



**TRICEL**  
ENVIRONMENTAL

# Tricel® Fortis

## Septic Tanks

*Engineering a green future*



1017968 Rev 5 April 2022

# Contents

---

1	Health and safety precautions: .....	4
2	Transportation, unloading and storage: .....	4
3	The wastewater purification process:.....	7
4	Tank dimensions:.....	8
5	Technical drawings:.....	9
6	Manhole risers – (deep inverts): .....	12
7	Installation:.....	13
7.1	Quick installation overview: .....	14
7.2	Detailed installation information: .....	16
7.2.1	Siting: .....	16
7.2.2	Excavation size:.....	16
7.2.3	Excavation depth: .....	17
7.3	Loadings:.....	18
7.4	Control of groundwater:.....	18
7.5	Gravel installation:.....	18
7.5.1	Tank base/plinth:.....	19
7.5.2	Installing onto the base/plinth: .....	19
7.5.3	Backfilling dry site:.....	19
7.6	Concrete installation: .....	20
7.6.1	Tank base/plinth:.....	20
7.6.2	Installing onto the base/plinth: .....	20
8	Plinth & backfill specification:.....	22
8.1	Gravel backfill specification:.....	22
8.1.1	Primary backfill specification:.....	22
8.2	Concrete backfill specification:.....	23
8.3	Top soil: .....	23
9	Plumbing the system:.....	24
10	Ancillary installation notes: .....	25
10.1	Ventilation: .....	25
10.2	Access: .....	25
11	Treatment of effluent liquid:.....	26
11.1	Distribution box: .....	26
11.2	Filter Maintenance .....	26

12	Maintenance.....	27
12.1	Regular maintenance:.....	27
12.2	Yearly maintenance: .....	27
13	Production of sludge: .....	28
13.1	De-sludging (emptying the solid waste from the septic tank): .....	28
14	Operating conditions: .....	29
15	Terms & conditions.....	30
16	Troubleshooting: .....	31
17	Declaration of performance: .....	32
18	Certification: .....	35

It is important to read the full technical and installation guide prior to installation. This document should be retained for the lifetime of the product and in the event of change of ownership be transferred to the new owner.

#### **Precaution**

Prior to installation, please consider finished garden level when installing the system. If you envisage that a manhole riser/extension may be required to ensure manhole lid remains above finished ground level, the system must be installed with the appropriate excavation foundation and backfill to accommodate the riser. Please refer to page 12 for manhole riser details.

## **1 Health and safety precautions:**

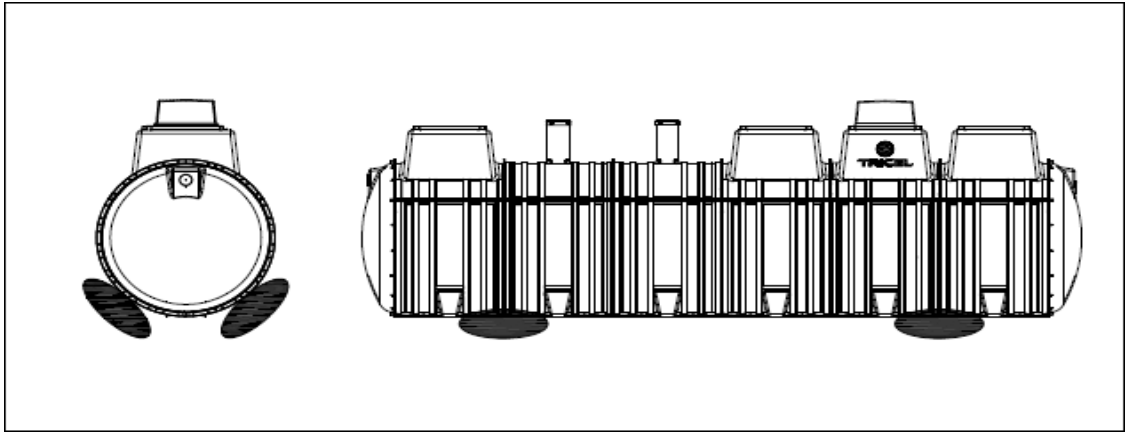
As safety and security are of vital importance in septic tank installation, the following aspects are critical.

- Ensure that all the information contained in this manual is adhered to at all times.
- When working with machinery / electrical equipment, proximity of water shall be noted.
- There is potential danger when de-sludging and therefore this shall never be done alone.
- Never enter a tank unless qualified to do so.
- Naked flames shall not be used in the vicinity of the tank due to the danger of combustion.
- The manhole cover shall never be left off an unattended tank.
- Protective clothing / gloves shall be worn at all times. Always remove contaminated clothing and protective equipment after working with septic tank.
- Wash hands and face prior to eating, drinking or smoking.
- A second person shall be present when carrying out maintenance.
- A sampling box shall be constructed to facilitate sampling and inspection without placing personnel at risk.
- Great care shall be taken when handling sludge.
- Always lock the cover of the plant when maintenance is completed.

## **2 Transportation, unloading and storage:**

1. Tanks must be held down during transportation using nylon straps, do not use cables or chains to secure tanks. Do not over tighten straps to cause deformation of the tank shell. Do not drop or roll tanks from the truck.
2. Move tanks only by lifting and setting, do not drag or roll.

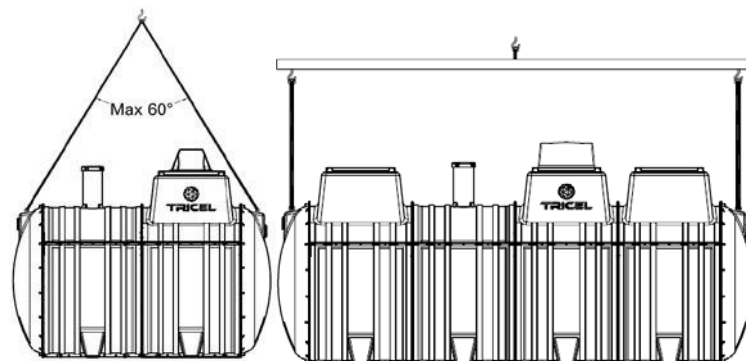
- Always set the tank(s) on flat smooth ground free from debris etc. To prevent movement, tanks may need to be tied down and chocked.



- Tanks are best lifted by a machine and webbing lifting straps – do not use chains or wire ropes in contact with the tank. Ensure tank is empty when lifting. Care is needed to control the lift to ensure the tank is not damaged.
- Tanks from one to four modules (4.6m) in length should be lifted using the eyebolts on the tank. To ensure the angle of the sling is not greater than 60°, as per option 1, the following sling lengths are required:

Length of tank	Minimum length of sling
2.1	2.1
2.6	2.6
3.1	3.1
3.6	3.6
4.6	4.6
5.6	5.6
6.6	6.6

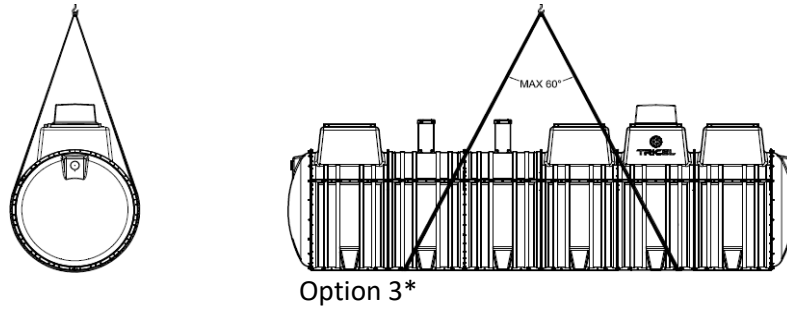
Ensure sufficient lifting height can be achieved and is available on site. If not a lifting bar as per option 2 is required.



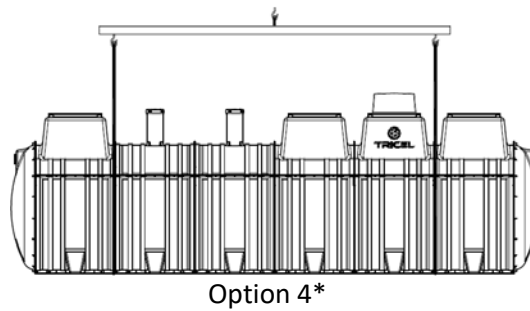
Option 1\*

Option 2\*

6. Tanks which are greater than 4 modules (4.6m) in length should be lifted using the slings provided as per option 3, shown below.



Ensure sufficient lifting height can be achieved and is available on site available. If not a lifting bar as per option 4 is required.



Ensure the slings are positioned at a joint on the tank, firmly secured and the load is evenly balanced.

\*Typical lifting examples

### 3 The wastewater purification process:



Domestic septic tank



Commercial septic tank

The Tricel Fortis septic tank is another product within the range of environmental products from Tricel. The Tricel Fortis septic tank is manufactured from durable glass reinforced plastic (GRP) and is an ideal solution for wastewater treatment where sufficient land is available for an adequate drainage field.

The tank is divided into two chambers, sized sufficiently to hold wastewater for an adequate amount of time for the solids to drop to the bottom to form sludge and the lighter material to rise to the top of the liquid to form a scum. A certain amount of anaerobic breakdown occurs within the tank. The remaining liquid effluent is passed through the outlet pipe into the drainage system for final treatment. The liquid is dispersed evenly within a series of drainage pipes into the soil. The micro-organisms in the soil breakdown any organic matter left in the effluent.

## 4 Tank dimensions:

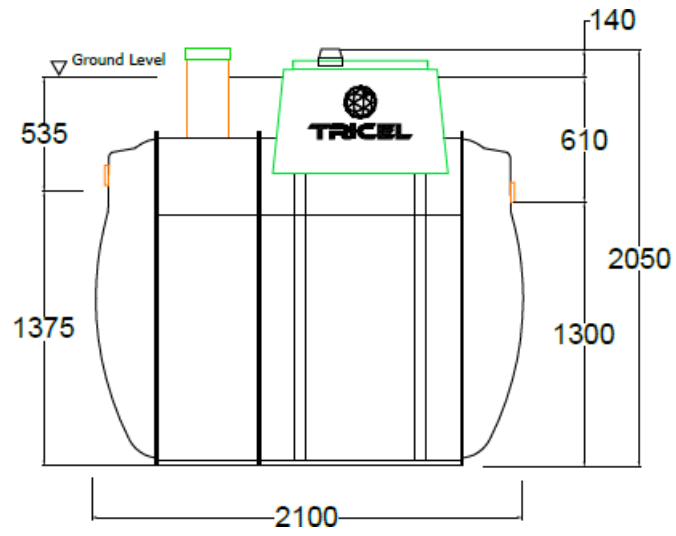
### Tricel Fortis Septic tanks

Fortis:		3200	4050	5750	7400	9100	10800
Product code:		FSIE0801	FSIE1301	FSIE2501	FSIE3601	FSIE4701	FSIE5901
Population Equivalent		8	13	25	36	47	59
Nominal inlet/Outlet pipe dia.	mm	110	110	110	150	150	150
Overall length	m	2.1	2.6	3.6	4.6	5.6	6.6
Overall width	m	1.64	1.64	1.64	1.64	1.64	1.64
Overall height	m	2.05	2.05	2.05	2.05	2.05	2.05
Inlet invert to base	m	1.375	1.375	1.375	1.35	1.35	1.35
Outlet invert to base	m	1.3	1.3	1.3	1.3	1.3	1.3
Inlet invert to ground level	m	0.535	0.535	0.535	0.56	0.56	0.56
Outlet invert to ground level	m	0.61	0.61	0.61	0.61	0.61	0.61
Height above ground level	m	0.14	0.14	0.14	0.14	0.14	0.14
Weight empty	kg	250	300	400	500	600	700
De-sludge period (minimum)	year	1	1	1	1	1	1

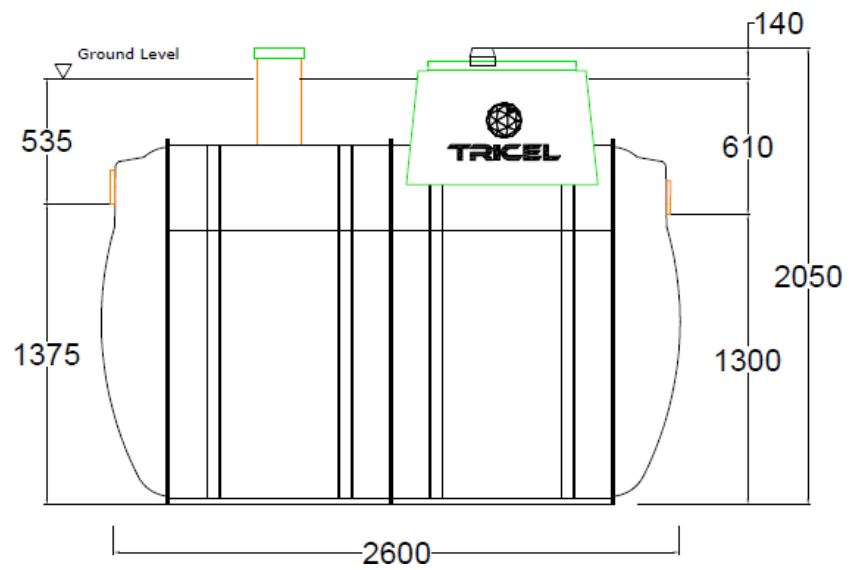


## 5 Technical drawings:

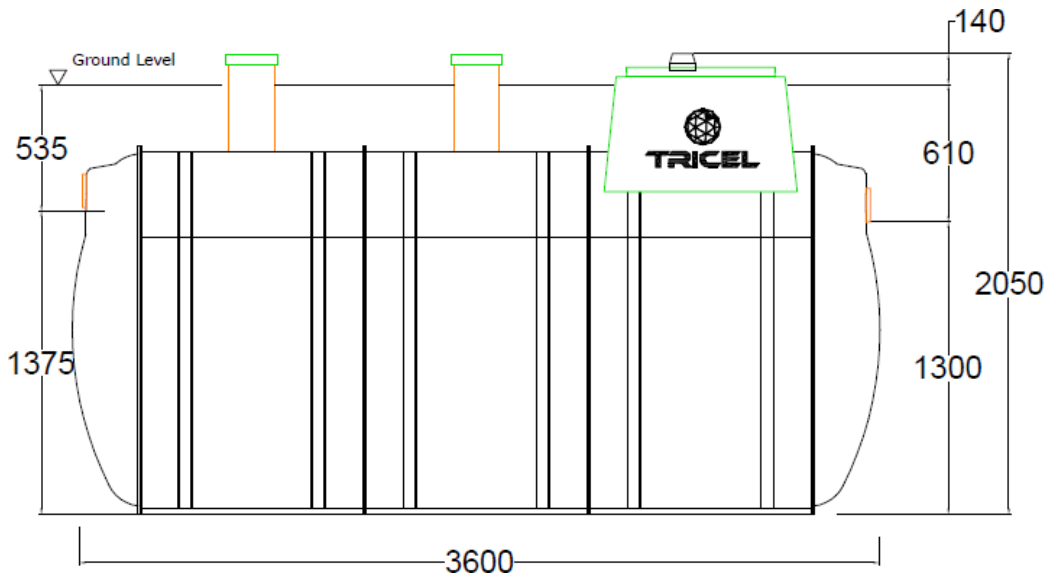
FORTIS 3200:



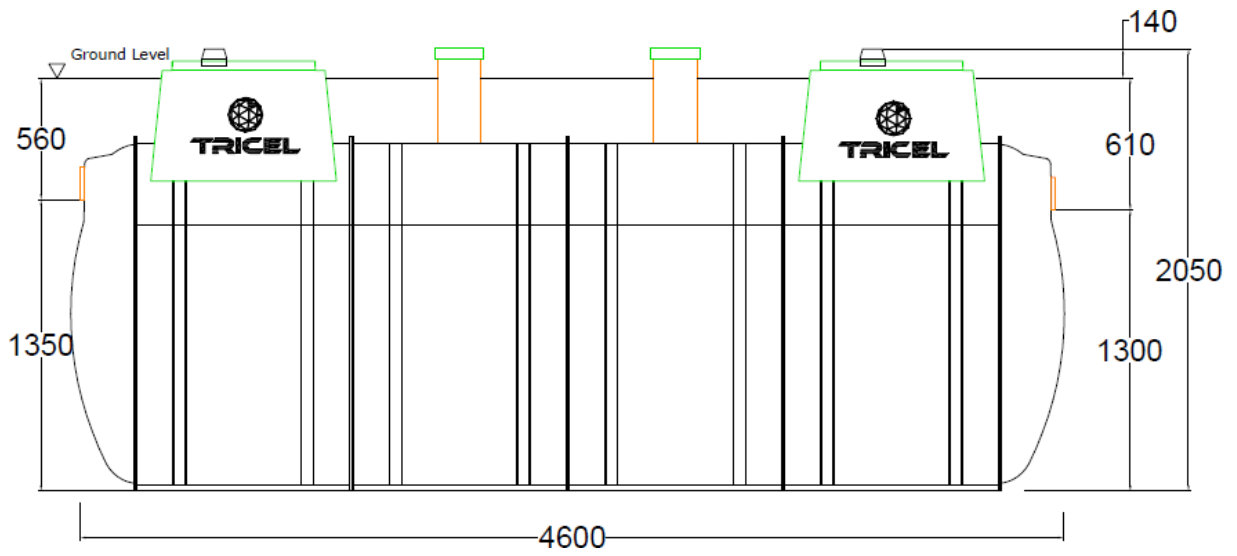
FORTIS 4050:



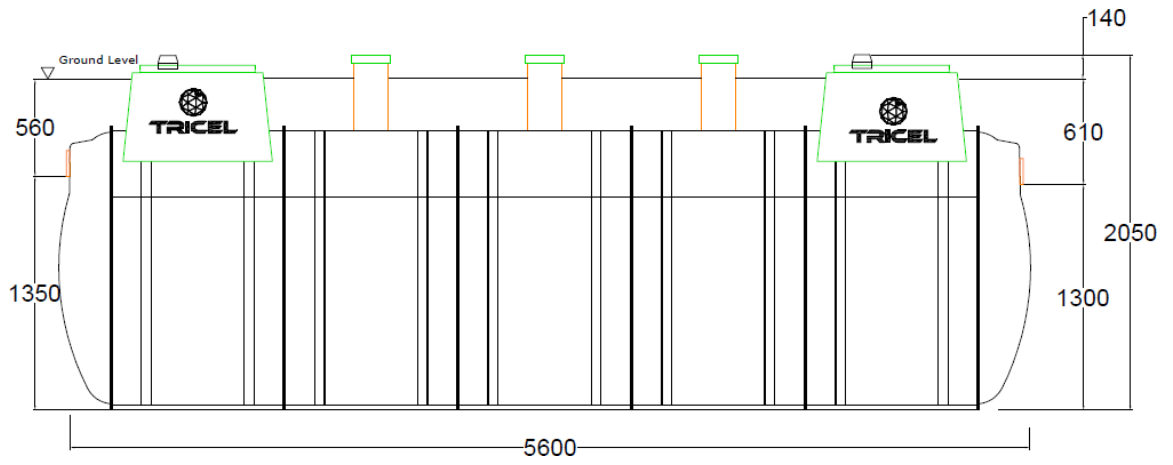
FORTIS 5750:



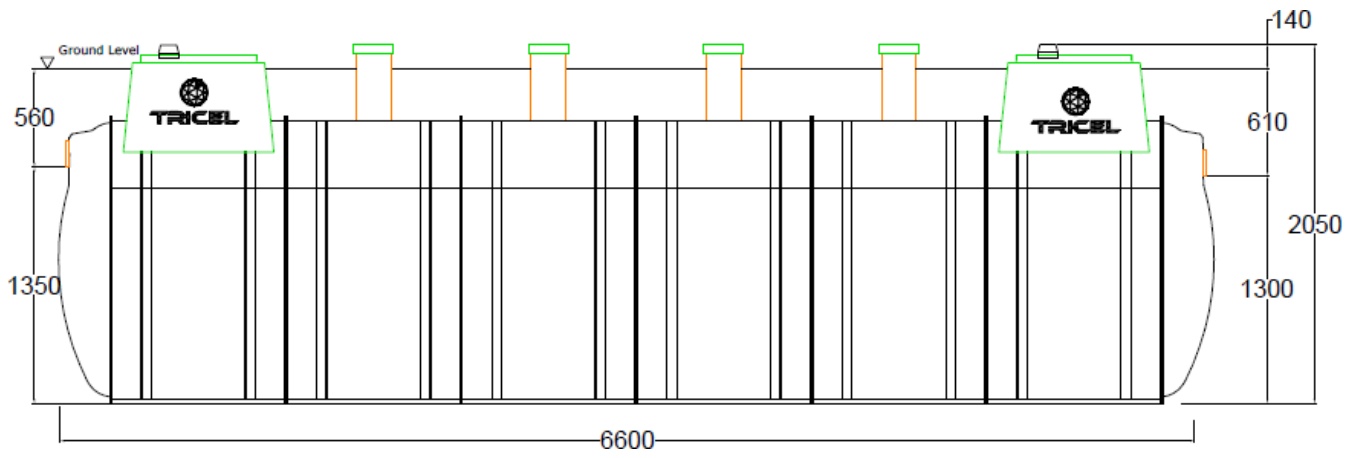
FORTIS 7400:



FORTIS 9100:



FORTIS 10800:



## 6 Manhole risers – (deep inverts):

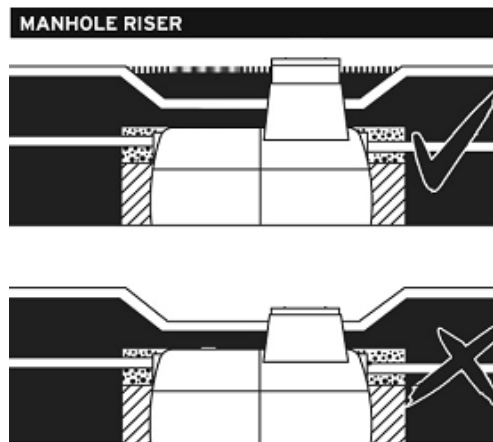
Manhole risers are available for deeper installation requirements

- 250mm manhole risers require installation suitable for the site condition.
- 500mm\* & 750mm\* manhole risers require a complete concrete installation – See section 7.6.
- Max manhole riser is 750mm

Never place the covers of the tank below ground level.

Do not allow ground water enter the system

Only a Tricel Fortis manhole riser should be used



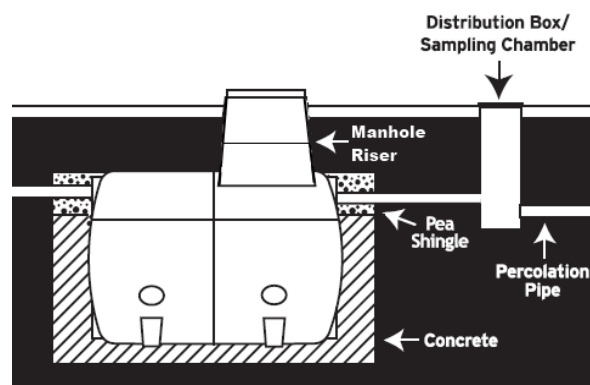
Manhole risers are available as standard

250mm

500mm

750mm

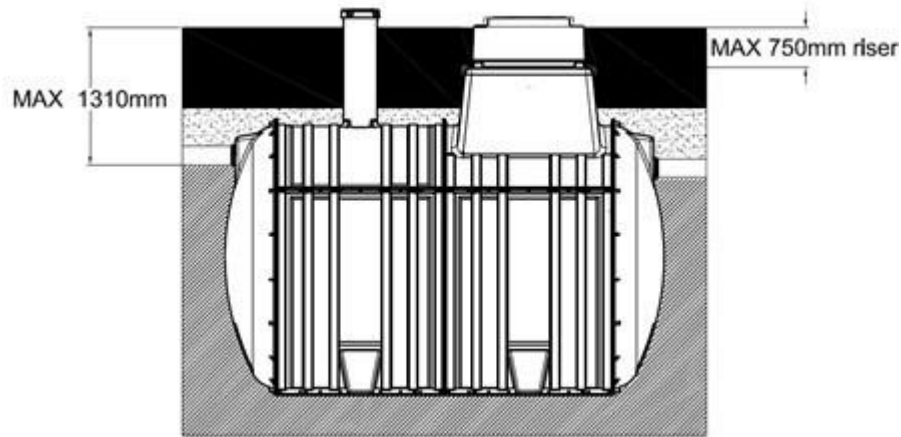
\*Plants with a manhole riser of 500mm or 750mm must have a concrete installation. 500mm and 750mm risers cannot be retrofitted unless the correct installation is in place.



## 7 Installation:

All installations must be “fit for purpose” to suit the on-site conditions, which will vary from site to site. This is the responsibility of the onsite contractor.

The Tricel Fortis is suitable for a maximum manhole riser of 750mm which gives a maximum inlet invert of 1310mm, as per picture. The Tricel Fortis is not suitable where a deeper installation is required.



- Tanks should be subject to a visual inspection prior to installation.
- Check for, fractures to the shell or ribs, de laminations, scratches or abrasions deeper than 1.5mm.
- Any damage should be notified to the delivery driver and/or to your supplier.
- Do not attempt to carry out any unauthorized repairs, as this will invalidate the warranty on the tank.
- Once the tank has been installed, we cannot accept claims for damage.

## 7.1 Quick installation overview:

A **Dry site** is one where the water table never rises higher than the base of the Tricel Fortis unit.

A **Wet Site** is one where the water table may rise higher than the base of the Tricel Fortis unit. The unit should never be installed where ground water can rise higher than the outlet pipe.

Guidelines	Dry site	Wet site
All installations must be "Fit for purpose" to suit the on-site conditions, which will vary from site to site. This is the responsibility of the onsite contractor.	✓	✓
Never roll the tanks. Tanks shall be lifted into position in accordance with supplier's instructions.	✓	✓
The unit should be located as far away from the dwelling as is practically possible considering topography and pipe work levels. Separation distances must meet all National and Local regulations	✓	✓
Dig a hole circa 500mm larger than the system in plan. Allow for manhole riser if using.	✓	✓
Remove any soft spots or boulders of significant size from the base or sides of the excavation	✓	✓
Ground water must be pumped to give a dry excavation and excavation lined with polythene		✓
A base is then formed using compacted gravel and this must be flat and level.	✓	
A base is constructed of a thin layer of compacted gravel covered with a 250mm layer of semi- dry concrete		✓
Ensure gravel/concrete are clean and contains no large materials	✓	✓
Lift tank into position and align as required for connecting pipe work, access shafts etc.	✓	✓
Ensure that the correct orientations are achieved of the system, which may contain 1 or more tanks.	✓	✓
Ensure that each tank is 100% level, and that inlet/outlets are in the correct orientations.	✓	✓

Secure anchor straps if required.	✓	✓
Connect any low-level pipe work, as required.	✓	✓
Ballast the tank with water.	✓	✓
Mount and seal any turret extensions.	✓	✓
Commence gravel backfilling in 300mm layers approximately up to 50mm over the cylindrical body of the tank, ensuring tank and any pipe work is properly supported.	✓	
Commence concrete backfilling in 300mm layers approximately up to the pipe work level, ensuring tank and any pipe work is properly supported.		✓
Continue backfilling with primary material up to 50mm over the cylindrical body of the tank		✓
Complete backfilling with topsoil up to the max ground level line. Ensure that surrounding finished ground level is never higher than the max ground level line.	✓	✓
Compaction should be by lightweight rollers or vibratory plate compactor until "traffic" depth has been achieved	✓	✓
Compact evenly around the riser extensions to reduce risk of distortion.	✓	✓
Ensure that No surface loadings are transferred from the cover direct to the tank. Cover frame construction should allow movement.	✓	✓
An access chamber should be installed before and after the tank for sampling and to assist in clearing possible blockages	✓	✓
If sewage consists of high quantities of grease e.g. from a restaurant, a grease trap may have to be installed on a separate drain prior to the system.	✓	✓

**Note:** The option of a reinforced concrete slab and deadman anchor may also be used on wet sites. This should be designed by an on-site structural engineer to suit site conditions.

## 7.2 Detailed installation information:

### 7.2.1 Siting:

The Tricel Fortis Septic tank should be installed using the minimum distances below or in line with local authority requirements.

Tank and percolation area	
A dwelling	7 metres
Site boundary	3 metres
Road	4 metres
Well, borehole, watercourse or spring	10 metres
Lake	50 metres

### 7.2.2 Excavation size:

Suitably sized equipment will be required to excavate the hole and to crane the system into place. Installation depends on on-site conditions, water, slopes, location etc. Excavation should be planned with due regard to Health and Safety requirements, and should be either shored or battered back to a “safe” angle. The excavation should allow a minimum 250mm clearance between tank and the excavation wall or face of shoring. A minimum of 500mm is also required between adjacent tanks. Unstable ground with excessive sand, peat swamps etc may require larger excavations. The excavation should be maintained dry by pumping or whatever suitable means.

External dimensions: Dia in meters x Length in metres

Total excavation: {Dia + 250mm} x {Length + 250mm}

Excavation depth: Allow 250mm for a tank base/plinth

Tank Size	Excavation size (m)
Fortis 3200	2.6 x 2.15
Fortis 4050	3.1 x 2.15
Fortis 5750	4.1 x 2.15
Fortis 7400	5.1 x 2.15
Fortis 9100	6.1 x 2.15
Fortis 10800	7.1 x 2.15

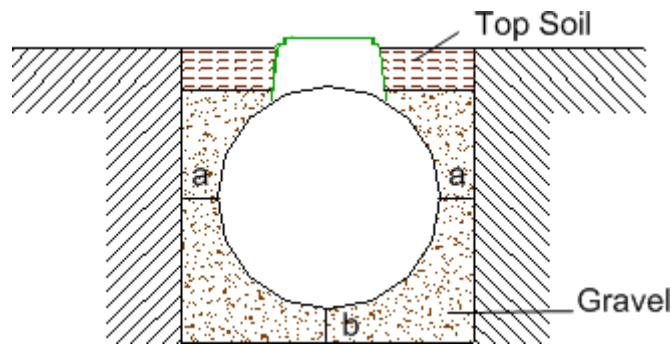


### 7.2.3 Excavation depth:

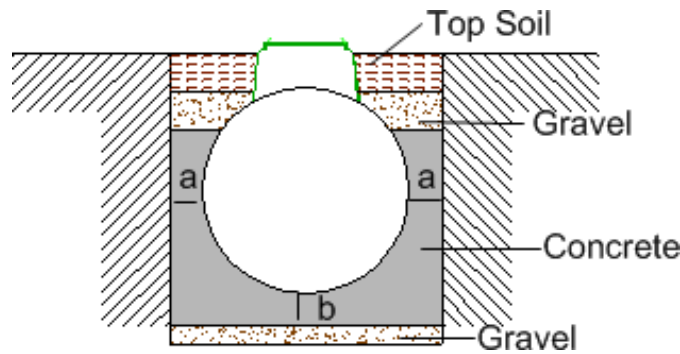
The excavation depth is determined by the inlet and outlet pipe, invert levels relative to the bottom of the tank, and allowing for the minimum base thickness shown. Dimension details of the tank are shown on the relevant drawing, supplied with the system. Ground instability at formation level e.g. running sand may necessitate over- excavation and stabilisation with hardcore or blinding concrete.

**NOTE:** Check that the depth to the base slab is within the Service Specification requirements for the tank.

#### 7.2.3.1 Dry Site



#### 7.2.3.2 Wet Site



	Tank Width. in mm	"a" minimum in mm	"b" minimum in mm
Dry Site	1650	250	250
Wet Site	1650	250	300

### 7.3 Loadings:

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 guidelines are available on [www.tricel.ie](http://www.tricel.ie).

### 7.4 Control of groundwater:

During installation tanks, must not be subjected to buoyant forces.

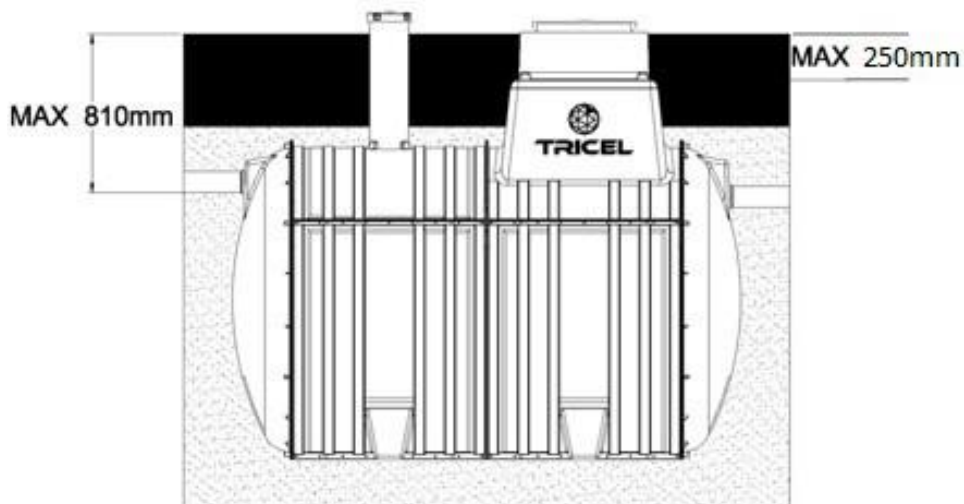
Incorrectly installed tanks that are subject to movement, rotation or floatation may become damaged, for which we cannot accept liability.

Contact a qualified engineer if there are difficulties on site due to adverse water logging.

### 7.5 Gravel installation:

A gravel surround can be used in dry site conditions if the inlet invert is less than 810mm (maximum 250mm riser).

A dry site is one where the water table never rises higher than the base of the Tricel Fortis tank.



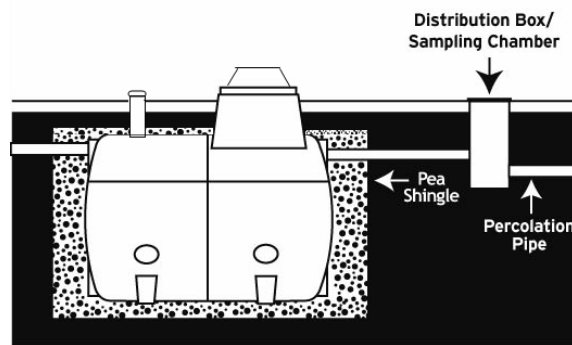
### 7.5.1 Tank base/plinth:

- Remove any soft spots or large stones and boulders.
- The base is constructed of compacted gravel. Refer to plinth & backfill specifications on page 22.
- Ensure that base is level and at the correct height to accommodate the incoming pipe work.

### 7.5.2 Installing onto the base/plinth:

- Mechanically lift the plant carefully into the centre of the hole and place on the prepared plinth.
- The plant must sit dead level on the plinth.
- Connect and seal the pipe work to the tank.

### 7.5.3 Backfilling dry site:



**Refer to backfill specification appropriate for site conditions.**

- Ballast\* the plant by filling each chamber with clean water to a depth of 300mm and recheck the pipe work levels. Commence backfilling with gravel as per plinth & backfill specifications on page 22 in layers of 225mm evenly around the tank ensuring that there are no voids. Compact each layer ensuring the vibrating machine does not come in contact with the plant. Continue filling the chambers whilst backfilling, ensure that the progressive water level is no more than 300mm above the backfill level.
- Continue to backfill until gravel has reached 50mm over the cylindrical body of the tank.
- Mount and seal manhole risers (if used).
- Complete backfilling with topsoil up to the max ground level line.

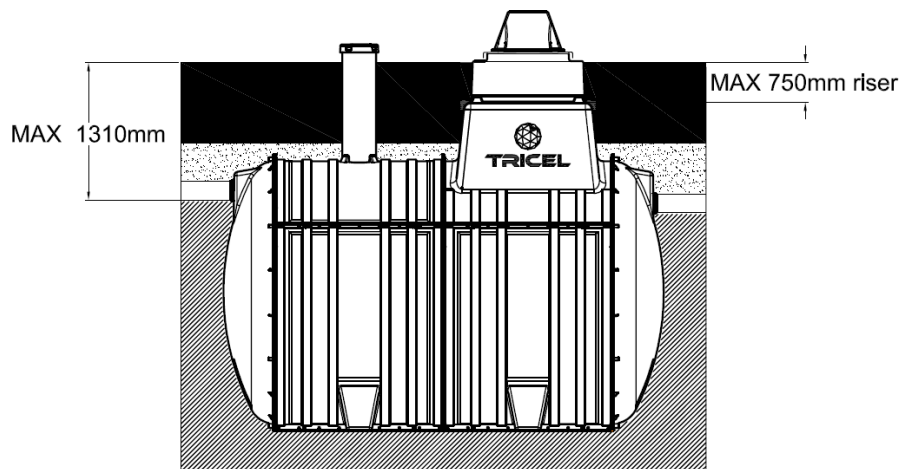
\*Ballasting the plant is important to avoid the tank from lifting when backfilling.

## 7.6 Concrete installation:

A concrete surround must be installed in wet site conditions and sites where the inlet invert is between 810mm and 1310mm (plants with 500mm and 750mm risers).

A wet site is one where the water table may rise higher than the base of the Tricel Fortis tank.

The option of a reinforced concrete slab or deadman anchor may also be used. This should be designed by an on-site structural engineer to suit site conditions.



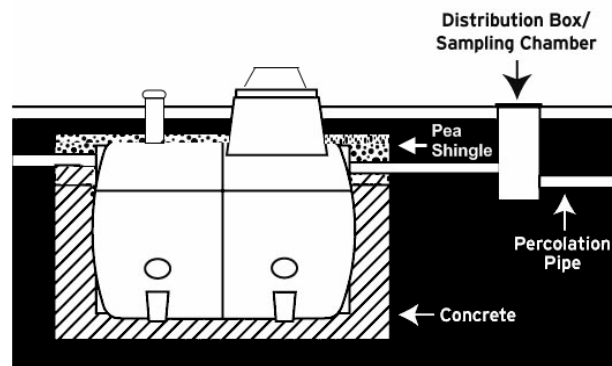
### 7.6.1 Tank base/plinth:

- Remove any soft spots or large stones and boulders.
- The base is constructed of a 50mm layer of suitably compacted gravel, covered with a 250mm layer of semi dry concrete. Refer to concrete backfill specification on page 23.
- Ensure that base is level and at the correct height to accommodate the incoming pipe work.
- It is important to maintain a completely dry excavation until the final pour of concrete is set. It may be necessary to line the excavation with a continuous layer of 1200 gauge polythene to maintain the integrity of the concrete.

### 7.6.2 Installing onto the base/plinth:

- Mechanically lift the plant carefully into the centre of the hole before the concrete sets.
- The plant must be dead level on the plinth.
- Connect and seal the pipe work to the tank appropriately.

Backfilling a wet site:



**Refer to backfill specification appropriate for site conditions**

- Ballast\* the plant by filling each chamber with clean water to a depth of 300mm and recheck the pipe work levels. Commence backfilling evenly around the tank ensuring that there are no voids. Continue filling the chambers whilst backfilling, ensure that the progressive water level is no more than 300mm above the backfill level.
- Backfill with concrete until it has reached the invert of the outlet pipe.
- Continue backfilling with gravel as per plinth & backfill specifications on page 22 until gravel has reached 50mm over the cylindrical body of the tank.
- Mount and seal manhole extensions (if used).
- Complete backfilling with topsoil up to the max ground level line.

\*Ballasting the plant is important to avoid the tank from lifting when backfilling.

## 8 Plinth & backfill specification:

### 8.1 Gravel backfill specification:

#### 8.1.1 Primary backfill specification:

Primary backfill material should be free-flowing granular material. Compaction should be by lightweight rollers or vibratory plate compactor until “traffic” depth has been achieved. Compact gravel evenly to ensure tank is properly supported. Ensure the vibrating machine does not come in contact with the shell of the tank. Tanks must be installed with primary backfill only within the region immediately surrounding the tanks. This primary backfill must extend a minimum of 250mm outward from the tank, and directly beneath the tank.

The following materials are approved as primary backfill:

#### Rounded pea gravel:

Minimum particle size 3mm, maximum 18 mm, compacted to a relative density of >70%. Gravel shall be clean and free flowing, free from large rocks, dirt, sand, roots, organic materials or debris. Upon screening analysis the backfill material shall have no more than 5% by weight passing 2.36 mm sieve.

Or

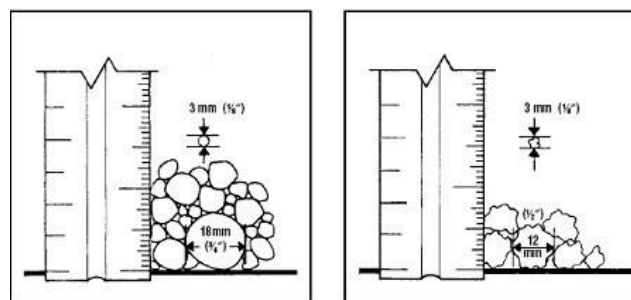
#### Crushed or processed stone:

Minimum particle size 3 mm, maximum 12 mm, compacted to a relative density of >40%

Dry Gravel density must be at least 1500 kg/m<sup>3</sup>. Material should be washed or screened to remove fine particles. Upon screening analysis the backfill material shall have no more than 5% by weight passing 2.36 mm sieve.

Use of other than specified backfill and bedding materials will void the tank warranty.

Backfill material shall not be frozen or contain lumps of frozen material at any time during placement.



Pea Gravel

Crushed Stone

## 8.2 Concrete backfill specification:

Semi dry concrete 25n grade with a ratio of 4.5 aggregate to 1 cement.

Note: Standard concrete mixes should not be used, where sulphates or similar aggressive chemicals are present in the groundwater.

### **Lift height (rate of rise):**

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<sup>2</sup> on the tank is not exceeded.

### **Vibration:**

The tank design assumes minimal compaction of the surrounding concrete. Where necessary, this may be extended to include light internal vibration. Never use deep revibration which will substantially increase the pressure on the tank, possibly causing failure.

### **Impact of concrete on discharge:**

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

## 8.3 Top soil:

Clean native top soil shall not contain rocks larger than 36mm on largest dimension.

Note: The use of geo textile barrier fabrics surrounding the primary backfill material is considered good installation practice. The fabric must be chosen to allow the flow of water in and out of the excavation but to prevent the movement of fine soil particles into the primary backfill material.

## 9 Plumbing the system:

**Do not:** Plumb storm-water (water) from roofs, drains, footpaths etc., into the Tricel Fortis septic tank. A competent person in accordance with this manual should connect the plumbing from the dwelling to the septic tank. The septic tank is plumbed for 110mm and 150mm uPVC pipe, depending on the capacity of the septic tank. A short length of pipe with flexible joints should be used immediately before and after the tank to allow for movement between the tank and the pipe work.

### Note: water logged sites

The Tricel Fortis septic tank is not suitable to be used in a water-logged site. Please contact the supplier of the system if there are difficulties on site due to adverse water logging. Adequate drainage is important to improve wet sites, or sites with a high-water table level. It is critical that water is removed from the area.

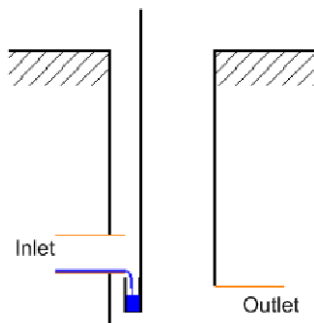
### Grease Trap:

Best practice indicates that a grease trap be fitted before in the tank particularly in applications where high quantities of grease exist in the wastewater.

### Sampling chamber:

Best practice indicates that a chamber be fitted after every unit to allow easy access for sampling.

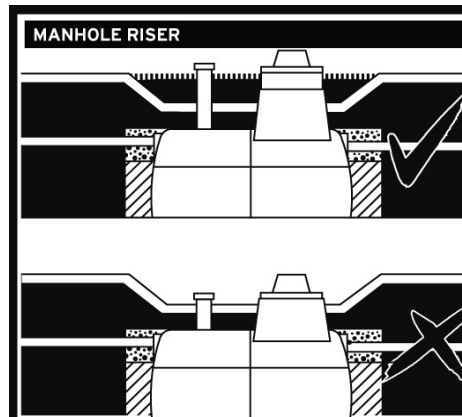
purposes. The inlet of the chamber must be 150mm up from the base of the chamber to facilitate sampling cup.





## 10 Ancillary installation notes:

The finished ground level should never be higher than the level indicated on the system. A riser should be fitted if required, page 12.



### 10.1 Ventilation:

Ventilation is crucial to the system and should be installed as per the building regulations.

### 10.2 Access:

Once the system has been completely installed, we recommend that access is restricted to the area around the plant and/or any control housings. Access for maintenance or de-sludging must be available.

## 11 Treatment of effluent liquid:

The septic tank acts as a holding chamber and treatment of effluent is carried out in the percolation area. The best disposal method can depend on a variety of site factors including percolation results, soil type, water table level and topography of the site. Please refer to the onsite engineer for further details.

### 11.1 Distribution box:

A distribution box and inspection chamber should be fitted between the tank and the percolation area. A Distribution Box should be used to correctly construct the percolation trenches. The percolation trenches are set out in a continuous loop from the Distribution box.

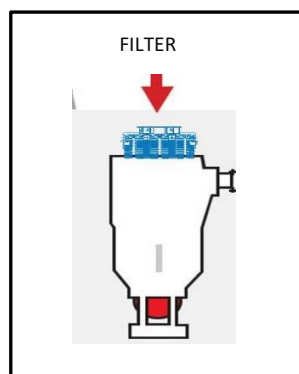


Distribution box. 450mm high x 300 opening



Riser extension. 300mm opening x270mmhigh

### 11.2 Filter Maintenance



- Remove tank cover.
- Pull the filter out of the housing.
- Hose off the filter over the septic tank. Make sure all solids fall back into the septic tank.
- Insert the filter cartridge back into the housing making sure the filter is properly aligned and completely inserted.
- Replace septic tank cover.

## 12 Maintenance

### Warning

Any maintenance carried out inside the tank represents a confined space. Therefore, the maintenance person must be suitably trained to work in confined spaces. Sewage and sewage effluent can carry micro-organisms and gases harmful to human health. Any person carrying out maintenance on the system must be appropriately trained. Suitable protection equipment including gloves, goggles etc. should be worn at all times. Always remove contaminated clothing and protective equipment after completion of work. Wash hands and face prior to eating, drinking or smoking. Refer to Health and safety precautions.

A certain amount of plant maintenance is required, on an ongoing basis to ensure that the system is working correctly. This is the responsibility of the homeowner.

### 12.1 Regular maintenance:

The outlet distribution box should be checked monthly to ensure that the, effluent is free flowing and clear. the vent under the de-sludging cover allows gas to escape and stops the tank from becoming pressurized. All vents should be checked to make sure they are not blocked or obscured.

### 12.2 Yearly maintenance:

De-sludging should be also carried out yearly to prevent solids rising to the height of the outlet pipe and being carried along with the liquid into the percolation trenches. This blocks the percolation area and can cause flooding. Depending on usage and house population, more frequent de-sludging may be required. The de-sludging of the septic tank is the responsibility of the homeowner. De-sludging is done with a vacuum tanker (we recommend the use of a licensed company).

## 13 Production of sludge:

### Important

The de-sludging of the Tricel Fortis system is the responsibility of the homeowner De-sludging should never be carried out alone.

Do not allow equipment drive over the plant. Maintain a distance of at least 4 metres away from the covers on the Tricel Fortis septic tank.

The access cover should never be left off an unattended plant.

### 13.1 De-sludging (emptying the solid waste from the septic tank):

- Remove the access cover.
- Empty the Tricel Fortis septic tank using the vacuum tanker. Care must be taken not to damage the tank with the hose of the vacuum tanker.
- Replace the de-sludging access cover securely.
- Remove and clean outlet filter

The property owner has a legal responsibility to ensure that the system does not cause pollution, a health hazard or nuisance.

## 14 Operating conditions:

### Disclaimer

We shall not be liable for any damage or loss, including consequential loss, caused by the failure of any plumbing equipment or failure caused by the inclusion of prohibited material, in the plant.

- The manufacturer's instructions outlined in the Technical Manuals must be followed at all times.
- It is important that the unit is operated under the conditions for which it is designed. Any variation in these conditions could lead to the unit not performing to its full potential.
- De-sludging is a critical part of the successful operation of the Tricel Fortis septic tank. Only competent approved personnel should carry out de-sludging.
- The discharge to the ground is also a critical part of the operation of the plant. Correctly constructed distribution chambers and distribution drains or polishing filters are necessary as part of the treatment process. Incorrectly constructed drains or polishing filters could result in poor treatment of effluent and we do not accept any responsibility in this regard.
- If the plant is not installed correctly, flooding, overloading, or floatation may occur. We are not responsible for incorrectly installed systems.
- Soak ways, drains and the emptying of primary tanks remain the responsibility of the client and damage to the installation due to the influx of surface water or the backing up of soak ways or drains is not covered by the manufacturer.
- We shall not be liable for any damage or loss, including consequential loss, caused by the failure of any plumbing equipment or failure caused by the inclusion of gross solids, (e.g. – disposable diapers or sanitary towels etc.) in the septic tank.
- To ensure the continuance of the plants performance, the user has to take certain precautions including the following:
  - The design loading of the plant should not be exceeded.
  - High volume discharges such, as those from swimming pools and Jacuzzi's must never enter the plant.
  - Surface water must not enter the plant.
  - Do not allow large quantities of chemicals to enter the plant including:
    - Water softener regenerate.
    - Disinfectants.
    - Strong Acids and Alkalis, or Photographic Chemicals.
    - Oil or Grease.
    - Petrol or diesel.
    - Pesticides.
    - Large quantities of milk, alcohol or food.
    - Large quantities of bleaches or cleaners.
    - Baby wipes
    - Sanitary towels
    - Kitchen paper
    - Nappies
- Service personnel must be accommodated with clear access to the system.
- If the plant has been sized by others, we will supply a plant to these specifications and not its own specifications. In this case, the responsibility lies with others, in relation to the maximum flow / litres per day, the system capacity and retention times.

- If we size the plant, and a greater load is placed on the plant by the addition of extra houses, bedrooms in the houses, schools, crèche etc. or by any other means, we are not responsible for the plant in terms of overloading or the quality of the effluent as the retention times may be compromised.
- The plant is not suitable for vehicular traffic. We also recommend fencing off the area to prevent Livestock herds from accessing the unit. Where possible, unnecessary human traffic around the tank should be avoided.

## 15 Terms & conditions

Subject to our standard terms and conditions, which are available on request.

## 16 Troubleshooting:

Properly installed, operated and maintained plants will give many years of trouble-free service.

Symptoms	Possible Causes	Corrective Action
Plant fills above working water line.	Subsurface disposal system clogged	Contact installer to repair sub surface disposal system/ Percolation area.
	Storm water flooding	Redirect storm water drains. Storm water must never enter the system.

**Please Note:** before taking any corrective action, always positively identify the real source of the odour. Check if the odour is coming from another outside source such as a storm drain. All wastewater disposal plants vent gases back through the soil pipe and out roof vents. Improperly installed roof vents can cause odour problems. Traps in drains prevent odours from entering the home. To function they must contain water and be sealed correctly.

Symptoms	Possible Causes	Corrective Action
Effluent odour directly outside the house or inside the house	Pipe connections to toilets / drains not connected correctly.	Check that the traps / U – bends in the drains are fitted and the joints sealed
	Air vent on pipe work not fitted or fitted incorrectly	Ensure all effluent pipes are vented correctly, vents are normally fitted to all pipes and they should be higher than the eave of the roof.
	Pipe work is damaged or blocked or fitted	Inspect pipe work to ensure it is undamaged and clear of obstructions or sagging.
Bad effluent odour directly over the tank.	Pipe work to or from the tank is blocked	Check the level of liquid in the tank. Ensure the pipes are not blocked and are fitted correctly to the tank.
Back up	Filter blocked	Clean outlet filter

In accordance with our normal policy of product development, this specification is subject to change without notice. (November 2018)

# 17 Declaration of performance:

001



## Declaration of Performance

DOP01CPRIE12201606

### 1. Classification of Product:

Small wastewater treatment system for up to 50PT – Prefabricated septic tanks as set out in EN12566 Part1

### 2. Name of Product:

Tricel Fortis: 3200, 4050, 5750, 7400, 9100, 10800

### 3. Product Characteristics

Material	Glass Reinforced Plastic (GRP)
Shape	Horizontal Cylinder with domed ends. 620mm x 620mm and Ø200mm Access openings as required.

### 4. Intended for Use:

To treat domestic wastewater for up to 50 population equivalent

### 5. Name, Address and Contact Information of Manufacturer:

Tricel (Killarney).  
Ballyspillane Ind Est  
Killarney  
Co. Kerry Ireland  
Tel: ++353 (0) 64 6632421  
Web: www.ie.tricel.eu

### 6. System of Assessment of Verification as set out by the CPR, Annex V:

System 3

### 7. Name, Address and Notified Body Number of Notified Body who carried out Initial Type Testing

Prüfinstitut für Abwassertechnik GmbH  
Hergenrather Weg 30  
D-52074 Aachen Germany  
NB 1739

### 8. Declared Performance:

#### Treatment Performance


Essential Characteristic	Performance	Harmonised Technical Specification
Hydraulic Efficiency	99.93% (no filter)	EN12566-1



**Material Performance**

Essential Characteristic	Method	Performance	Harmonised Technical Specification
Water Tightness	Vacuum Test	Pass	EN12566-1
Durability		Pass	
Structural Behaviour (Calculation)		Pass (for wet ground conditions also)	

**9. The performance of the product identified in points 2 is in conformity with the declared performance in Point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.**



27/03/2014

Michael Stack  
Managing Director



Tricel (Killarney)  
Ballyspillane Ind Est Killarney  
Co. Kerry  
Ireland

13

DOP01CPRIE12201606

**EN 12566-1**

Prefabricated septic tanks for treatment of domestic wastewater

- Product: Tricel Fortis Range of Wastewater Treatment Plants
- Material: GRP

Notified Body: Prüfinstitut für Abwassertechnik GmbH  
Hergenrather Weg 30  
52074 Aachen  
Number: NB 1739

**Treatment capacity**

- Nominal organic daily load: (BOD<sub>5</sub>)
- Nominal Hydraulic daily flow (Q<sub>N</sub>)

As Set Out in  
Table CE  
for each Model

**Effectiveness of treatment:**

- Hydraulic Efficiency

99.93%

(no filter)

**Water Tightness:**

Pass

**Structural Behaviour (Calculation):**

Pass (also Wet  
conditions)

**Durability:**

Pass

## 18 Certification:

The Tricel Fortis wastewater treatment plants have successfully passed the stringent European testing and are now approved to the new European standard EN 12566-1 Small wastewater treatment plants for up to 50 PT - Part 1: Prefabricated Septic Tanks.

Tricel Identification Code	This Tricel is a	Nominal Organic Daily Load (BOD <sub>5</sub> )	Nominal Hydraulic Daily Flow (QN)
Fortis 3200		1200	480
Fortis 4050		1950	780
Fortis 5750		3750	1500
Fortis 7400		5400	2160
Fortis 9100		7050	2820
Fortis 10800		8850	3540

**CE Table**

For Terms and Conditions, please contact Tricel directly at the following:



Tricel (Killarney) Unlimited Company Trading as Tricel  
Ballyspillane Ind. Est. Killarney, Co. Kerry, Ireland  
Tel: +353 (0)64 663 2421 | Email: [sales@tricel.ie](mailto:sales@tricel.ie) | [www.tricel.ie](http://www.tricel.ie)

Tricel Environmental UK, A trading brand of Dewey Waters Ltd.,  
Tricel Weston, Winterstoke Road, Weston-super-Mare, BS24 9AN, United Kingdom.  
Tel: 44 (0) 1934 422 311 | Email: [environment@tricel.co.uk](mailto:environment@tricel.co.uk) | [www.tricel.co.uk](http://www.tricel.co.uk)

In accordance with Tricel normal policy product development these specifications are subject to change without notice.