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Reverse Osmosis System Installation and Maintenance Manual

**For Systems –
NW-RO50-G, NW-RO75-G, NW-RO100-G, NW-RO200-G**

1 and 2 DI Pod Units



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General Information

TO BE INSTALLED ON COLD WATER SUPPLY ONLY

**TURN OFF MAINS WATER SUPPLY BEFORE STARTING
INSTALLATION**

**PLEASE CAREFULLY READ THROUGH MANUAL BEFORE
INSTALLING SYSTEM.**

**PLEASE KEEP THIS MANUAL IN A SAFE PLACE. INSTRUCTIONS
ARE INCLUDED FOR FILTER CHANGES**

**PLEASE NOTE THAT RO SYSTEMS REQUIRE A MINIMUM OF 3
BAR (45PSI) PRESSURE TO WORK. THE HIGHER THE PRESSURE
THE BETTER THE PERFORMANCE WILL BE. OPTIMAL
PRESSURE: 5.5 BAR (80PSI)**

(THESE UNITS ARE PROVIDED WITH BOOSTER PUMPS TO GET
THE BEST FROM YOUR UNIT).

Our reverse osmosis system will remove more than 96% of: foreign particles, colloid, organic substances, heavy metals, soluble solids, bacteria, viruses, pyrogen, nitrate, microorganisms, hormones, Fluoride and other harmful impurities. It only retains water molecules and dissolved oxygen. To achieve this, RO systems use a special kind of semi-permeable membrane. This membrane is protected by pre-filters, these remove sediment, particulates and Chlorine. The membrane has layers of filtration which the water is pushed through, any water that does not go through all the layers is expelled to the waste line leaving only the pure filtrated water. RO units waste around 70% of the water and will get the TDS down to around 10-15% of the incoming TDS readings.

Unit-

Stage one: Polypropylene pre-filter to remove sediment and dirt down to 5 microns.

Stage two: High density carbon block filter to remove chlorine.

Stage three: Reverse osmosis membrane, filters down to 0.0001 micron.

200 GPD unit has 2 membranes.

Stage four: Post DI resin filter chamber (Refillable) to remove the remaining ions.

Stage five: 2nd Post DI resin filter chamber (Refillable) to remove the remaining ions.

Main Technical Parameter

- 1) Purified water output (*based on optimal water pressure*):
 - 50GPD membrane, 185L/day
 - 75GPD membrane, 275L/day
 - 100GPD membrane, 370L/day
 - 200 GPD membrane, 740L/day
- 2) Inlet water temperature: 4~42°C
- 4) Pre-treatment filters total water output: >1000L
- 5) Water supply: tap or ground water, TDS <1000ppm
- 6) Operating bar pressure: 3 Bar (45PSI) or more. Optimal pressure to received performance above is 5.5 bar (80PSI). Please do not use on water pressure that exceeds 7 bar (100PSI) without a pressure limiting valve.

Preparation

Recommended Equipment List

- Variable speed drill
- Drill bit: 1/8" (for guidance) 1/4" (to drain) and 1/2" (for tap)
- Pliers
- Phillips screwdriver
- Plastic tube cutter / Stanley Blade

The three pieces of coloured tubing provided is to be used at the points marked by the coloured stoppers on the RO system. The yellow tubing is spare.

Mark 1 (RED stopper) – 50, 75 and 100 GPD Units - Cold water supply to RO system

Mark 1 (WHITE stopper) – 200 GPD Unit - Cold water supply to RO system

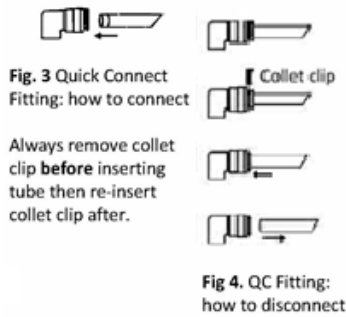
Mark 2 (BLACK stopper) – Wastewater to drain

Mark 3 (YELLOW stopper) – Do not remove unless you are connecting to a pressurised storage tank.

Mark 4 (BLUE stopper) – Last stage on RO system to water outlet.

Fittings included





Fitting type:

1. Quick-Connect (QC) fitting:
 How to connect – See Fig. 3. Remove collet clip, insert tubing into fitting until it locks. Gently pull tubing back to ensure fit is secure. Re-place collet clip.

 How to disconnect – See Fig. 4. Remove collet clip, push down on collet so it is completely flush with the fitting and pull tubing simultaneously.

Installation

TO BE INSTALLED ON COLD WATER SUPPLY ONLY

**TURN OFF MAINS WATER SUPPLY BEFORE STARTING
INSTALLATION**

**WHEN CUTTING TUBING TO SIZE, ENSURE THAT IT IS CUT
STRAIGHT WITH NO JAGGED EDGES**

Connect to cold water supply

1. Cut into existing 15mm copper pipe. Screw the isolator tap into the body. Add the 15mm compression ball-o-fix fitting, take the nut and olive off the other end and screw on the isolator body.



2. Using the white (or black) fitting, screw on to the male thread of the isolator body and push copper pipe into the both sides of the fitting. Ensure all fittings are secure.

(A garden tap fitting is also included if you prefer to connect the unit this way)

Install drain clamp

Determine location for drain clamp based on plumbing layout. Drain should be installed **above** the trap on either the horizontal or vertical tailpiece, it should be mounted as low as possible to avoid draining noise.



3. (1/8" Optional) using a 1/8" drill bit, drill a 1/8" hole into one side of the drainpipe. Then to enlarge the hole, use a 1/4" drill bit.

4. Taking the side of the drain clamp with the QC fitting, stick the self-adhesive sponge provided to the inside of the drain clamp (remove centre piece of sponge beforehand). Place one half of the plastic clamp on either side of the drainpipe with, and clamp loosely using the nuts and bolts included.

5. Align hole on drain clamp with drilled hole. A drill bit (or pen/pencil) may be used to help with alignment. Once aligned, tighten clamp with Phillips screwdriver. **Avoid over-tightening clamp.**

6. Determine length of tubing needed for connection from RO system to drain clamp and cut to length. Push tubing into fitting on clamp and insert blue collet clip under collet. Pull the tubing back to check seal is secure.

Assemble main RO system

7. Remove all packaging and plastic wrapping/seals from filters. **Do not include the membrane(s) in this step.**

Connect housings to RO system by hand and then use spanner provided to completely tighten. From right to left (closest to inlet):

- Sediment 5-micron pre-filter in 1st stage housing
- Carbon block filter in 2nd stage housing

Connect system

Determine length of tubing needed between RO system and mains water supply and remove red/white stopper on unit. Connect tubing from cold water supply, drain clamp and water outlet to RO system by removing the coloured stoppers and inserting tubing into the connections listed below:

Mark 1 (RED stopper) – Cold water supply to RO system

Mark 2 (BLACK stopper) – Wastewater to drain

Mark 3 (YELLOW stopper) – Do not remove unless you are connecting to a pressurised storage tank.

Mark 4 (BLUE stopper) – Last stage on RO system to water outlet.

Check all tubing is secure by pulling back on tubing, remembering to always remove collet clips before inserting tubing.

Inline TDS Meter – The first sensor needs to be installed before the inlet of the RO Unit to get the reading from your untreated water. The second sensor is to be on the outlet line for readings of your RO Water.

Cut the tubing one leach line where this is to be installed, using the tee pieces provided. Push the tubing onto the in and out of the fitting and the sensor is to go into the 1/4" tee branch.

System Flushing –

It is very important to flush the RO system through in 2 stages to protect the membrane(s) and to ensure optimum performance for your unit.

Flushing the unit releases any carbon fines, dust, air etc from the pre and post filters which may have been present at the manufacturing process.

By flushing the unit in 2 stages this stops the membrane from getting clogged or a reduction in flow as the pre and post filters have already been flushed.

1st System Flush –

The pre-filters now need to be flushed **BEFORE** the membrane(s) is added to the unit.

Turn on mains water supply by putting the ball-o-fix and isolator tap to 'on' position (1/4" turn from off position). (The ball-o-fix fitting can be left in 'on' position from here and the isolator tap is to be used to turn the water 'on' and 'off').

Let the water run for approximately 10 minutes into a bucket or until the water runs clear. While the water is flowing this will also release any trapped air in the unit, so there may be spluttering.

Check around the unit for any leaks. *(If a leak is found, turn off the water, and check the fitting / tubing where the leak was found. Also see our troubleshooting section at the back of the manual. Once the issue is resolved, start process again).*

Turn off the mains water by the isolator and let the water drain out.

Insert Membrane

8. To insert membrane, remove post filters by pulling on bracket connected to the membrane housing. Remove the tubing from the QC fitting (inlet to membrane housing).
9. Lift membrane housing out of brackets and unscrew housing cap using spanner provided. Please ensure the o'ring is kept on the thread on the body of the membrane housing (not inside the housing cap).
10. Remove airtight film from membrane only (not blue film) and insert into housing with the end with two black O-rings first. Screw cap back on, push housing back into bracket and re-attached post filters. Check tubing each end to prevent leaks.



2nd (Final) System Flush –

Turn on the water by putting the isolator tap to 'on' position (1/4" turn from off position).

You will hear the RO unit starting to produce water. Double check the unit for leaks. (As per 1st system flush).

Open the shut off valve (L1) on the drain line to allow water to pass over the membrane for around 5 minutes.

Run the water from the RO unit for 10-15 mins into a bucket. Please dispose of the water.

Maintenance

It is highly recommended to change your filters periodically to maintain the highest level of filtration from your RO system. Changing your filters regularly can also prolong the life of your RO system. The table (below) shows how often it is recommended to replace each filter/stage in your system. This is dependent upon water quality; water hardness & particulates may result in filters being changed more regularly than shown:

Filter Cartridge	Function	Lifespan
PP Sediment Filter	To remove sand, dirt and other suspensions 5 micron or larger	6 months
Carbon Block Filter	To remove chlorine and to improve taste and odour	6 months
RO Membrane	To remove foreign particles, soluble solids, bacteria and viruses	1-3 years
DI Resin Filter	Deionises the water, reduces the TDS reading (PPM) through ion exchange (1 Pod and 2 POD Systems)	6 months

RO Membrane Pressure Washing –

When the RO membrane purifies the water, there are impurities and bacteria left on the surface of the membrane which may affect the quality and volume of the purified water. The RO membrane(s) needs to be cleaned periodically. Our units will flush the RO membrane(s) manually by turning 'on' the flush valve for 2-3 minutes once a week (blue and white tap on the drain line). Please ensure this valve is **CLOSED** when complete. Please complete this when the unit is producing water.

All replacement filters and membranes can be purchased through our website www.finerfilters.co.uk or call us on 01704 807600.

Replacing your filters –

(Filters only, not membrane)

Please have some towels and cloths ready, as some water will escape from the unit.

Turn off the water by putting the isolator tap to 'off' position (1/4" turn from on position).

Drain as much water from the unit as possible.

REMOVE THE MEMBRANE(S) FROM THE HOUSING AND SET ASIDE UNTIL FILTERS HAVE BEEN CHANGED AND THE UNIT FLUSHED

Carefully remove the housing bowls and empty any residual water down the sink / drain and remove of the exhausted filters.

Remove the wrapping of the new filter(s) and insert into housing(s).

Screw housing bowl back into place.

Repeat this for all filters contained in the housing bowls.

Remove the DI Chamber from the bracket and unscrew the cap. Remove the old media and rinse chamber. Add new media and put back together. Please wash your hands after handling the media.

Now carry out 1st System Flush. (2nd flush not required unless the membrane is replaced, see Replacing Filters and Membrane).

Carefully add membrane back into the housing.

Replacing Filters and Membrane(s) –

Please carry out all steps from the Replacing Filters section and carry out the 1st flushing stage.

Follow the instructions for inserting your membrane, then carry out the 2nd flushing stage to complete the filter and membrane changes.

Troubleshooting

Symptom	Probable Cause	Solution
No water	1. Water supply is off 2. Fault on non-return valve 3. Pre, or post filter clogged 4. RO membrane damaged or clogged 5. Output line crimped 6. Flush valve open	1. Turn water supply on and/or isolator tap in on position 2. Fitting requires replacing 3. Check/replace pre, or post filter 4. Check/replace membrane 5. Remove crimp 6. Ensure L1 flush valve is closed
Slow flow	1. Pre, or post filter clogged 2. Low Water Pressure 3. Clogged Membrane	1. Check/replace pre, or post filter 2. Booster Pump required 3. Open L1 flush valve and carry out system back wash.
Pre, or post filter leaking	1. Tubing not inserted fully	1. Remove tubing, ensure end is straight. Insert and gently pull back on tubing to check secure
Bad odour	1. Membrane not installed correctly 2. Bad membrane 3. New system (or new filters/membrane)	1. Check membrane is installed as instructed 2. If TDS reading is below 85%, replace Membrane 3. Flush 20 litres through system before use

Leaking membrane housing	1. Threaded end cap leaking 2. Cap or body of housing leaking 3. O-ring not seated properly	1. Unscrew cap, lubricate O-ring. If leak continues, replace 2. Check for any checks in membrane housing or cap. Replace if cracked 3. Make sure O-ring is in groove and lubricated (Membrane housing see insert membrane on pg 10)
Cloudy/milky water	1. Defective membrane 2. New filters or membrane	1. Replace if TDS reading is below 85% 2. Flush system through
Leaking fitting	1. Fitting damaged or cracked 2. Tubing not pushed in fitting or screw fit not installed properly	1. Replace fitting 2. Push tubing in firmly until it locks. Check screw fit is installed correctly, refer to image in installation