



GRP Tank Installation Manual

The information contained within this Installation Guidance Manual is provided for general information purposes only and does not take into account any specific requirements resulting from your particular location and/or site, of which Water Technology Engineering Limited has no knowledge.

Whilst we endeavour to keep the information up to date and correct, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy or reliability of the information contained within the Installation Guidance Manual.

Special attention should be paid to the siting of the tank as damage may be caused to the exterior as a result of inappropriate siting. We would advise that due to the wide variety of possible ground conditions, specialist installation advice should be sought from a suitably qualified professional as to the appropriate installation method for your particular location/site.

It is the responsibility of whoever is instructed to install the tank, to ensure that the installation method and materials used are suitable for the Tank and specific location/site conditions at all times of the year.

Water Technology Engineering Ltd do not accept liability for any loss or damage caused as a result of the customer's failure to ensure appropriate siting of the tank or of an unsuitable, inappropriate or incorrect installation.



Installation Record Sheet

Once completed, a copy of this sheet must be returned to WTE either by post (WTE Ltd, Blackberry Farm, Fog Lane, Ellerton, YO42 4PU) or email (sales@wte-ltd.co.uk).

All boxes must be filled in in order to validate the warranties.

WTE Reference This can be found at the top right hand side of the Delivery Note	
SITE	
Contact Name	
Address	
Post Code	
Contact Phone Number	
Contact Email	
INSTALLATION	
Date	
Company	
Name of Installer	
Company / Installer Address	
Phone Number	

Health & Safety

Sewage poses a serious risk to health.

Pathogens in sewage and wastewater can lead to many diseases such as:

Campylobacteriosis	Hepatitis A	Shigellosis
Cryptosporidiosis	HIV	Paratyphoid Fever
Escherichia coli Diarrhoea	Leptospirosis	Typhoid Fever
Encephalitis	Methaemoglobinaemia	Yersiniosis
Gastroenteritis	Poliomyelitis	
Giardiasis	Salmonellosis	

Every precaution should be taken to ensure a safe working environment.

Site Assessment

Site assessment is required to obtain sufficient information to determine if the site is suitable for a Sewage Treatment Plant and/or drainage field.

Pre Installation Checks

- Is the site in a groundwater protection zone? This may prohibit a drainage field on the site. WTE Ltd or the Environment Agency can provide this information.
- Depth of winter groundwater table. The depth of the groundwater table at its highest point during the year is important for both the installation and drainage field if applicable. This must be assessed prior to installation.
- Percolation tests must be performed to BS6297:2007 and Section H2 of Building Regulations prior to the installation of a drainage field

Locating the Tank

The table below outline the distance that the Tank should be from various features. This is intended as guidance and clarification should be sought from Building Control.

Please note that some Tanks (Septic Tanks, Separators, etc.) require servicing and desludging by a tanker and should be located no further than 30m from a vehicle access point

Tanks

Feature	Distance (m)
Habitable Building	7
Site Boundary	2
Road	4

Tanks are designed for pedestrian traffic only. Adequate protection should be given to avoid super-imposed loads. Vehicles must be restricted from the region surrounding the Plant.

Vehicles should maintain a distance equal to the depth of the excavation unless the necessary structural protection around the tank has been provided.

Suitable fencing to prevent access by children and animals may need to be erected.

Receipt of Goods

Upon delivery all goods must be inspected for damage and to ensure that all components are present.

If the Tank tank is damaged or any of the components are damaged or missing then this must be recorded on the P.O.D. (proof of delivery document) and WTE Ltd must be notified immediately.

If goods are damaged or items are missing but the P.O.D. has been signed for as undamaged and complete WTE Ltd will be unable to exchange the goods in question or supply additional items free of charge.

If the tank is not going to be used immediately, the blower housing and all electrical components must be stored in a dry place.

Handling & Storing

The tank should not be lifted if it contains water / wastewater.

When lifting the tank the lid(s) should be in place to prevent distortion.

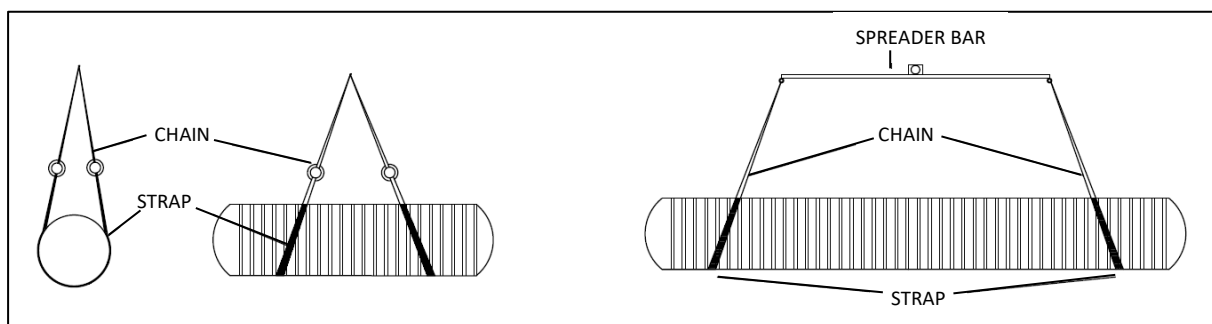
The angle of the lifting straps must not exceed 60° in order to eliminate excessive compressive loads on the side of the tank.

Do not use chains or wire rope to lift the tank.

Tanks must be lifted from underneath using rated straps.

Tanks must not be lifted using chains or wire rope.

A spreader bar must be used for tanks 8m or longer.



Do not drag or roll tanks.

Tanks must be stored on a smooth, level and stable surface to prevent damage from point loads.

Tanks must be chocked to prevent rolling.

In windy conditions, tanks may be strapped down to prevent damage.

Tanks Specification/Duty

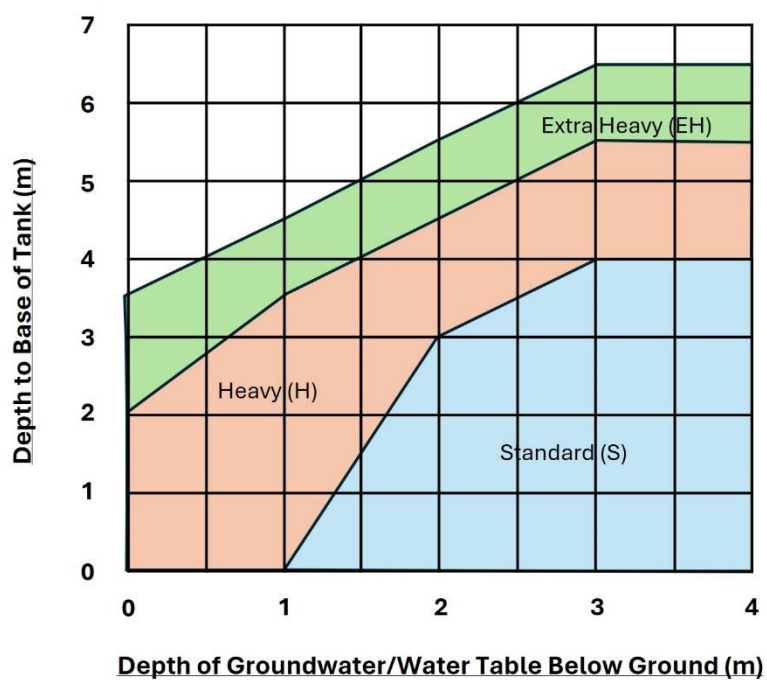
WTE GRP Tanks are designed to be installed below ground and surrounded with concrete.

WTE tanks made in GRP are available in three different shell thicknesses:

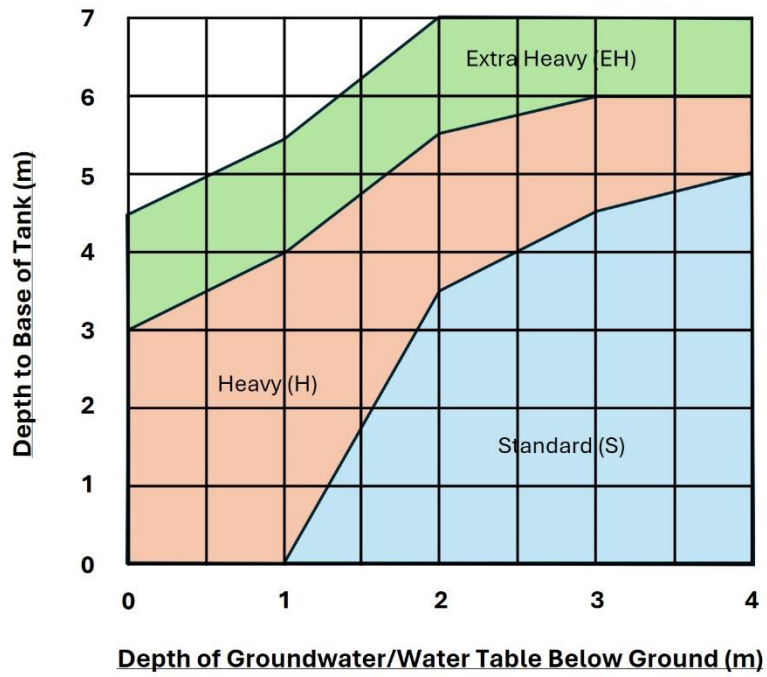
- Standard (S) Duty
- Heavy (H) Duty
- Extra Heavy (EH) Duty

The tables below give the capabilities of each specification.

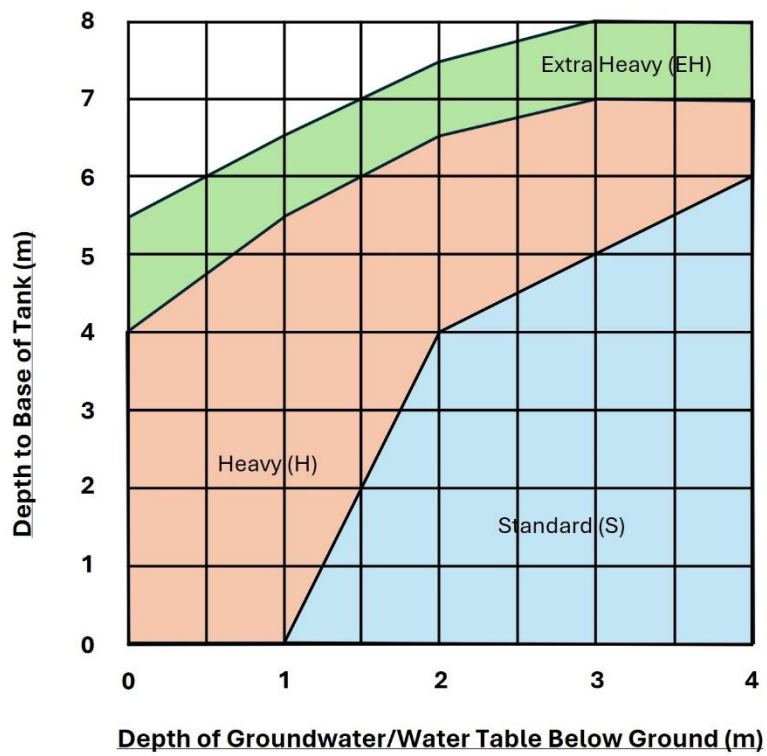
1m to 1.9m Diameter Tanks



2.6m Diameter Tanks



3.1m Diameter Tanks



Should you be in any doubt regarding suitable shell application please call our technical sales office on +44 (0) 1759 369 915.

If the tank is installed outside these parameters, it may suffer irreparable damage.

Concrete

The specification for the concrete mix to surround the tank may be taken from BS 5328: Part 1: 1991 (including amendments), considering the site conditions and application requirements.

For a typical non-structural application in non-aggressive soils a standard mix 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 reasons a higher designation is required. Table 6 in BS 5328: Part 2: 1991 (amendment 8759/October 1995) can be used for guidance.

Determine the lift height (m), or rate of rise (m/h) for the specific concrete type used, to ensure that a design pressure (P max) of 15kN/m^2 on the tank is not exceeded.

A vibrating poker must not be used during installation. Concrete must be tamped by hand to eliminate voids.

Under no circumstances should concrete be discharged directly onto the tank.

Do not undertake any concrete work if the temperature is likely to drop below freezing within the following 24 hours.

Trafficked Locations

By default, WTE GRP Tanks are designed to be installed in pedestrian loaded areas.

If the tank is installed in an area where traffic or other superimposed loadings can be applied, consult a structural engineer for the design of a reinforced concrete slab to prevent the load being transmitted to the tank (or its concrete surround).

If this slab is constructed immediately above the tank, it should be separated from the concrete surrounding the tank by a compressible material.

Installation - Below Ground

Excavate a hole to the minimum dimensions as shown in the information below.



Tank Diameter (mm)	A minimum (mm)	B minimum (mm)
1,100	150	150
1,300	150	150
1,600	200	200
1,900	250	250
2,600	300	300
3,100	300	300

The concrete backfill must be sufficient to resist buoyancy. The above dimensions are the minimum.

Ensure that the excavation sides are properly and fully supported throughout the works, with all water being pumped away to ensure that the excavation is kept dry.

Place concrete onto dry formation to a depth as given above.

If the ground contains high levels of contaminants, including for example sulphate or chloride, this concrete mix will not be suitable. In these circumstances the advice of a qualified civil or structural engineer should be sought.

Compact and finish with a tamped and level surface.

Place the tank onto the concrete formation.

Ensure the tank is level and connect the outlet and inlet pipes as necessary.

Fill each chamber with 300mm of clean water.

Ensure the tank is secure and surround the tank with concrete.

Do not pour backfill material directly onto the tank.

The concrete surround should be poured in 200mm layers with each layer being tamped by hand to eliminate voids. A vibrating poker must not be used.

Continue to fill the tank with water during backfill and ensure that internal water level is 100-300mm higher than the external concrete.

Allow an initial set of the concrete between lifts and wait at least 24 hours for the concrete to harden.

Continue backfilling with concrete in 200mm lifts.

During backfilling the lid(s) should be closed to prevent the backfill material from being poured into the Tank. This is also required to ensure that the tank retains its shape.

Finish with a hand tamped level surface.

Once the concrete has set the excavation should be backfilled with gravel. Filling is to be undertaken uniformly on each side to prevent uneven loading on the tank.

Ensure excavation is kept free from water for at least 3 days (may reduce to 1 day in very warm weather). This is to allow the concrete to set.

The water in the tank must remain in place until the concrete has fully cured.

If a duct is required it must be laid from the 110mm connections on the turret of the tank to the required position.

Ducts are required for ventilation, electric cables and/or air hoses.

Once the above elements have been pulled through the duct and connected, the duct must be sealed at both ends with expanding foam.

Saturated Site Installation

Installation on a saturated site follows the above method however the concrete backfill must terminate closer to ground level.

The exact mass of concrete required is site specific and engineering advice must be sought if necessary.

Installation – Above Ground

Above ground installation is only possible with Above Ground (AG) specification tanks.

The tank must be placed a smooth, level and stable base. This base must be suitable for the site specific ground conditions and soil structure. It must also be suitable for the operating weight of the Tank.

The tank must be able to distribute its weight evenly across the whole base.

The base must be free of any sharp objects or other objects that may puncture the tank.

A 200-300mm reinforced concrete base is often the preferred option for most sites.

Ventilation

Some tanks will produce methane and other gasses that **must** be vented out of the tank.

If required, a vent can be taken from one of the 110mm connections on the turret.

Alternatively, a 110mm vent can be spurred off either the inlet or the outlet pipe (gravity outlet tanks only).

Servicing & Repairs

Routine servicing is required for some types of tank (sewage treatment plants, separators, pump stations, etc.).

Maintenance and repairs to your tank should be carried out by WTE approved contractors. Please contact our office on **+44 (0) 01759 369 915** for details of your nearest trained contractor.