

Synergy Wastewater Treatment Products.

Granular Backfill Installation Guidelines, for GRP Cylindrical Tanks

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These guidelines represent best practice for the installation of Synergy cylindrical tanks. Many years of specialist experience has led to the successful installation of thousands of units. It must be noted, however, that these guidelines are necessarily of a general nature. It is the responsibility of others to verify that they are appropriate for the specific ground conditions and in-service loads of each installation. Similarly, a qualified specialist (e.g. civil engineering consultant or certified installer) must verify any information or advice given by employees or agents of Synergy regarding the design of an installation.

BEFORE INSTALLING YOUR TANK

- Ensure ground porosity is suitable for granular backfill, i.e. free-draining and that the maximum ground water level does not rise to within 30cm of the base of the excavation at any time of the year.
- Inspect tank for damage before installation. Our tanks have been fully tested before despatch from our factory. Once the tank has been installed, we cannot accept claims for damage.
- Check that you have the correct invert drain depth (neck height) of tank. A label indicates the maximum permissible depth.
- Check orientation and heights of inlet and outlets.

DO:

- Use the correct backfill material.
- Fit the correct lockable cover & frame (pedestrian duty only).
- Consider drainage falls, generally 1 in 60/70 between house and tank and max, 1 in 200 for irrigation system.
- Lift the tank using adequately rated Strops and Shackles through the Lifting Lugs fitted to the top of the tank. NB: - Use **all** of the Lifting Lugs. On Tanks without Lifting Lugs, use suitably rated webbing Strops under the belly of the tank. Ensure that the Strops are positioned to lift the tank true & level.

DO NOT:

- Subject the tank to impact or contact with sharp edges.
- Add neck extensions to the tank, nor, build a brick manhole above the tank neck (as this increases burial depth of the tank). We do not recommend extending the neck of the tank under any circumstances.
- Install tank deeper than the depth that the fitted neck will allow.
- Install in trafficked areas.
- Site the tank so that it is subjected to excess ground pressure (e.g. sloping sites) or applied loads such as may be generated by the proximity of vehicular traffic.
- Lift using only one of the lugs.
- Fill an unsupported tank.

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INSTALLATION

Where ground water lies below base of tank at all times throughout the year and ground is free draining.

1. Excavate a hole at least 250mm wider and 300-400mm deeper than the tank, with additional allowance for any compacted hardcore & necessary shuttering.
2. The tank must be bedded in concrete. Lay a bed of concrete (minimum 300mm thick) at the base of the excavation.
3. Lower the tank onto the concrete bed, ensuring that the inlet and outlet are in the correct position.
4. Ensure the tank is upright, then ballast it with water, to a maximum of 500mm deep.
5. Haunch up the concrete bed all round the base by a further 300mm ensuring that all voids in the concrete are eliminated, and at least 250mm of concrete is left below the tank base. I.e. a minimum total of 550 mm of Concrete from underside of base slab to top of concrete surround.
6. Backfill to invert depth with 10mm pea-shingle or similar non-angular, non-cohesive and non-compressible, rounded, free-flowing material. Ensure that the water level inside the tank is maintained approx. 250-500mm above the backfill level. Backfill evenly all round the tank. **DO NOT USE SAND OR SITE SPOIL AS A BACKFILL MATERIAL.**
7. Align and connect pipework.
8. Continue backfilling to ground level. Care must be taken to avoid distortion of the neck when backfilling this area. Use either a temporary brace to support neck from inside or use a suitable frame.
9. Trim the tank neck to ground level using suitable and safe equipment. Do not cut the neck to less than 350mm above the inlet invert. 450mm is the recommended minimum invert depth for frost protection of pipes.
10. Fit access cover and frame (pedestrian duty only). Apply surface finish e.g. turf.

MATERIAL SPECIFICATIONS

Pea Shingle –

6mm-10mm rounded pea-shingle offering low point loading characteristics is the most suitable material for backfilling tanks.

The concrete mix specification may be taken from BS 5328: Part 1:1991 (inc. amendments). Take into account the site conditions and application requirements. For a typical non-structural application in non-aggressive soils a standard mix of ST4 with a 50mm slump is generally suitable, but also permits the equivalent Designated Mix GEN3 to be specified as an alternative. If for non typical applications, structural or other site specific reasons a higher designation is required then the installer may use table 6 in BS 5328: Part 2:1991 (amendment 8759/October 1995) for guidance.

SITING CONSIDERATIONS

Synergy tanks are not designed to accept any traffic loads. A minimum traffic clearance must be provided. If this is not possible the tank must be protected from superimposed loads, e.g. by a reinforced concrete surround and provided with an appropriate cover, which must not bear on the structure of the tank. Please contact a consultant civil engineer.

For frost protection a minimum invert depth of 450mm is recommended.

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