



OPERATION & MAINTENANCE
MANUAL

PURE WATER SYSTEM E350-DI



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Introduction

Congratulations on purchasing one of the finest pure water generators available.

This E 350 DI machine has been designed by engineers, with reliability, build-quality, robustness and ease of use paramount in their considerations.

Like all engineered equipment, maintenance is an integral part of ensuring continuity in design performance and will guarantee tireless production of top-quality pure water for many years to come.

We would recommend that you take the time to read this manual to fully appreciate that, with just a few simple routine operations, you can protect your investment, whilst minimising any potential downtime.

This manual will give you an overview of the system, the location of significant fittings and controls, and a quick guide to get you up-and-running.

Then a more detailed explanation of the settings and routine maintenance, along with troubleshooting and longer-term maintenance.

The Brodex E 350 DI machine utilises Mixed Bed Resin filtration to produce Pure Water in the most economical fashion.

We are confident you will be extremely pleased with your new system.

Overview of System

Following the installation and commissioning of your system you will have been given a rundown of your system how it works and all its components, along with a guide to basic maintenance, testing and resin changes, all of which are covered in this manual.

However it is a lot to take in therefore we have produced this manual to help you familiarise yourself with your machine and all the components that go with it, all of which are referenced in this manual.

What you have is a pure water generator with a holding tank, this converts tap water into deionised water by sending water through a polish of mixed bed resin, to give you a water reading of TDS 000 parts per million or conductivity 1.3 micro siemens.

General Advice

Remember to check the pressure of your mains water supply – typically about 40PSI plus.

Pressure delivered to businesses by the water board is very far from achieving this, often below 60 psi and sometimes as low as 30. The higher this is, the quicker the fill-time.

Dangers to System

Freezing - this system has been designed to be exceptionally resistant to frost damage, but, as you would expect from any system filled with water, allowing it to freeze can cause expensive damage.

We suggest you take every possible precaution to protect your investment usually by keeping the area heated so not to fall below 5 degrees C.



Operation

Step. No 1

Turn on the water supply you will water starting to flow through the system.

Step. No 2

Pure water will now be produced and sent to the holding tank.

Step. No 3

The holding tank will shut off the production when full. This is accomplished by a float valve fitted within the tank.

Step. No 4

To extract the product from holding tanks, turn on the pump switch this will now send water to the outlets on the manifold.

Maintenance

The ongoing maintenance of the system comprises of 2 main areas;

1. Taking TDS Reading



2. Resin (Behind front panel)



Taking a TDS Reading

Total Dissolved Solids (TDS) are the total amount of mobile charged ions, including minerals salts or metals dissolved in a given volume of water, it is expressed in parts per million (ppm) or milligrams per litre (mg/L), Our industry tends to work in ppm.

Specific instructions will have been included with your meter, but generally it will be as follows:

Remove the protective cap, turn the meter on and immerse the sensor into the water to be measured usually no more than 2", as the whole unit may not be waterproof! Lightly stir the meter to dislodge any air bubbles.

Wait about 10 seconds, until the display has stabilised, then read your ppm from the LCD screen. Some models may have a "hold" button to enable you remove the unit from the water and still read the display.

As a general guide, mains water in soft water areas will usually be in excess of 050ppm, and in hard water areas in excess of 300ppm, While Pure (deionised) Water will be 000 - 002ppm, and sodium chloride used to calibrate TDS meters is 342ppm.



It is advisable to use the TDS meter to measure the ppm readings at two points:

1. Incoming mains
2. Water delivered after the resin vessel

This will help you diagnose problems before they arise and cure them when they do occur.

Resin Vessel

To be changed according to usage but as a guide we recommend every 3/4 months. Resin To be changed when TDS readings dictate. Typically after 30,000L.

The resin that needs to be changed is found to the rear of the panel in the black resin vessel.

With time and use, this resin will become exhausted and will need replenishing with fresh resin, this is available from Fluid Science in convenient 25 litre sack.

Please follow the instructions carefully to ensure that your machine will produce good quality purified water, as verified by using your water purity testing TDS meter.



SAFETY NOTICE

Ensure that the vessel is de-pressurised before removing any connecting pipe work.

This can be achieved by simply connecting an open outlet hose to the machine pure water outlet on the machine or on the associated security manifold. Wear approved eye safety equipment.

Instructions

- Disconnect the inlet and outlet pipes from the vessel body— IN and OUT are clearly marked, simply take care to note which side is which and duplicate this when reconnecting.
- Undo the nuts on the U-shaped bracket that secures the vessel to the panel.
- Unscrew in an anticlockwise direction the head assembly of the vessel which will then separate from the vessel body, taking care not to lose the black “O” ring which may fall away.

- Withdraw the cap assembly taking care not to damage the riser tube and end distributor.
- The riser tube can be slowly withdrawn out the vessel by shaking the vessel till fully out, you must inspect this tube to ensure that the plastic distributors at the top and bottom are intact and undamaged again at this time ensure that the black rubber “O” ring is safe.
- Taking the riser tube and distributor assembly, gently pull the rise tube out of the vessel head. There are 2 rubber “O” rings located within the female recess that accommodates the riser tube.
- Ensure on re-assembly that the riser tube is pushed gently but firmly home into the head assembly, this will ensure a water tight seal and prevent “tracking” of hard water to service flow.
- Cover the end of the tube with some sticky tape to ensure that resin does not pass down the tube whilst filing.
- Empty the old resin out of the vessel and place into a plastic bag and throw away with domestic waste. The resin is non-hazardous to the touch and can be handled safely. Rinse the vessel out with a hose to remove any remaining old resin.
- Place the taped-up riser tube inside the bottle.
- Once the riser tube is centrally positioned into the empty vessel, start to fill the vessel with mixed bed resin.
- A cut down funnel is a useful tool to assist filling.
- Fill the vessel up to the shoulder position, as indicated, shake the container frequently to ensure a good settlement and compaction of resin.
- Do not overfill and ensure that the riser tube remains central during the procedure.
- Apply a smear of petroleum jelly (i.e. Vaseline) to the rubber “O” ring on the vessel head assembly. This will assist in a good watertight seal. If the “O” ring is damaged, replace accordingly.

- Remove the sticky tape from the top of the riser tube and slide on the head assembly as far as it will go, now slowly screw on the head in a clockwise direction, ensuring that you do not cross-thread until it is tight to the hand, make sure that the top of the vessel and the shoulder of the head are sandwiching the rubber “O” ring.
- Reconnect the bottle to the machine; ensure that the inlet port goes into the left hand side port on the machine. Do take care to reconnect your “IN” and “OUT” as noted at disassembly.

Troubleshooting

Symptom	Cause	Remedy
High TDS reading from tank	Resin Exhausted	Check TDS of water from torpedo feed to tank, replace resin in torpedo accordingly.
Slow Filling	Kinked pipe	Straighten pipe
Tank Overflows	1. Faulty Ball Valve 2. Pivot pin dislodged	1. Replace ball valve 2. Refit pin