Drainstore.com

PACKAGED PUMPING STATION
GRP & HDPE TANK INSTALLATION GUIDELINES

HEALTH AND SAFETY AT WORK

As with all site work, the dangers of working with water and electricity pose severe threats to health if obvious and fundamental precautions are not taken. Therefore if you are in any doubt to any of the following, please do not hesitate to contact us.

All work should be undertaken by qualified personnel only.

TANK INSTALLATION

VERY IMPORTANT NOTE: THIS GRP/HDPE TANK IS A LINER AND MUST ALWAYS BE SUPPORTED BY A CONCRETE BASE AND SURROUND OF ADEQUATE THICKNESS FOR THE GROUND CONDITIONS. INSTALLATION MUST BE FOLLOWED FULLY AS PER THESE INSTRUCTIONS. NO WARRANTY CLAIMS CAN BE ACCEPTED FOR FRACTURE FAILURES.

PARTICULAR NOTICE SHOULD BE TAKEN TO PARAGRAPH 10 RELATING TO DEEP OR HIGH WATER EXCAVATIONS.

1. Select a suitable location for the tank – this will be normally in ground lower than the properties being drained and allow for falls in site drainage.

2. Check that no other structure – or special access – is required over the selected spot. Provision can always be made, if necessary, to place the tank on a roadway, provided that protective backfill is placed around it and a suitable duty manhole cover & frame is used over the opening.

3. Check that no underground cables, pipes or service ducts lie beneath.

4. Calculate the depth and orientation of the inlet hole and cut this accordingly. A hole-saw can be supplied at a small additional cost. Insert the inlet seal into the side of the tank. **Please note there must be at least 550mm below the bottom of the inlet pipe to allow the pump to operate.**

5. 110mm dia. cable duct complete with draw wires should be installed between the control panel location/electrical supply and pump chamber. Cable duct must be a minimum of 110mm dia. to allow all cables to be pulled through easily.

6. Drill hole and make connection in pump chamber for vent (if applicable).

7. Excavate the minimum opening in the ground to receive the tank and pipework to be used. If a machine is used to remove the spoil, the sides of the excavation should be battened for stability and a sump left in the one corner for dewatering purposes.

8. The depth of excavation needs to be a maximum of 500mm deeper than the overall tank depth (plus extra roof slab – if applicable). This extra depth is required to allow for the construction of a hardcore/concrete base. If the excavation is dug by hand, the sides will require shoring up for safety, to prevent earth slippage.

9. A dewatering pump may be required to control any ground water present.

10. If the excavation depth is more than 2m deep or ground water is present, guidance should be sought by a structural engineer and formal written advice obtained relating to the installation of the chamber.

11. Some clean hard core should be placed and consolidated in the base of excavation. Usually, this will need to be about 200mm thick, but in good ground should be a minimum of 50mm.

12. Lay concrete (minimum grade 25) to a minimum thickness of 150mm on top of hardcore. Compact well down.

Cont/d…

13. Lower the tank onto the damp concrete base, allowing the base feet/mouldings (if fitted/feet not fitted on tanks smaller than 1m diameter), to settle in. Ensure correct orientation of the inlet/outlet pipes and other connections.

14. Connect appropriate sized black MDPE pipe to the outlet adaptor on the chamber. A minimum 63mm outer diameter black MDPE pipe should be used when pumping foul waste. A minimum 32mm outer diameter black MDPE pipe should be used when pumping grey water.

15. FILL THE TANK WITH APPROXIMATELY 700MM DEPTH OF WATER
Pour concrete surround in situ to a thickness of approx. 200mm and to a height of 600mm from concrete base using minimum grade 25 concrete. The concrete must be evenly poured around the tank periphery, and must not exceed the depth of water in the tank. The concrete should be vibrated to leave no voids. Continue filling the tank chamber with water whilst evenly backfilling with concrete around the tank ensuring that the progressive water level is no more than 300mm above the concrete level. Care must be taken to ensure that any pipes (or other connections) made are not damaged. Concrete will secure into position any pipes that have been connected. During concrete pour, ensure that the tank is vertical (by use of a spirit level across the tank's opening). Additionally, ensure that the tank is at the correct depth level. Allow this concrete "anchor" to set.
DO NOT REMOVE THE WATER FROM THE TANK UNTIL THE CONCRETE HAS SET

16. VEHICULAR AREA INSTALLATION – In situations where traffic is passing within 3 metres of the tank, or in poor ground conditions, or where a high water table exists, we recommend that the tank if fully encased in concrete to provide extra support. Backfill uniformly using minimum grade 25 concrete. THE CONCRETE MUST BE EVENLY POURED AROUND THE TANK PERIPHERY AND MUST NOT EXCEED THE DEPTH OF WATER IN THE TANK – THE WATER LEVEL SHOULD BE GRADUALLY RAISED (CONSISTANT WITH THE INCREASING LEVEL OF CONCRETE POURED) AND SHOULD REMAIN 100MM HIGHER THAN THE CONCRETE BACKFILL. LEAVE THE WATER IN THE TANK UNTIL THE CONCRETE HAS SET FULLY.

17. (If required) construct concrete cover slab (with access opening) of maximum 200mm thickness, ensuring that the slab is supported by consolidated backfill. Or utilise engineering-brick courses to the sides of the GRP opening/manway, again these must be supported by consolidated backfill/concrete.

18. Vehicle Area Installation – The access cover/frame would have been supplied unattached to the tank. Set frame into concrete cover slab or onto brick courses. Please ensure advice on the cover rating and the installation of a heavier duty cover is sought by a structural engineer.

19. Construct concrete plinth for control panel kiosk (where applicable).

20. Empty the tank of water, ensuring that any debris is removed at the same time. Partly refill the tank with clean water for testing the system upon commissioning, and to facilitate a flush-through of the discharge pipe prior to sewage/drainage pumping.

21. Install the pumps and float switches (and interconnecting cables – where extensions are required), drawing these electrical cables through the cable duct to the proposed position of the control panel.

22. Position the control panel (and kiosk – if applicable).

23. Provide a suitable electrical supply – this to be isolated and adjacent to the new positioned control panel.

24. Make final electrical connections (as per the "field connections" instruction provided with the control panel).

25. Commission the packaged pumping station.

26. Should there be a delay between the physical installation of the pumping chamber and the commissioning of the unit, under no circumstances should the pump(s) be left in the dry chamber or submerged in water as this will damage the mechanical seal. If this happens and the seal is water damaged, the pump will not be covered under the warranty.