



**ROTOPLAS (AUST) PTY LTD 2021**

## **INSTALLATION INSTRUCTIONS FOR POLYETHYLENE UNDERGROUND TANKS**

### **DISCLAIMER**

These instructions should be used in conjunction with advice from a certified civil engineer depending on individual site conditions. Rotoplas underground tanks have been independently tested using a simulated engineering analysis (Finite Element Analysis). It is important to follow installation instructions carefully as incorrect installation will void all warranty.

### **ANTI BUOYANCY BALLAST**

Rotoplas Underground tanks have been tested in accordance with AS1546.1, however the correct backfill instructions must be followed (see below).

In conditions of high water table, external ballast will be required to resist the upward buoyancy forces that groundwater exhibits. Installers must recognise that these tanks when empty will float on approximately 50mm of water. The most convenient ballast is site poured concrete. The calculation of the volume of concrete ballast required is not covered in this document. These instructions suggest a minimum ballast requirement. A certified civil engineer should be engaged to carry out this calculation. Drainage should also be considered at the base of the tank to remove any groundwater.

### **SURFACE LOADS**

Light duty polyethylene access covers are rated for 500kg top loading and are not suitable for vehicular traffic. If a tank is to be located in an area subject to vehicular traffic a certified cast iron cover must be used. The polyethylene pump station roof and walls have also been tested to withstand a top loading of 500kg. If heavier wheel loadings are to be encountered special design consideration must be given to the surface slab, which must provide a full reinforced bridge support to transmit slab loads to virgin ground. In this case, the services of a qualified civil engineer should be engaged to provide adequate slab design. Loads greater than 510kg must not be transmitted to the polyethylene pump station roof or walls.

### **TEMPERATURE**

Above 50 degrees C the characteristics of polyethylene begin to change. Extreme care must be exercised when installing tanks in hotter weather. After installation into the excavated hole, the tank must be stabilised to around 25 degrees C by filling with water and allowing to cool for a period of 24 hours before backfilling operations begin. Failure to do so could cause the tank walls to deform as backfill is allowed to rest against the polyethylene when it is too hot.



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### PRE-INSTALLATION CHECKS

1. After unloading inspect the tank for any damage during transportation and lifting. Should any surface damage be evident, this must be reported to us before proceeding further with the installation.
2. Installation should be carried out by experienced and qualified tradespersons.
3. Before digging, call any relevant authorities to locate underground services.
4. The installation of a tank for sewage or water storage may require prior approval of local authorities. Contact your local council or relevant authority to ensure you meet all approval requirements.
5. Make sure you have all the necessary equipment and supplies to complete the installation.
6. Finish ground level in relation to tank lid, as tank risers are not generally recommended.

### INSTALLATION

1. The hole for the tank should be no greater than 250mm to 300mm oversize to tank diameter, with due regard to the amount of concrete or backfill to be used under and around the tank.
2. It is suggested that the base of the excavation be drained, especially in water charged ground, before, during and until concrete encasement has set, to hold the tank securely in the ground.
3. Lay a minimum of 100mm of 20mpa concrete in the bottom of the hole, complete with two layers of M81 reinforcing mesh.
4. Lower the tank into the hole while the concrete is still a slurry. Ensure no rocks or sharp objects fall into the hole as damage to the tank could occur.
5. Where hold-down holes are provided in the base of the tank, fit 16mm x 300mm reo bars to penetrate the concrete slurry to stop the tank base moving. Additional concrete may be required to lock reo bars firmly into place.
6. Level and adjust tank to suit installation conditions. Secure with stabilising bars or timbers to hold in place.
7. Fill tank with water to level of required concrete ballast according to engineer recommendations. If ambient temperature is high, the tank should be left in place (filled with water) for 24 hours before backfilling operations commence. Allow concrete to set before proceeding further.
8. Encase tank with concrete to meet requirement above and to at least halfway between first and second rib. Ensure tank remains full of water.
9. Connect pipes with minimum earth cover as per AS3500. **(inlet 300mm and outlet 220mm)**
10. Blue metal gravel backfill material should be placed around the outside of remaining wall to ensure uniform wall loading. Uneven backfill must not be used. **The backfill must be even and porous, to allow free draining of water away from tank wall. If free draining of groundwater is unlikely, then concrete should be poured up the full height of the tank wall.**
11. Back fill material must not exceed 100mm from underside of lid when fitted with cast iron lids.
12. If a surface concrete slab is required at ground level it should now be poured to cover the neck of the tank and access cover should be fitted.
13. Lids must not be buried at any time.
14. The water used to stabilise the tank during back filling may now be pumped out.