



**PUMP TECHNICAL
SERVICES LIMITED**

THE
SUBMERSIBLE
PUMP
SPECIALISTS



MANUFACTURING, SALES, PROJECT DESIGN, INSTALLATION, MAINTENANCE AND REPAIRS

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PACKAGED PUMPING STATIONS/GRP TANKS INSTALLATION PROCEDURE

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 TANK IS A LINER AND MUST ALWAYS BE SUPPORTED BY A CONCRETE BASE AND CONCRETE SURROUND OF ADEQUATE THICKNESS FOR THE GROUND CONDITIONS. INSTALLATION MUST BE FULLY AS PER THE FOLLOWING INSTRUCTIONS. NO WARRANTY CLAIM CAN BE ACCEPTED FOR FRACTURE FAILURES.

- 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 set into a load bearing concrete slab that is supported by the surrounding concrete.
- 3) Check that no underground cables, pipes, or service ducts lie beneath.
- 4) 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 one corner for dewatering purposes.

Note:

- a) Tank only suitable for installation at a maximum of 250mm deeper than supplied original finished cover level, i.e. maximum 250mm thick roof slab only.
- b) As the tank is 'hand-made' from GRP dimensions cannot be guaranteed exact to the nominal size offered. It is your (the installer) responsibility to measure the tank supplied before sizing excavation. In particular, the tank's moulded feet (where fitted, and which must NOT be cut off), and the access cover depth MAY BE ADDITIONAL TO THE NOMINAL SIZE OF TANK OFFERED/SUPPLIED. THE FEET MUST BE SETTLED FULLY INTO A MANIPULATABLE, WET CONCRETE BASE, (OTHERWISE GROUND WATER MAY ENTER THE VOID RESULTING IN STRESS DAMAGE TO THE TANK AND FITTED INTERNAL COMPONENTS
- 5) The depth of excavation needs to be at most 500mm deeper than the overall tank (plus extra roof slab - if applicable) depth. 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.
- 6) A dewatering pump may be required to control any ground water present.
- 7) Some clean hardware 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.

- 8) Lay concrete (minimum grade 25) to a minimum thickness of 150mm, on top of hardcore, Compact well down.
- 9) Lower the tank onto the DAMP concrete base, allowing the base feet/mouldings (if fitted) to settle in. Ensure correct orientation of the inlet/outlet pipes and other connections.
- 10) If the inlet socket(s) is positioned less than 800mm up from the base of the tank, make this connection at this point.
- 11) FILL THE TANK WITH APPROXIMATELY 700MM DEPTH OF WATER.
Pour concrete surround in situ' to a thickness of approx. 100mm 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. 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.
- 12) Make connections of site pipework, cable duct @ 3" Min Dia' and vent (if applicable).
- 13a) **STANDARD INSTALLATION**
Backfill uniformly using sand, shingle or other non-cohesive material. It is essential that the tank remains level at all times. Ensure that that backfill is consolidated and supports in position the inlet pipework (including the vertical stack if applicable).
- 13b) **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 is 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 (CONSISTENT 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.**
- 14) 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.
- 15) **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.
- 16) Construct concrete plinth for control panel kiosk (where applicable),
- 17) 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.
- 18) Install the pumps and float switches (drawing these electrical cables through the cable duct to the proposed position of the control panel).
- 19) Position the control panel (and kiosk - if applicable).
- 20) Provide a suitable electrical supply - this to be isolated and adjacent to the now positioned control panel.
- 21) Make the final electrical connections (as per the 'field connections' instruction provided with the control panel).
- 22) Commission the Packaged Pumping Station.