
012040
INSTALLATION GUIDELINES FOR
SPHERICAL ALPHA TANK
(SEPTIC & CESSPOOLS)



Kingspan Environmental Service Contact Numbers:

GB: 0844 846 0500

NI: 028 3025 4077

IRL: 048 3025 4077

Enclosed Documents

DS0552P	Alpha Septic 2800L, 3800L, 4600L
DS0877P	Alpha Cesspool 2800L, 3800L, 4600L

Issue	Description	Date
03	CC682	February 2009
04	CC1014: WAS GL0039P	May 2012
05	CC1070	August 2012
06	CC1418	March 2018

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HEALTH AND SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can become acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following the guidelines supplied with the equipment.

We recommend the use of a dust mask and gloves when cutting GRP components.

A qualified electrician should carry out electrical work.

Sewage and sewage effluent can carry micro-organisms harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Covers must be kept locked.

Observe all hazard labels and take appropriate action to avoid exposure to the risks indicated.

The correct ongoing maintenance is essential for the proper operation of the equipment. Service contracts are available and recommended. Please contact Kingspan Environmental Services on 0844 846 0500 for details of your local service provider.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

Ensure that you are familiar with the safe working areas and accesses.

Ensure that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

CE CERTIFICATION



**Kingspan Environmental
College Road North
Aston Clinton
Aylesbury
Buckinghamshire
HP22 5EW
United Kingdom**

12

EN 12566-1 : Small wastewater treatment plant: prefabricated septic tanks

GRP Glass Reinforced Plastic Septic Tank

Alpha Septic Tanks 2800L, 3800L & 4600L.

Nominal Capacity	2.8m³, 3.80m³, 4.6m³.
Watertightness (Water Test)	Passed
Structural Testing (Vacuum)	Passed
Hydraulic Efficiency	<5g of beads

CERTIFICATE



PERFORMANCE RESULTS

Kingspan Environmental College Road North, Aston Clinton Aylesbury, Buckinghamshire, HP22 5EW, Great Britain	part of which is	Envirocare Pollution Control Dundalk Road, Carrickmacross Co Monaghan Ireland

EN 12566-1

Part 1: Prefabricated septic tanks

Results corresponding to the Irish National Annex for IS EN 12566-1

Alpha Septic Tank

Material	glass reinforced plastic
Durability	pass
Crushing resistance (pit test)	pass
Watertightness (water test)	pass
Nominal capacity (usable volume) (water test)	2 m ³ (2,799 l), 3 m ³ (3,809 l), 4 m ³ (4,597 l)
Hydraulic efficiency (Annex B)	99.50 %

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
 (PIA GmbH)
 Hergenrather Weg 30
 D-52074 Aachen

Certified according to
 ISO 9001:2008



Notified Body number: 1739



This document replaces neither the declaration
 of conformity nor the CE marking.

Prüfinstitut für Abwassertechnik GmbH
 Geprüft - tested - teste

Elmar Lancé

March 2012



PERFORMANCE RESULTS

Kingspan Environmental

College Road North, Aston Clinton
Aylesbury, Buckinghamshire,
HP22 5EW, UK

part of
which is

Klargester Ireland

Unit 1, Derryboy Road, Cambane
Industrial Estate, Newry,
Co. Down, BT35 6QH, UK

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ENGINEERING & PROCESS

These Guidelines represent Best Practice for the installation of Kingspan spherical 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 Kingspan regarding the design of an installation.

Septic tanks receive crude sewage, which is a mixture of solids and liquids. An Alpha tank uses special dip pipes designed to maximise separation.

The sewage enters through the inlet pipe which, in conjunction with the similar outlet pipe ensures minimal short circuiting and maximum solids capture. EN 12566-1 Certified Hydraulic Efficiency of 99.5%. A copy of the certificate is on page 3.

The septic tank is always full. As raw mixed sewage is added, so clarified effluent is displaced. By ensuring that the optimum flow conditions exist, we minimise the release of particles to the soakaway. This is very important as the fewer particles released, the longer the irrigation system will operate and these are expensive to replace once blocked. Alpha tanks release only a fraction of the number of particles when compared under identical test conditions with other equipment.

Cesspools are containment vessels within which no treatment is intended, therefore discharges are not possible. Cesspools are storage vessels with no outlet. They must be emptied when full.

BEFORE INSTALLING YOUR TANK

- Ensure Building Regulation approval.
- Ensure ground porosity is suitable (for septic tank).
- 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.
- Ensure access for desludging tanker.
- Check orientation and heights of inlet and outlets.
- Check that the tank is suitable for its application. Septic tanks and cesspools should not be used for silage effluent, chemical toilet waste or any other chemicals. Consult our Technical Sales Department if in doubt.

DO:-

- Use the correct backfill material.
- Site tank at furthest practical location from habitable dwellings. Most building regulations recommend a minimum of 7metres.
- Fit the correct cover & frame.
- Consider ventilation arrangements.
- Consider drainage falls, generally 1 in 60/70 between house and tank and max. 1 in 200 for irrigation system.
- Ensure the land irrigation drain, terminates a minimum of 10 metre distance from any water course.
- Lift the tank using ropes or webbing slings of suitable specification through both of the designated lifting points, fitted either side of the tank body.
- Use lifting equipment selected by taking into account the unit weight, length and the distance of lift required on site

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 without a suitable backfill design.
- 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 eyelets.
- Use chains.
- Fill an unsupported tank.
- Backfill an empty tank.

INSTALLATION OF SEPTIC TANKS INTO WET GROUND CONDITIONS AND CESSPOOLS INTO ALL GROUND CONDITIONS

- 1.) Excavate a hole to appropriate depth allowing at least 300mm for concrete and hard-core base. Allow for tank width plus at least 400mm with additional allowance for any necessary shuttering.
- 2.) If required, de-water the excavation using suitable pumping equipment. Ensure that the pump discharge does not saturate the ground in the immediate vicinity. De-watering is to continue until you are satisfied that the concrete has cured.
- 3.) Lay at least 150mm of hard-core in the base of the excavation. Line the complete excavation with polythene sheeting, if wet site. (Wet site is where ground water lies above the base of tank at any time or in slow draining clay soils.
- 4.) Lay a bed of concrete (minimum 150mm thick) on top of the polythene at the base of the excavation.
- 5.) Lower the tank onto the concrete bed using lifting eyes on the tank body, ensuring that the inlet and outlet (septic tank only) are in the correct position.
- 6.) Ensure the tank is upright and level.
- 7.) Commence filling the tank with water whilst back filling with concrete, in lifts. It is important that these two operations are carried out simultaneously to avoid the risk of floatation and minimizes the applied loads to the tank,
- 8.) Ballast it with water to a maximum of 500mm deep.
- 9.) Haunch up the concrete bed at least 450mm all round the base, ensuring that all voids in the concrete are eliminated and at least 150mm of concrete is left below the tank base.
- 10.) .
- 11.) Backfill to the invert depth with concrete. Ensure that the water level inside the tank is maintained no more than 200mm above concrete backfill level. Backfill evenly all round the tank, consolidating in layers. The backfilling should start before the base has hardened and be a single continuous operation so that the tank has a full concrete jacket without joins.
- 12.) DO NOT use vibrating rammers to consolidate concrete. DO NOT discharge concrete directly on to tank.
- 13.) Align and connect pipework. The septic tank inlet pipe should be least 25mm above the outlet pipe.
- 14.) Build up a shell of concrete around neck of tank to 150-200mm thickness before completing the backfill with a suitable material. Care must be taken to avoid distortion of the neck whilst concreting this area. Support the neck with a temporary internal brace or frame. (Covers & frames are available for separate purchase).
- 15.) Trim the tank neck to ground level using a fine toothed saw. 450mm is the recommended minimum invert depth for frost protection of pipes. Do not cut the neck to less than 350mm above the inlet invert.
- 16.) Fit cover and frame. Apply surface finish e.g. turf.
- 17.) Do not empty tank until the concrete backfill has cured. Septic tanks may be left filled with water, this will be displaced as sewage enters. Cesspools may be emptied once the concrete has cured.

INSTALLATION OF SEPTIC TANKS INTO DRY GROUND

Where ground water lies below base of tank at all times and ground is free draining.
Important - Cesspools must be installed using the wet ground method.

1. Excavate a hole at least 300mm wider and 150mm deeper than the tank, with additional allowance for any necessary shuttering.
2. The tank must be bedded on concrete. Lay a bed of concrete (minimum 150mm thick) at the base of the excavation.
3. Lower the tank onto the concrete bed, using the lifting eyes on the tank body, ensuring that the inlet and outlet are in the correct position.
4. Ensure the tank is upright and level,
5. Commence filling the tank with water whilst back filling with concrete, in lifts. It is important that these two operations are carried out simultaneously to avoid the risk of floatation and minimizes the applied loads to the tank,
6. Then ballast it with water, to a maximum of 500mm deep.
7. Haunch up the concrete bed at least 450mm all round the base, ensuring that all voids in the concrete are eliminated and at least 150mm of concrete is left below the tank base.
8. Use webbing slings of suitable specification through both of the designated lifting/holding down points, fitted either side of the tank body to secure tank in place.
9. Backfill to invert depth with pea-shingle or similar non cohesive and non compressible, rounded, free-flowing material. Ensure that the water level inside the tank is maintained approx. 200mm above the backfill level. Backfill evenly all round the tank. **DO NOT USE SAND OR SITE SPOIL AS A BACKFILL MATERIAL.**
10. Align and connect pipework. The septic tank inlet pipe should be least 25mm above the outlet pipe.
11. 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. (Covers & frames are available for separate purchase).
12. Trim the tank neck to ground level using a fine toothed saw. 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.
13. Fit access cover and frame (pedestrian duty only). Apply surface finish e.g. turf.
14. Leave septic tank filled with water, this will be displaced as sewage enters.

MATERIAL SPECIFICATIONS

Concrete –

GENERAL CONCRETE SPECIFICATION IN ACCORDANCE WITH BS EN 206-1 (BS 8500-1)	
TYPE OF MIX	(DC) DESIGN
PERMITTED TYPE OF CEMENT	BS 12 (OPC); BS 12 (RHPC); BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)	BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE	20 mm
GRADES: C25 /30 C25 /30 C16 /20	REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20 270 - 280 Kg/M ³ 220 - 230 Kg/M ³
SLUMP CLASS	S1 (25mm)
RATE OF SAMPLING	READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS EN 12350-1
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER	

Pea Shingle -

3mm-8mm rounded pea-shingle offering low point loading characteristics is the most suitable material for back filling tanks.

Polythene Sheet -

Building Quality 500 gauge.

CONNECTING PIPEWORK / TRENCHING / INSPECTION CHAMBERS / VENTILATION ARRANGEMENTS

Building regulations provide guidance as to the specification of materials used and fitted. It is important that these are consulted and complied with as the operation of the septic tank/cesspool can be adversely affected. No surface water should be allowed to enter a septic tank system as this impairs its performance and affects the size of unit selected. Surface water should also be excluded from cesspools as it can seriously affect emptying frequency.

The septic tank is part of a foul water system and toxic wastes should not be permitted to enter. All household chemicals may be used in moderation but the user should be aware that excess use may affect the performance and lead to odour problems and increased desludging requirements. Do not use septic tanks or cesspools to dispose of Motor Oils, Grease, Paint, Thinners, Chemical Toilet Waste, Photographic Developers or similar chemicals.

Desludge septic tanks at least annually. Empty cesspools as required. Owners have a responsibility to use licensed waste contractors.

SELECTION AND SITING

Before specifying or installing a tank you should consider the following points:

A Septic Tank System comprises a Septic Tank, a suitable Cover & Frame and a Sub-surface Irrigation/Distribution System (soakaway system).

Cesspools are storage vessels with no outlet. They must be emptied when full. Septic tanks and Cesspools are not suitable for chemical toilet waste or silage effluent.

Before specifying or installing a tank you should consider the following points:

- If there is insufficient area or the ground is not suitable for the construction of an effective sub-surface irrigation system, a septic tank will not function and some other means of sewage disposal must be used. Please consult Tekserv for detailed guidance on assessing ground conditions and soakaway design.
- A septic tank discharge requires permission from the Environment Agency (England and Wales), the Scottish Environmental Protection Agency or Local Authority Public Health Department (Ireland).
- Planning permission and Building Regulation approval may be required.
- Building Regulations require the tank/system to be sited to avoid contamination of water supplies. We suggest that septic tanks and cesspools should be sited at the maximum practical distance from the property(ies). Where possible they should be sited a minimum of 15 metres from any dwelling and 25 metres is suggested in the regulations.
- If your sewage results from a commercial source, i.e. from a pub or restaurant, then you may require a grease trap, installed on a separate drain, prior to the septic tank. Please contact us for guidance.
- Roof and surface water drains must not be connected to any tank system, but should be connected to a separate soakaway.

SEPTIC TANK SELECTION - Size and invert depth.

The number of people using the facility, and the level at which it is to be installed governs the tank model selected. We supply 1.0 metre invert depth - 1.5 metre invert depth available to order. The figures given below are for domestic households. For advice on other situations such as office developments please contact us.

Septic Tank Volume in litres	Max. number of full-time residents (assuming a flow of 180l/person/day)	Minimum protected radius Drain depth plus * m
2800	4	*2.1
3800	10	*2.4
4600	14	*2.6

SITING CONSIDERATIONS

Where possible, take advantage of site gradients to minimise the invert depth at the tank inlet, as this will reduce excavation. The tank neck can be trimmed to suit, subject to retaining a minimum of 350mm above the inlet invert. For frost protection a minimum invert depth of 450mm is recommended.

Septic tanks require desludging at least annually, possibly more frequently for tanks serving multiple properties. Cesspools must be emptied when full. Tanks should be sited within 30 metres of a hard standing area to provide suction tanker access. The vertical distance from the base of the tank to the ground level of the hard standing area should be less than 5 metres.

Avoid siting tanks in sloping ground, as this can cause excessive ground pressure on the tank. Alpha tanks are not designed to accept any traffic loads. A minimum traffic clearance must be provided as indicated in the table above. 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.

Pumping systems are available, (details on request) to raise the discharge from a septic tank to a soakaway system at a higher level.

Building Regulations require the system to be adequately ventilated.

Tanks allow ventilation via the soil stack at the head of the drains. An additional local air inlet can be fitted to the tank where circumstances require it. If there is no open soil stack (e.g. drainage systems with air admittance valves only), then the septic tank must be independently vented. The direction of the prevailing wind in relation to the property(ies) should be considered when selecting the tank site.

For dimensions of the tanks and inspection cover refer to sales drawings.

We recommend the installation of inspection chambers down stream of the Septic Tank so that the effluent quality and soakaway system can be checked.

Inspection Cover

- The inspection cover is mounted to a plastic frame and held in position with four screws.
- Adequate venting must be installed with the tank as sales drawings DS0552 and DS0877.

Installation

- Ensure the inlet pipe and the access shaft is set at the correct height.
- Cap off the outlet pipe.
- Place concrete around the vent and access shaft.
- Set the moulded frame into position.
- Frame can also be screwed in place on the concrete slab by drilling holes on the inner frame.
- Fix access cover into the frame.

WARRANTY

Taken from 'Kingspan's Terms & Conditions of Sale'

The company will replace or, at its option, properly repair without charge any goods which are found to be defective and which cause failure in normal circumstances of use within a period of twelve months from the date of delivery.

This warranty is conditional upon:

- (a) the Buyer notifying the Company of any claim within Seven days of the failure becoming discernible.
- (b) the Company being allowed a reasonable opportunity to inspect the goods so as to confirm that they are defective.
- (c) the goods not having been modified, mishandled or misused and being used strictly in accordance with any relevant instructions issued by the Company.

The Company's liability under this Clause is limited to the repair or replacement of the defective goods, and does not cover costs of transport, installation or associated site costs, if applicable.

The Company's liability to replace or repair the goods is in lieu of and excludes all other warranties and conditions, and in particular (but without limitation) the Company shall have no liability of any kind for consequential loss or damage.

For any further advice, please contact the Warranty department on 0844 225 2785

A Warranty Form is included in this package, to register your unit for Warranty. Please complete ALL sections of the Form, and return it at your earliest convenience.

Also within this document are Notices, describing the necessary maintenance of the plant in use. This should be fixed within the building.

Our service provider: Kingspan Environmental Services: 0844 846 0500

NOTICES:



KINGSPAN SEPTIC TANK

The foul drainage from this property discharges to a Septic Tank and an irrigation system / soak-away.

The tank requires monthly inspections of the outlet chamber or sample chamber to observe that the effluent is free-flowing and clear. The soak-away should also be inspected regularly.

The septic tank requires emptying at least once every 12 months by a licensed contractor.

THE OWNER OF THE PROPERTY IS LEGALLY RESPONSIBLE FOR ENSURING THAT THE SYSTEM DOES NOT CAUSE POLLUTION, A HEALTH HAZARD OR A NUISANCE.

We recommend that a separate log is kept of all service visits, the log should detail the date and any action taken, e.g. Regular maintenance service, breakdown visit, de-sludge volume removed.

This notice should be fixed by the owner within the building alerting current and future owners to the maintenance requirement. (Building regulation H2 (1.57))

Please contact Kingspan Environmental Services on +44 (0) 844 846 0500 to arrange a maintenance service or to request replacement operating instructions.



KINGSPAN CESSPOOL

The foul drainage from this property is served by a cesspool.

The system should be emptied when full by a licensed contractor and inspected fortnightly for overflow.

THE OWNER OF THE PROPERTY IS LEGALLY RESPONSIBLE FOR ENSURING THAT THE SYSTEM DOES NOT CAUSE POLLUTION, A HEALTH HAZARD OR A NUISANCE.

We recommend that a separate log is kept of all service visits, the log should detail the date and any action taken, e.g. Emptying volume and frequency.

This notice should be fixed by the owner within the building alerting current and future owners to the maintenance requirement.

(Building regulation H2 (1.57))

Please contact Kingspan Environmental Services on +44 (0) 844 846 0500 to arrange a maintenance service or to request replacement operating instructions.