

The Bio-Pure

Simple solution sewage systems

INSTALLATION

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Installation

(Standard Installation excluding high water table areas and excluding installations with invert levels below 1.2m)

- 1) Bio-Pure 1 & 2** Excavate a hole 2.1m round x 2.25m deep tapering the last 1.2m. Ensure, on all installations, the soil at the base of the hole is firm and undisturbed. If not possible, compact sand or pea gravel into base until desired level is obtained. **Bio-Pure 3** Excavate a hole 2.4m round x 2.3m deep tapering the last 1.5m. **Bio-Pure 4 & 5** Excavate a hole 2.4m round x 2.7m deep tapering the last 1.5m. **Bio-Pure 6** Excavate a hole 2.8m x 2.95m, tapering the last 1.5m.

(NB. Try to follow shape of unit as much as possible)

- 2)** Remove the service hatch from the compressor box housing section of the unit by means of cutting the cable ties (note - care should be taken not to damage this) and retain in safe place.
- 3)** Lift the unit by means of correct slings through the eye bolts, ensure that unit is empty of water before fitting.
- 4)** Lower the unit into the hole checking that the inlet and outlet connections on the unit will align with the corresponding connections.
- 5)** If you are using an anchoring kit, remove unit and install now.
- 6)** Level the unit in the hole using the pump box housing to level. Begin backfill around the base of the unit to a depth of approximately 700mm (you have the option at this stage of circulating the wedges with a concrete ring to ensure no lifting if the ground is subject to moderate waterlog). Fill the unit with a corresponding amount of water to help stabilise the unit.
Note – backfill material must be 20mm to dust scalplings (no sharp stones) to ensure no damage is caused to unit.
- 7)** Continue backfill around the unit whilst simultaneously filling the unit with water until the unit is full.
- 8)** Connect inlet and outlet connections to sewer pipes.
- 9)** Remove the pump box housing and attach the blower pipe to the blower tube by means of the jubilee clip supplied and pass the other end into the pump box housing.
- 10)** Continue backfill up to ground level.
- 11)** Lay 2.5 mm armoured cable from proposed electrical connection to the unit passing it into the unit via the electrical gland already in place. Leave a ½ m loop inside the body of the treatment plant and pass the cable through the 2nd electrical gland in the air pump box. Securely fix a double IP rated socket (you may need two of these for a pumped unit). **If you do not fix your electrical connection securely to the box, it will rattle and make a noise as the pumps constantly vibrate.**
- 12)** Securely fix one end of the blue T section to the blower pipe and then secure the other end to the compressor.
- 13)** Fix blower box back into place.
- 14)** Install the alarm – the small clear hose attaches to the blue T-Section.

**FOR INSTALLATIONS WITH INVERTS BELOW 1.2m
SEE SEPARATE INSTALLATION METHOD.**

IF IN DOUBT, PLEASE ASK.

High Water Table Supplement

If the Bio-Pure is installed in WET GROUND, the top and bottom parts of the unit should be sealed by means of a water tight mastic sealant and the unit should be anchored by means of concrete or anchorage pins.

Anchorage by Concrete

The Bio-Pure has 4 anti-floatation wedges positioned on the sides. For moderately wet ground these can be covered in a lean mix of concrete to act as an anti-floatation ring.

IN SEVERE WET GROUND THE ENTIRE UNIT SHOULD BE BURIED IN CONCRETE UP TO THE INLET AND OUTLETS OR THE ANCHORAGE PIN METHOD SHOULD BE USED.

NB. When using concrete the unit should be filled with water at the same rate as concrete is poured.

High Water Table Anchorage – Dry Pin Method

A high water table is where water enters the excavated hole.

- 1) Insert the steel anchorage pins by hammering them horizontally (90 degrees) to the walls of the excavation into the undisturbed ground at a depth of 1200 mm (from the top). The pins need to be inserted leaving 300 mm protruding into the excavated area.
- 2) Connect a length of galvanised chain into the hole in the end of each pin using a shackle. Take the loose end to the top of the excavation and secure temporarily.
- 3) Continue to install tank as per fitting instructions.
- 4) When Bio-pure is fully installed insert eye bolts into the down position ie. Eye bolt at the bottom, nut at the top. Attach the loose end of the chain into the eye bolts by means of shackle, adjust and tighten each eye bolt to take up any slack in chain – do not leave any slack in chains as tank may move.
- 5) Continue to back fill to desired level.

High water table anchorage

- 4 x 1200mm galvanised steel angle irons (50mm x 50mm x 6mm) each with a point at one end and a 13mm hole at the other.
- 8 x galvanised steel 'D' shackles.
- 4 x 1200mm long, 6mm diameter welded link galvanised steel chain.

Electrical Installation

It is not feasible to state a specific installation method due to the variance of sites. It is important therefore that an electrical installation be performed in accordance with the 17th or later edition of the Institute of Electrical Engineers Regulations with appropriate current protection devices for site configuration.

The supply to the air pump housing should have a dedicated circuit incorporating isolation and protection devices. An earth leakage circuit breaker is recommended. A device with a 30mA maximum trip current is recommended.

A typical example of the electrical installation is the following:-

- 1) A fuse spur is installed at a suitable accessible position
- 2) A 2.5 mm armoured cable is laid from the fuse spur to the Bio-Pure, it is then passed through the first electrical gland installed in the shell of the treatment plant and ½ m loop is then left in the body. It is then passed through the 2nd electrical gland
- 3) A double IP rated socket is securely fixed to the wall of the Air Box and the 2.5 mm armoured cable is connected.

Installation of Air Blower

It is recommended that the air blower pump be installed in the pump housing, with an appropriate single phase 13 amp supply. Care must be taken to ensure the unit is not subject to water ingressage, free from dust and dirt that could clog the air filters. Access to the air blower unit will be required for maintenance. Ensure unit is well ventilated.

Note – The air blower unit can be fitted in a outbuilding or separate kiosk within 10m of the unit. Ensure unit is well ventilated and not subject to air temperatures exceeding 37 degrees centigrade.

We recommend that only a qualified electrician is employed to undertake the electrical installation of the air blower pump. The air blower pipe is secured to the pump and the blower tube by means of the jubilee clips supplied.

It is very important that the electrical connection is securely fixed to the box. This will avoid it vibrating and making excessive noise.

Commissioning Checklist prior to switching on power supply

Prior to use of unit and before any sewage enters please check the following:-

- Ensure air diffuser is secure on the end of the blower tube and blower tube is secure to its mounting
- Ensure the blower pipe is not kinked or damaged in any way (make sure it has been cut to the correct size)
- Remove any construction debris from areas surrounding unit

Commissioning Checklist after turning on power supply

- Ensure the air blower is working (it should hum and vibrate slightly)
- Listen for any air leaks (tighten joints if required)
- Standing above the unit with the service hatch removed, check for water turbulence (the water should bubble vigorously)
- If unit is fitted with return sludge air lift, ensure that water is being returned to centre chamber, it may be necessary to adjust this by sliding the 6mm air hose up or down in the air lift tube.
- Run some taps in the house and observe the flow into the unit (any construction debris brought in by the flow should be removed)
- Allow water to enter the unit until full, observing the displacement around the outlet weir
- Securely replace pump housing and service hatch, secure with cable ties supplied

The invert of the tank is taken as ground level and any structures or landscaping above this within a 5 metre radius should not be load bearing on the unit and in these instances a Structural Engineer should be consulted.

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