter or mineral ball filter if available.

5.1) Method of connecting plastic hose with fittings

- ◆ Cut a plastic hose after measuring.
- ◆ Place the plastic hose into hexagon nut. (PIC 13)
- ◆ Place white tube plug into the nozzle of plastic hose push the tube plug to the plastic hose end by hand or tools. (PIC 13)
- ◆ Place the plastic hose into the fittings. (PIC 13)
- ◆ Screw on the hexagon nut tightly.

5.2) Method of connecting plastic hose with quick fittings (PIC 11)

- ◆ Cut a plastic hose after measuring.
- ◆ Insert plastic hose deep into the quick fitting

5.3) Method of disconnecting the plastic hose from the quick fittings (PIC 12)

- ◆ Remove the small part
- ◆ Press the round part until it touches the main body of quick fitting.
- ◆ Pull the plastic hose.

6) Power cord.

This system is equipped with a transformer which uses single-phase power supply of 220V (See transformer voltage). To use it, please plug the power cord of transformer into power supply socket.

5. Operational Approach

1) After the installation, please wash the filters of each stage before using the system for the first time. The steps is as follows:

- turn on the ball valve(B) of the faucet tubing,
- turn off the tank valve(M) of water storage tank(N),
- turn on the goose-neck faucet(Q),
- open the flush valve (L1),
- plug the power cord into power supply socket,
- then the high pressure pump(H) starts up automatically, the waste water outlet begins to drain, the filters of the first 4 stages are being washed automatically.

Please wash it about 5 minutes.

After washing the filters, turn on the tank valve (M) of water storage tank (N), turn off the goose-neck faucet (Q), and close the flush valve(L1), the reverse osmosis filter begins to generate purified water. When you use this system for the first time, let the purified water flow out from the full water storage tank twice, then the purified water is suitable for drinking.

Notes:

A) When you use the system for the first time, turn on the goose-neck faucet to drain the water. (There could be a little bit of black water flowing out from faucet, please continue washing to drain it)

B) When you use the system for the first time, TDS test data may be a bit high, please continue washing until the TDS test data becomes normal.

C) When you use the system for the first time, the purified water is not drinkable until steps A and B are done. The concentrated waste water used for the making of the purified water can not be used for drinking.

2) After the installation & adjustment, the system begins to produce purified water automatically. Usually, turn off the goose-neck faucet(Q), turn on the tank valve(M) of water storage tank, let the purified water flow into tank. When the water storage tank is full of purified water, the system stops working automatically. Turn on the goose-neck faucet (Q) to use the purified water.

6. Maintenance

It is highly recommended to replace filters periodically to keep the high quality of water. This helps to take full advantage of filters and guarantee the standard of water quality. If a user takes care of the filters and replaces them periodically, the water purifier system could have a longer lifetime. The period of filter-replacement depends on the quality of the raw water, the impurity quantity of the raw water. Based on empirical statistics, a family of four persons usually consumes 10L (10kgs) purified water each day. If the water is municipal tap water, the suggested period of replacement is shown as follows:

Brief introduction to filters:

Filter	Materials	Functions	Material life in average depending on water quality and volume)
1 st Stage	PP 5 micron	Un-dissolved contaminants removal, i.e sand, silt, rust, etc.	About 10 months
2 nd Stage	Granular activated carbon	Activated carbon germicidal adhesion removal of chlorine, organic fertilizer, agricultural chemical, insecticide	About 10 months
3 rd Stage	Block carbon	Same as 2nd stage, but re-filtration again	About 10 months
4 th Stage	RO membrane	Heavy metal removal, particles, heavy metal, ray, bacteria, etc.	About 2 years
5 th Stage	In-line carbon	Adhere odor & taste and make water delicious	About 1 year

If the system has a mineral filter, it should be changed about every 10 months.

If the filters are replaced frequently, it ensures that system produces a high quality of drinking water and works longer. Because of the difference of the environment conditions, above data of the period of the filters replacement is only used as reference.

RO membrane pressure washing:

When RO membrane purifies the water, there is impurity and bacteria left on the surface of the water, which may affect the quality and volume of the purified water. Thus the RO membrane must be cleaned periodically. In our system, the RO system will flush the RO membrane manually by turning on the flush valve (L1) for 2-3 minutes once a week.

Notice: In order to make you system work efficiently, please use the specified filters, provided by the same vendor of the purification system.

7. Warning

- 1) Don't drink the water of first two tanks; let it drain or use it for other utilities upon installation. And test the RO unit for about 2 hours until the above operations is completed successfully.
Clean the remaining contaminants and sediment in the unit.
Check if the unit works normally and without water leakage.
- 2) Don't take apart the parts of system. Any wrong operation may lead to water leakage and system failure/damage.
- 3) Don't apply the system to purify hot water.
- 4) Don't place air valve discharged on the pressure tank.
- 5) To ensure the quality of purified water, please replace the first and the second filters in a period of no longer than 10 months.
- 6) Please check the power supply and make sure it is a suitable voltage.
- 7) Keep the RO unit away from sunshine.
- 8) When the system is not used for a long period, please turn off the power and shut off the ball valve.
- 9) Follow the initial operation before reusing the system after longtime standing idle.
- 10) Load move and install it carefully.

8. Trouble Shooting

If the following problems occur, please check as follows:

- 1) Pump can not work to generate purified water:
 - ◆ Check if the pressure of water supply is high enough to work. The RO system does not start the pump under low pressure.
 - ◆ Check if either high pressure switch or flush valve works (stuck).
 - ◆ Check if the fuse on transformer is burned, if so, then check if the post in-line carbon filter(T33) or the PP cartridge is blocked, it may cause the pump to be overloaded.
- 2) RO system does not operate.
 - ◆ Check if power supply is normal.
 - ◆ Check if the feed water ball valve has been turned on (check if the water pressure is normal).
 - ◆ Check if the water storage tank is full of water.

- 3) RO system can not operate automatically:

- ◆ Check if there is any wrong operation.
 - ◆ Check if the high and low pressure valve is normal.
- 4) Pump head leakage:
 - ◆ Check if the post in-line carbon filter(T33) or the PP cartridge is blocked this may cause the leaking. Sometime the leakage may be caused by the increased pressure of the water in the pump head that cannot be released outward. If so, replace all the carbon cartridges and send the pump for repair.
 - ◆ Also either a weakened diaphragm or the blocked scale could cause the leaking.
 - ◆ The water can not flow out due to the blocked RO membrane, which is caused by a blocked flow restrictor. This cause the pump head to be filled with high pressure water that can cause a leak. It could be rectified by improving the relevant components.
 - ◆ Pump is operating normally, but can not generate purified water:
The cause may be that the RO membrane is blocked or pump is out of pressure. If the RO membrane is blocked, please replace the RO membrane. If the cause is that the pump has no pressure, please check if it is due to either the pump being loaded for too long time or the filtering materials is often blocked and the adequate maintenance is not done, this can caused the pump structure to be weakened. Send pump for repairing.
 - 5) No purified water coming out while tank is full of water:
 - ◆ The cause may be the air inside the tank is out. Please recharge the air (7 psi) and check if the tank has air leakage. If it does, please replace the tank.
 - ◆ If the post in-line carbon filter is blocked. Please replace the filter.
 - 6) The wastewater keeps on discharging when the tap of RO system is closed:
 - ◆ Check if the check valve(K) is operating normally; otherwise, replace it.
 - ◆ The four way valve(G) was damaged.
 - 7) RO system could not be completely stopped while the tank is full:
 - ◆ The high-pressure switch is out of work. Please repair or replace it.
 - 8) The volume of purified water is too little:
 - ◆ Check if the filters are not too dirty and exceeded the filter's service life. If it is caused by the RO membrane that is to dirty or not be flushed regularly. Please replace it.
 - ◆ Check if the temperature of water is too cold.
 - ◆ The water delivering pressure is not as good as that of the new system. Please replace the pump.

9. Packing Lis

- 1). Reverse osmosis unit ----- 1 pc
- 2). Water storage tank ----- 1 pc
- 3). Goose-neck faucet ----- 1 pc
- 4). Accessories ----- 1 set
- 5). Wrench ----- 1 pc
- 6). Hose ----- 5 meters
- 7). Handbook ----- 1 copy
- 8). Input pressure regulator ----- 1 pc