

Advanced water purifier system operation manual and setup guide

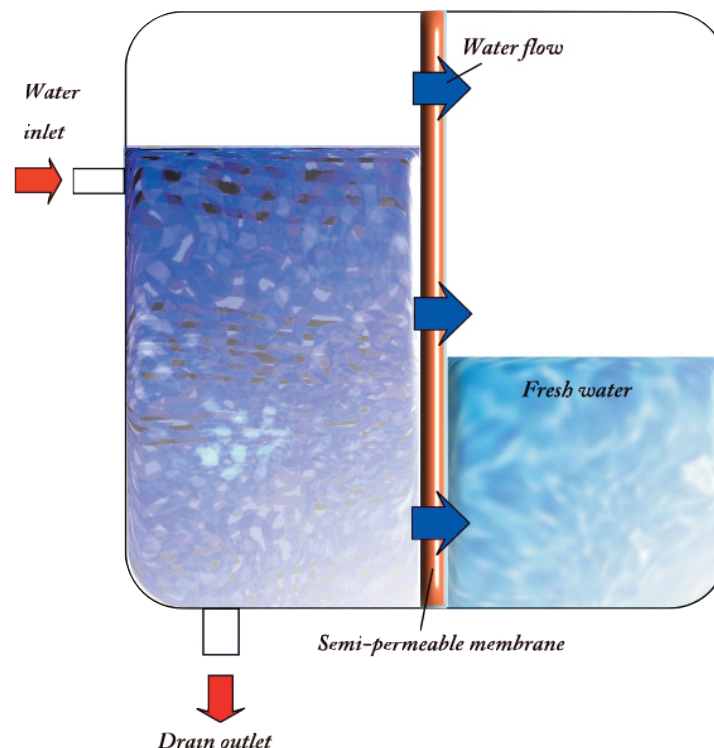


What is Reverse Osmosis?

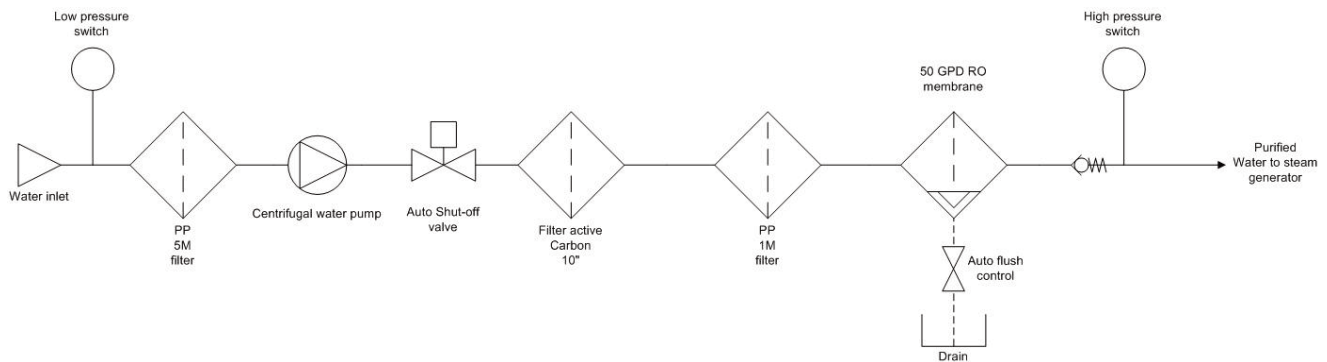
Reverse osmosis, also known as hyper filtration, is the finest filtration known. This process will allow the removal of particles as small as ions from a solution. Reverse osmosis is used to purify water and remove salts and other impurities in order to improve the color, taste or properties of the fluid. It can be used to purify fluids such as ethanol and glycol, which will pass through the reverse osmosis membrane, while rejecting other ions and contaminants from passing. The most common use for reverse osmosis is in purifying water. It is used to produce water that meets the most demanding specifications that are currently in place.

Reverse osmosis uses a membrane that is semi-permeable, allowing the fluid that is being purified to pass through it, while rejecting the contaminants that remain. Most reverse osmosis technology uses a process known as cross flow to allow the membrane to continually clean itself. As some of the fluid passes through the membrane the rest continues downstream, sweeping the rejected species away from the membrane. The process of reverse osmosis requires a driving force to push the fluid through the membrane, and the most common force is pressure from a pump. The higher the pressure, the larger the driving forces. As the concentration of the fluid being rejected increases, the driving force required to continue concentrating the fluid increases.

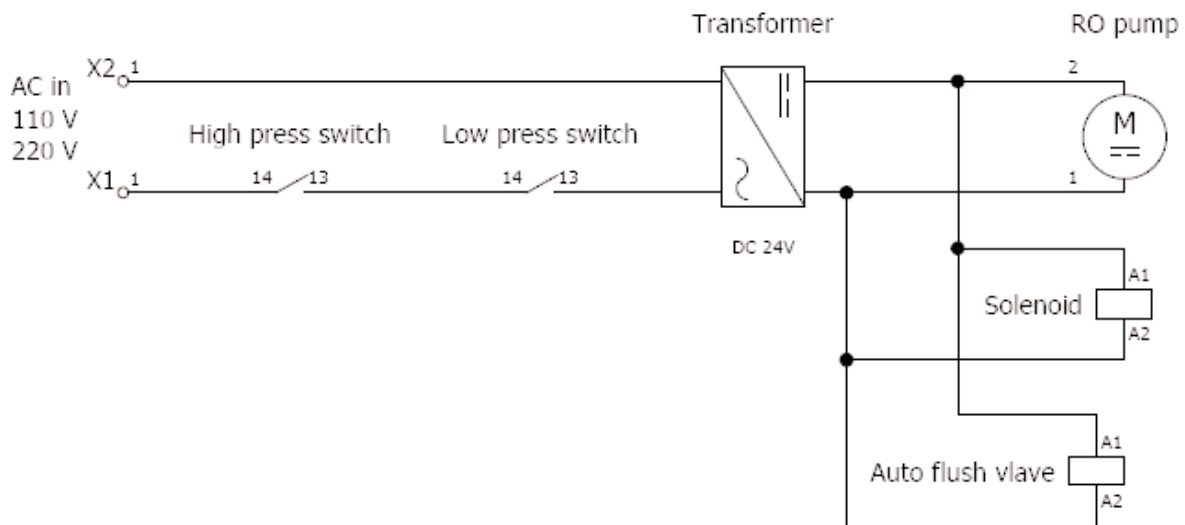
Reverse osmosis is capable of rejecting bacteria, salts, sugars, proteins, articles, dyes, and other constituents that have a molecular weight of greater than 150-250 Daltons. The separation of ions with reverse osmosis is aided by charged particles. This means that dissolved ions that carry a charge, such as salts, are more likely to be rejected by the membrane than those that are not charged, such as organics. The larger the charge and the larger the particle, the more likely it will be rejected.



Block diagram of TWE-12100 RO system



Power supply of TWE-12100 RO system



Function of main parts



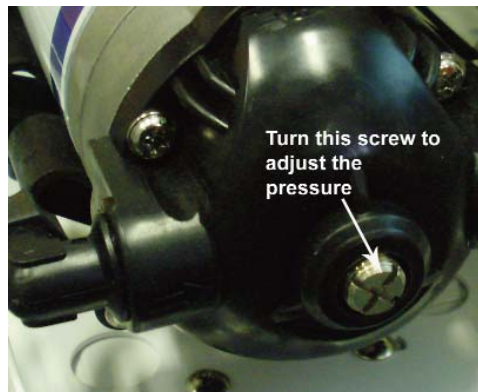
Transformer	24VAC is transformed into 24VAC. Supply power to RO pump, solenoid valve, and auto flushing.
Low pressure switch	Auto power cut-off when water supply stops. ON at over 5psi OFF t below 5psi.
Solenoid valve	After machine stop, water supply is cut off and no waste-water is drained in order to save water.
RO pump	Push the water to pressure of 70-100psi.
High pressure switch	When the water reservoir is filled with water, it cuts off power and stops the pump.
Auto flush valve	Automatically control the flushing cycle, when the system is started it first flushes for 15 seconds ON, and then begin increasing pressure to make water for 30 minutes OFF, and flush again for 15 seconds. It is ON and OFF until power cut off by High-pressure switch.

Notes for use

1. Do NOT connect the system to hot water!
2. Do NOT freeze the system!
3. Do NOT tightly close the waste water drain hole, to prevent the braking of the RO film!
4. Insert RO film into the RO house before use!
5. Before the new system is used for the first time or the system hasn't made water for a long time, first flush it for 10 minutes!
6. Under normal use the front filter core's needs to be replaced after 6 and 12 months of use, but it also depends on the water inlet quantity and the quality of the used water.

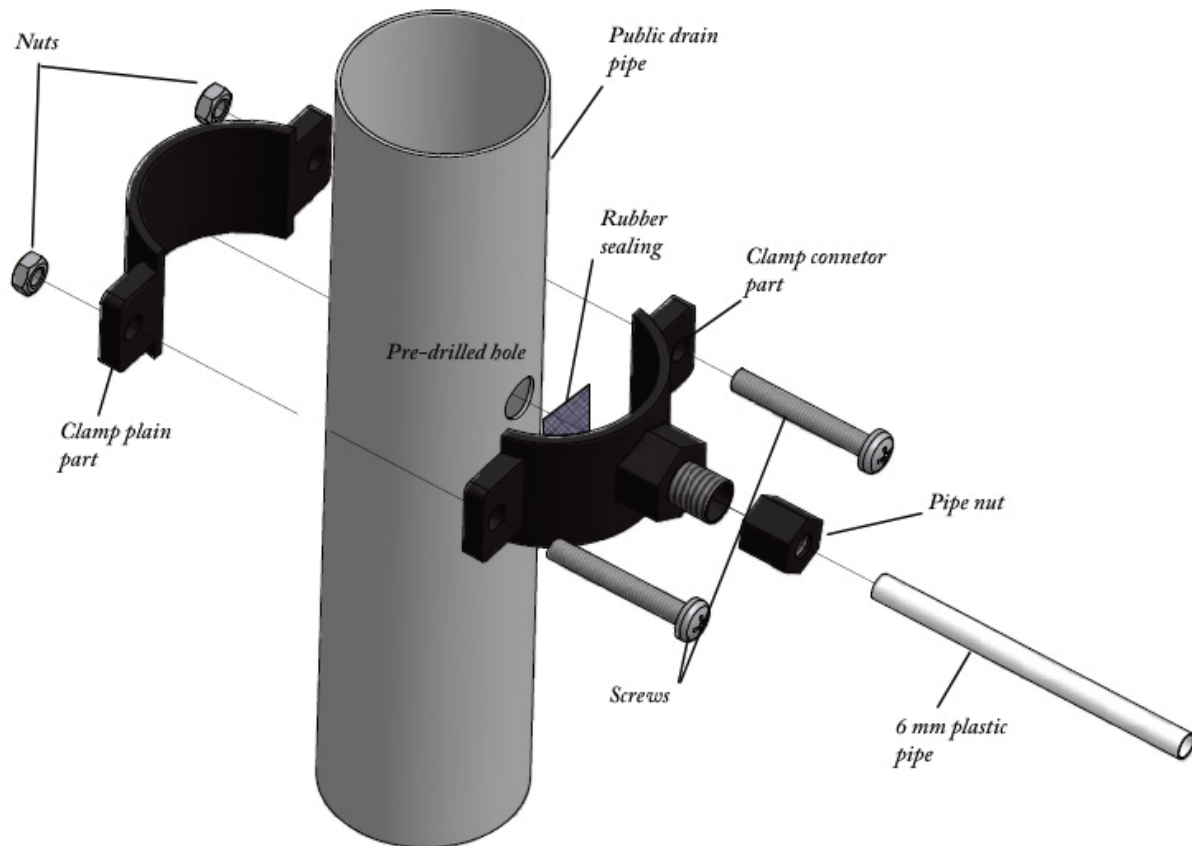
Instructions for use

1. Place the RO system on it's spot. You can use the two pre-cutted hole ob the top of the unit for hanging it up. Remember, that You have to change the filters later, so leave enough space for that action between the three filter houses bottom and the ground (approx. 40 mm).
2. Connect the unit's drain pipe to the drain. You can use to mount it on the drain line with the special kit supplied.
3. Connect the unit's water inlet to the water supply system.
4. Connect the unit's power supply to the connector.
5. Using a screwdriver, set the unit's pressure to 6 bar by turning the screw on the water pump's head. The pressure can be read from the indicator located in front of the unit on the left side.



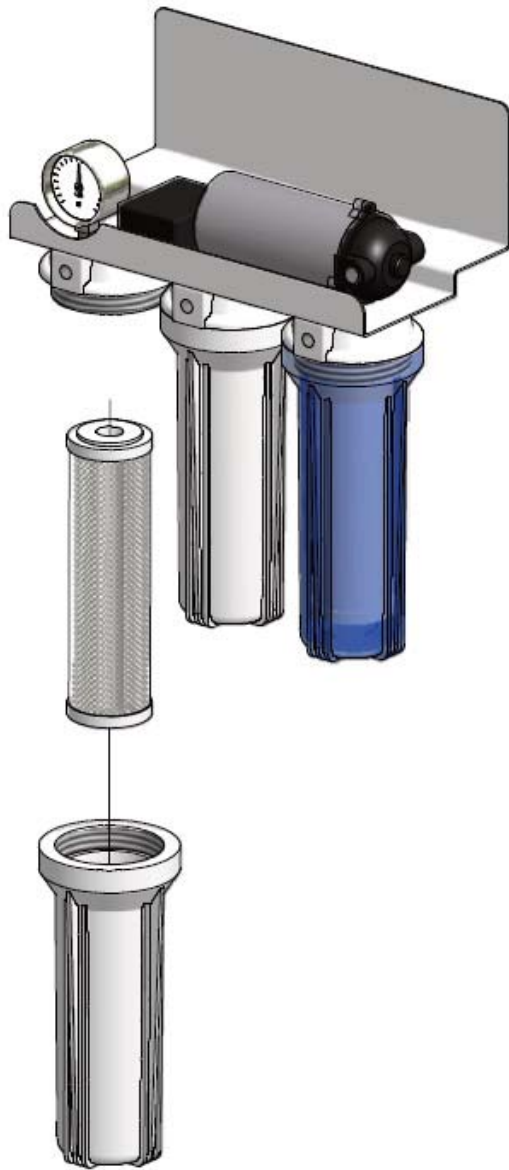
6. Connect the fresh water outlet to the desired spot.

Connecting the unit to the drain using the kit supplied



1. Drill a hole on the public drain pipe (min. 6.5, max 10 mm).
2. Place the two clamps on the pipe in a way, that the hole on the drain pipe is concentric to the hole on the clamp's hole which has a nut on it. Between this clamp and the pipe, put the rubber sealing. The rubber sealing has on one side a self-adhesive film on it, so you can glue it to the pipe, too.
3. Using the supplied screws, tight the two clamps together.
4. Insert the pipe nut on the 6 mm plastic pipe.
5. Firmly insert the pipe with the nut into the drain pipe. The 6 mm plastic pipe's end should overhang from the drain's pipe wall at least 3 mm.
6. Tight the nut carefully.

Changing the filters



1. Disconnect the unit from the power line.
2. Turn off the water supply line.
3. Using the supplied tool, turn the filter house clockwise.



4. Unscrew the filter house totally. Be aware, that it can contain water in it!
5. Remove the old filter by lifting it up from the house.
6. Drain the water from the house and dry it.
7. Insert the new filter into the house.
8. Put back the house by turning it counter clock-wise.
9. Connect the water supply.
10. Connect the power supply.

Changing the RO membrane

The house of the RO membrane can be found on the top of the unit, next to the water pump, horizontally positioned. In order to be able to change it, follow the following steps:

1. Disconnect the unit from the power supply.
2. Disconnect the unit from the water supply.
3. Screw out the house's head.
4. Take out the used RO membrane.
5. Dry the house.
6. Put in the new RO membrane.
7. Screw back the house's head.
8. Switch on the machine following the "first use guide".

General maintenance instructions

Every filter must be changed after a time period of 6 months. This applies to the RO membrane, the 1M front filter core, the active carbon 10" filter and the 5M filter core. After changing the filters always follow the instructions according to the "first use guide" written in this manual.

For ordering from CELITRON MEDICAL TECHNOLOGIES Kft, the table below will show the filters according to their order numbers. If you have any questions or requests, do not hesitate to contact us.

Item's name	Description	Order Nr.
Front 5M filter core	A simple cotton-like tube	01200013
Front 1M filter core	A filter tube, equipped with two plastic cups on the top and the bottom, with a plastic net around the tube	01200014
Front active carbon 10"	A filter in plastic housing	01200015
100 GPD RO film	A blue coloured filter, smaller than the others	01200017

TWE-12100 reverse osmosis system technical specifications

Description	RO
System capacity	100 GPD
SS Storage tank capacity option	4 Gallons
Recovery	25 - 30 %
Chlorine Tolerance	0
Rejection	96 % min.
pH range	3 - 11
Min. pressure range	40 PSI
Max. pressure range	120 PSI
Max. temperature	110 F°
Max. feed flow rate	1 GPM
Max. feed flow turbidity	1 NTU
Max. feed silt density	5 SDI
10" sediment pre-filter, 5 micron	5 microns
10" carbon block filter, 5 micron	CTO
10" RO membrane filter	TFC

Characteristics of Reverse Osmosis TFC Membrane, Nominal Rejection*

Ion	% rejection
Aluminium	97 - 98
Ammonium	85 - 95
Bacteria	99 +
Borate	40 - 70
Boron	60 - 70
Bromide	93 - 96
Cadmium	95 - 98
Calcium	95 - 98
Chloride	90 - 95
Chromate	90 - 97
Copper	97 - 98
Cyanide	90 - 95
Flouride	93 - 95
Hardness Ca & Mg	95 - 98
Iron	97 - 98
Lead	96 - 98
Magnesium	95 - 98
Manganese	97 - 98
Mercury	95 - 97
Nickel	97 - 98
Nitrate	92 - 95
Orthophosphate	98 - 99
Phosphate	97 - 98
Polyphosphate	98 - 99
Potassium	94 - 97
Radioactivity	95 - 98
Silicate	94 - 96
Silicate	85 - 90
Silver	95 - 97
Sodium	94 - 98
Sulfate	97 - 98
Thiosulfate	97 - 98
Zinc	97 - 99

* @ 225 PSI & 77 F°

* The above percentage of rejection is for reference only and not be construed as any guarantee, since the chemistry, temperature and TDS are not constant in each water supply.