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Shallow Dig Cess Pools & Silage
Installation & Maintenance Guidelines

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Enclosed Documents

DS1214	**Guernsey Shallow Dig Cess Pools (5700, 7150 & 9150 Litres)**
DS1219	**Shallow Dig Cess Pools (2800, 3800, 4800, 5700, 7150 & 9150 Litres)**
DS1220	**Shallow Dig Silage Tanks (2800, 3800, 4800, 5700, 7150 & 9150 Litres)**
DS1336	**Shallow Dig Cess Pools (2800, 3800, 4800, 5700, 7150 & 9150 Litres) - Norway**

Issue	Description	Date
05	ECR189 / ECN1626 – Remove Tank Feet	September 2022
04	ECN - 1621	September 2022

HEALTH & 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 be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following these guidelines.

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

Electrical work should be carried out by a qualified electrician.

Contaminated surface water can contain substances 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.

Access covers should be selected with reference to the location of the unit and traffic loads to be accommodated. These are not (normally) part of the unit's supply.

When covers are removed precautions must be taken against personnel falling into the unit.

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.

MAINTENANCE

The correct ongoing maintenance is essential for the proper operation of the equipment. Operators who rely on high level alarms to prompt them to empty the unit run the risk of polluting, should the alarm not work, hence the ongoing maintenance of the alarm systems is fundamental if pollution incidents are to be avoided.

The removal of sludge and liquid from the unit should be carried out by a contractor holding the relevant permits to transport and dispose of such waste. The contractor should refer to the guidelines in this document.

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1.0 Introduction

1.1 Kingspan shallow installation tanks are designed to be installed in areas where shallow dig depths are required due to minimal invert levels or difficult ground conditions. Typically, in areas where granite rock strata are close to the surface.

1.2 The tanks have either one or two manhole shafts for ease of emptying (please check your order),

1.3 Consult your local authority as the installation may require Planning and Building Control approval. In the UK, you will need to be aware of publication DETR 3/99 (Welsh office 10/99) “Planning requirement in respect to use of non mains sewerage incorporating tanks in new development and building regulations H2”. In Ireland, circular letter SP/03 for the protection of groundwater. These documents require detailed site assessments.

1.4 The tanks are covered within the UK by H2 Building regulations 2000. A building inspector may wish to examine the site before, during or after tank installation and may require site of percolation test results.

1.5 In Ireland, Building regulations 1997, Technical guidance document H details the regulations.

1.6 Tanks shall be of adequate capacity, impermeable to liquids and adequately ventilated.

1.7 Tanks should be so sited and constructed that they are not prejudicial to the health of any person, will not contaminate any watercourse, underground water or water supply. They must have adequate means of access for maintenance and emptying.

1.8 Buildings which utilise such tanks should have a notice affixed within the building. This notice should advise the estimated emptying frequency and the need to use a licensed waste disposal contractor. The owner is legally responsible for ensuring that the system does not cause pollution, a health hazard or a nuisance.

1.9 These guidelines represent Best Practice for the installation of the above units. 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) must verify any information or advice given by employees or agents of the company regarding the design of an installation.

2.0 Handling & Storage

2.1 Care must be taken to ensure that units are not damaged during delivery and handling on site.

2.2 The design requirements of our products will frequently mean that the centre of gravity of the unit is “offset”. Care must therefore be taken to ensure that the unit is stable when lifting. Rainwater may also collect inside units, particularly if they have been stored on site prior to installation, adding weight and increasing instability. Check units before lifting and pump out any excess water.

2.3 When lifting units, use webbing slings of a suitable specification. DO NOT USE CHAINS.

2.4 A suitable spreader bar should be used to ensure that units are stable and that loads are evenly distributed during lifting. When lifting units, a spreader bar should be used where the slings would otherwise be at an angle > 30 degrees to the vertical.

2.5 Lifting equipment should be selected by considering the unit weight, length and the distance of lift required on site.

2.6 We accept no responsibility for the selection of lifting equipment.

2.7 Whenever units are stored or moved on site, ensure that the storage location is free of rock, debris and any sharp objects, which may damage the unit. The units must be placed on ground, which is flat and level to evenly support the base of the unit. Do not roll units. The unit has two stability feet at its base.

3.0 Site Planning

The following points should be considered before installation of the equipment:

3.1 The installation should have Planning and Building Control approval. See DETR 3/99 Planning requirement in respect to use of none-mains sewerage in new development and building regulations H2.

3.2 Position the unit at the maximum distance from habitation. Distances in excess of 15m are usually the minimum acceptable to the planners, but this varies depending on your local authority. The installation must be sited so as not to be prejudicial to health, nor to contaminate water supplies.

3.3 See BS EN 752-4 Drain & sewer systems outside Buildings.

3.4 Consider placing inspection points in the drain line before the units.

3.5 Tanks and treatment systems installed in series should be set with appropriate falls between them. Allow a minimum of 50mm, if not more. Connecting pipework should never run uphill.

3.6 Consider venting of the unit. Comply with local regulations. Larger tanks serving multiple properties should have a vent fitted to the neck to enable localized high-level venting.

3.7 Uncontaminated run off such as roof and surface water should be excluded from the unit to avoid over frequent filling. Separate drains must be provided for surface water which must NOT enter the unit.

3.8 Our tanks are structurally tested in accordance with EN 12566-1, which specifies structural stability testing for both wet and dry sites using granular backfill 3-8mm. However, in GB it would be typical for tanks to be installed in concrete due to rising water table, and it can generally be assumed that buoyancy prevention of concrete backfill is more advantageous than the granular backfill materials used in testing.

3.9 Ground conditions and water table level should be assessed. If the water table will be above the base of the unit at any time of the year, adequate concrete backfill must be provided to avoid flotation. In poorly draining ground, consideration should also be given to the likelihood of flotation due to surface water collecting in the backfill, and an appropriate installation method devised to avoid this.

3.10 Do not install the unit deeper than necessary. The maximum invert depth of the unit is shown on the relevant equipment drawing.

3.11 Sample/Inspection chambers may be required.

3.12 Adequate access to the unit must be provided for routine maintenance. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.

3.13 There must be at least 1 meter of clear, level ground all around the access covers to allow for routine maintenance.

3.14 Provide electrical supply for alarm system. (If required)

3.15 Installation should only be carried out by suitably qualified and experienced contractors in accordance with current Health and Safety Regulations. Electrical work should be carried out by a qualified electrician, working to the latest edition of IEE.

3.16 Manhole covers and frames should suit the duty for the intended location.

4.0 Installation – General

4.1 When units are installed in unstable ground conditions where movement of the surrounding material and/or unit may occur, the connecting pipework should be designed to minimize the risk of damage from differential movement of the unit(s) and/or surrounding material.

4.2 The excavation must be deep enough to provide bedding and cover depth as determined by the type of surface pavement and loading. Asphalt and concrete pads should extend a minimum of 300mm horizontally beyond the unit in all directions.

4.3 In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the side walls of the excavation with suitable trench sheets and bracing systems to maintain a vertical wall from the bottom to the top of the excavation. DO NOT completely remove the shoring system until the backfilling is complete, but before the concrete fully hardens.

4.4 In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flood, the excavation should be dewatered using suitable pumping equipment and this should continue until the installation is complete.

4.5 During installation care must be taken to ensure that the body of any unit is uniformly supported so that point loads through the unit are avoided.

4.6 The concrete Specification is a general specification. It is not a site-specific installation design.

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		

5.0 Unit Installation

5.1 Excavate a hole of sufficient length and width to accommodate the tank and a minimum 150mm concrete surround and to a depth that allows for the burial depth of the unit plus concrete base slab of 300mm.

5.2 Construct a suitable concrete base slab appropriate to site conditions. Ensure that the slab is flat and level.

5.3 When the concrete base slab has set enough to support the installed load, install a 75mm deep level bed of C20 grade concrete. This will provide support for the tank and allow the tank to be levelled up when installed. Lower the unit onto the slab using suitable webbing slings and lifting equipment. The selection of lifting equipment is the responsibility of the installer considering unit weight, length, height and distance of lift.

5.4 Pour no more than 300mm depth of clean water into the unit, avoiding shock loads. DO NOT OVERFILL, the unit is not designed to hold water whilst unsupported.

5.5 Place concrete backfill to approximately 300mm depth under and to the sides of the tank ensuring good compaction to remove voids. Concrete backfill must be manually compacted; we DO NOT recommend the use of vibrating lances. Allow initial concrete set to occur before proceeding. Ensure concrete fills the voids underneath the tank and feet.

5.6 Continue adding concrete backfill, simultaneously keeping the internal water level no more than 300mm above the backfill level at all times, until the backfill is just below the underside of the Inlet drain, giving sufficient room to connect the inlet pipework.

5.7 Connect inlet drains and vent pipes when safe access to the backfill can be gained.

5.8 The inlet (110mmDia) should be extended to ground level.

5.9 The maximum recommended inlet invert is 1500mm.

5.10 Continue backfilling with concrete over the tank body to the required level. Build up a shell of concrete, minimum 150mm thick, around the access shaft(s), inlet pipe and alarm access tube (as applicable). Temporarily strut the access shaft to avoid distortion.

5.11 Do not install in trafficked areas unless a suitable top slab has been designed and constructed. The top slab should bear on a suitable foundation to prevent superimposed loads being transmitted to the unit and access shafts. Loads applied to covers and frames must bear on the top slab, not the access shaft.

5.12 Trafficked Areas, the tank should be installed at a suitable distance from any trafficked areas to prevent superimposed loading by vehicles.

5.13 The unit should be filled with clean water up to the invert level of the inlet pipe.

5.14 Leave until the concrete is fully cured. Tanks are now ready for use. Do not empty the tank until the concrete backfill has cured to an adequate strength (typically 1 - 2 days minimum).

5.15 Concrete back fill is recommended for backfilling the unit, but pea shingle or sand may be used on dry sites with relevant holding down strapping into the concrete base.

6.0 Operation

6.1 The unit should be filled with clean water up to the invert level of the inlet pipe.

6.2 Tanks are sized according to a population equivalent formula. Users should be aware that their waste enters a tank so that they can dispose of their waste considerately. Not everything is suitable for disposal into the tank, for example oils, fats and grease, medications should not be disposed of. We can provide User leaflets with more information for individual householders on request.

6.3 In addition, properties should display a notice within the building see section on notices.

7.0 Maintenance

7.1 Tanks accumulate & store solids and must be emptied periodically. The period between emptying depends upon the population served by the tank or, the amount of use to which the tank is put. Generally, the period is at least 6 months, however, tanks which are over utilized may require more frequent emptying.

7.2 All sludge should be removed when the unit is emptied. Solids should not be allowed to accumulate in more than half the tank.

7.3 The waste should be removed under the terms of The Waste Management Code of Practice. The Code imposes a duty of care on the waste producer to ensure that the cleansing contractor is registered with the Environment Agency and that the final disposal of the waste is to a licensed facility. Owners have a responsibility to use licensed waste contractors.

7.4 Covers should be replaced.

7.5 Our site engineers are available to carry out inspection, service and maintenance visits. We recommend regular maintenance contracts for units with complex operational or electrical requirements. A service to supervise tank emptying is also available. Contact details are provided on the cover sheet.

8.0 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 package are Notices, describing the necessary maintenance of the plant in use. This should be fixed within the building.

NOTICES:



CESS POOL/SILAGE TANK

KINGSPAN CESSPOOL/SILAGE

The foul drainage from this property is served by a Cesspool/Silage Tank.

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 Water & Energy Services on +44 (0) 844 846 0500 to arrange a maintenance service or to request replacement operating instructions.