



## Installation Guide

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**Rebate Solido SMART +P  
Sewage Treatment Plant  
Phosphorus Removal**

**Manual Version OM0032  
Created On: 15 March 2022 Rev 1**



**Installers: To Safeguard Warranty Please  
Ensure You Are Using The Latest  
Installation Manual**

## Installation Record

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Please record details of your Solido SMART +P tank installation here and keep this document in a safe place.

Unit Installed (Please Tick)

- KEBL3000P     KEBL4500P     KEBL5200P-H     KEBL7600P-H     KEBL9900P-H  
 Pump Option

Serial Number:

Commissioning Date:

### Commissioning Company

Name: -----

Address: -----  
-----

Contact: -----

### Service Company

Name: -----

-

Address: -----  
-----  
-----

Contact: -----

If you require assistance finding a service company, please contact Premier Tech. Your warranty is invalidated if you do not keep to a regular servicing schedule.



PT Water and Environment UK

+44 (0) 191 587 8650  
[sales.ptwe.uk@premiertech.com](mailto:sales.ptwe.uk@premiertech.com)  
[Premiertechaqua.com/en-gb](http://Premiertechaqua.com/en-gb)



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# 1. Location

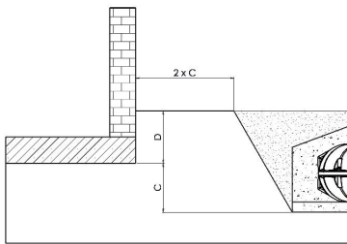
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## 1.1 Minimum Distance from Buildings

If the bottom of the excavation pit is below the lower edge of the foundation, the following applies:

Minimum distance Excavated pit to building =  $2 \times C$

C: Space between the excavated pit and the upper edge of the foundation. If there is any doubt, consult a structural engineer.



## 1.2 Ground Conditions

- **Round tank BL:**

**Ground/stratified water** must not rise higher than the **tank equator** (the middle of the tank) at any time, even temporarily (during heavy rain). Therefore, the **in-situ base** must be sufficiently **water-permeable** ( $k_f$  value  $> 5 \times 10^{-6} \text{m/s}$ ).

In cases of higher water table please use **heavy-duty** BL container models (higher wall thickness). Don't hesitate to contact us!

Before and during the installation ground / surface water has to be pumped out of the pit, so that the installation can be carried out in a dry situation.

- **Round tank BL heavy** (letter H in product code, higher wall thickness):

**Ground/stratified water** must not rise higher than the **tank shoulder** at any time, even temporarily (during heavy rain). Therefore, the **in-situ base** must be sufficiently **water-permeable** ( $k_f$  value  $> 5 \times 10^{-6} \text{m/s}$ ).

If the ground water level possibly lies **above** the container top, a watertightness between tank and shaft system should be produced by a factory-provided welded joint (if necessary on-site), otherwise see paragraph below for concrete installation.

Alternatively, the spacer ring 600 can be sealed by the installation of a rubber seal (KKDS0075).

### 1.3. Assessing Ground Conditions

Changing weather patterns in the UK mean where previously, regions or areas that may have been relatively dry may now be subjected to heavy and consistent rainfall.

#### Potential High-Water Table Signs To Look For

- Low permeability in soil (i.e., high clay content)
- Visible water table during excavation of the hole
- Naturally wet area
- Low lying or flat land
- Installation in a natural depression of the land
- Areas of low drainage or standing water
- Areas where water could congregate even if the land is currently dry

#### Potential Low-Water Table Signs To Look For

- Absence of water during excavation
- When installing on a hilltop or hillside location
- Dry excavation even during wet weather
- High permeability soil

#### 1.3.1. Installation In Permanently Low Water Table Conditions

The tanks should only be installed where the water table is below the turret (shoulder of the tank) height of the tank. Where the water table is below the turret of the tank, installation in pea gravel is recommended.

**Important advice:** Check necessity of buoyancy protection. (See installation manual DOKK7302)

### 1.3.2. Installation In Periodic High Water Table Conditions

If the ground water table could be above the turret (shoulder of the tank) height of the tank for a short period of time (defined as hours rather than days) a watertight connection between the tank and shaft system should be installed using a factory-provided welded joint (if considered necessary).

Alternatively, the cone / spacer ring 800 can be sealed by the installation of a rubber seal (part number KKDS0075).

In such conditions, installation in pea gravel is recommended.

**Important advice:** Check necessity of buoyancy protection.

### 1.3.3. Installation in High Water Table Conditions

Defined as potentially above the turret of the tank.




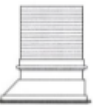

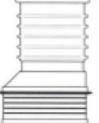
If the water table is at risk of being higher than the turret (shoulder) of the tank for a prolonged period of time (defined as days rather than hours) please see section 2.2 for installation information (use of concrete).

### 1.4. Hillside Situation

The soil of the area has to be checked for possible soil movement (BS 8601:2013, BS EN 1997-1:2004+A1:2013 and BS 8002:2015 ) and if necessary, it will be need to secured with a supporting structure (e.g., a wall). Further information is available at the local public authorities and building enterprises.

### 1.5 Traffic Conditions

This chart gives an overview of the standard traffic loads for which the container system is designed and the resulting sizes of excavation pit. Please contact us for further traffic loads.

						
Shaft elements	Cone with VS 20 (standard scope of delivery)	Cone with spacer ring 600 and VS 20	Cone with BS 60 (same size as VS 60)	Cone with spacer ring	Spacer ring 800 with cone and VS 20	Spacer ring 800 with cone and VS60/BS60
Version	Walk-on version	Deeper installation	Car driveable (BS80) resp. for a deeper installation	Preparation lorry driveable*	Spacious shaft, deeper installation	Spacious shaft, deeper installation
Load/Cover (Axle load)	Pedestrians, cyclists / A15 (-)	Pedestrians, cyclists / A15 (-)	Car, minibus on parking areas, driveways / B125 (2,2 to)	Small lorries on parking areas, company grounds D400(11,5 to)	Pedestrians, cyclists / A15 (-)	Pedestrians, cyclists / A15 (-)

Neck shapes may differ to images in some models.

\*Additional concrete covers and rings by customer. The maximum values show the upper limit of the static load. The soil coverage E should **not be more than 1.2 m from the top of the tank (or approx. 1.5m from inlet invert (IL))**, otherwise maintenance of the sewage treatment systems cannot be carried out.

## 1.6 Further criteria

Existing pipelines, pipes, vegetation as well as other specifics have to be considered, so that damage or hazards will be avoided. The soil coverage from the tank turret (shoulder) (point 4) may not exceed 1.5 m.

The soil coverage E should **not be more than 1.2 m**, otherwise maintenance of the sewage treatment systems cannot be carried out.

## 1.7 Ventilation System

A sufficient ventilation system of the container is necessary. The inlet tube has to be connected to the roof or similar (stack effect). From the outlet side fresh air must have free access to the system (see example in image below).

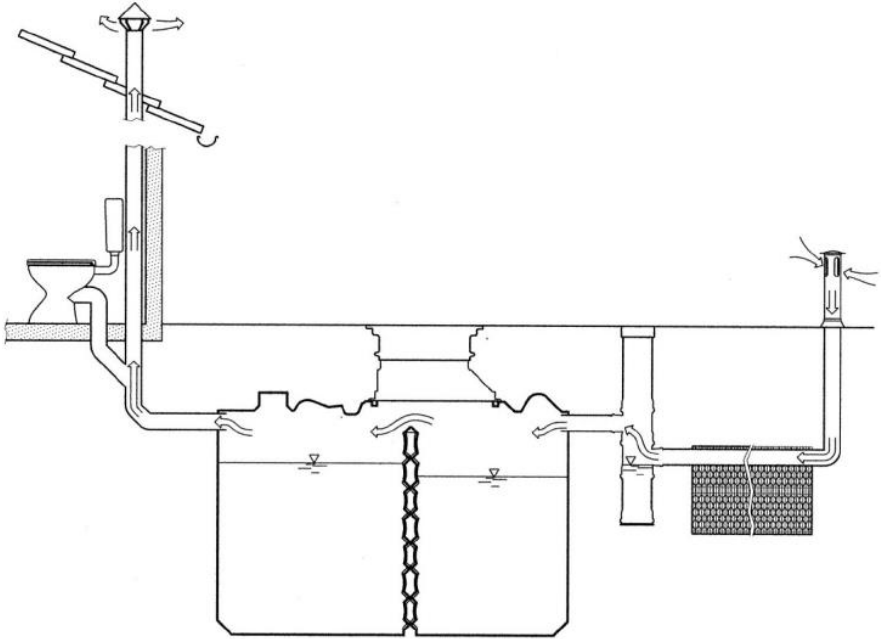
Please make sure that the vent stacks are in good working order, if non-return valves are present (i.e. Durgo valves), an alternative vent may be required.



## 1.8. Piping

The inlet pipe leading from the house/property to the tank should be angled greater than 1% to ensure flow with self-cleansing velocity and minimal surcharge.

The angle of the overflow pipe is recommended to be greater than the angle of the inlet pipe.



Tank shape for illustration only

# 2. Installation

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## 2.1 Backfill Material

The backfill material must be permeable to water unless concrete is used. It must create a solid packing and may not damage the surface of the tank. If the backfill material includes pieces with sharp or pointed edges, the tank walls must be protected with a sand coating.

Round Gravel – Grain size between 5-16 mm. (alternatively 12-16 mm or 8-12 mm).

Other materials can also be used. For more information, please refer to the technical information sheet DORW0100 available on our website. Contact Premier Tech for more information.

## 2.2 Backfilling with the Excavation Material

Backfilling with the excavation material is not recommended, but can be used only to fill the gaps beyond the necessary gravel gaps. Excavated soil or other material can be used only if stable and permeable.

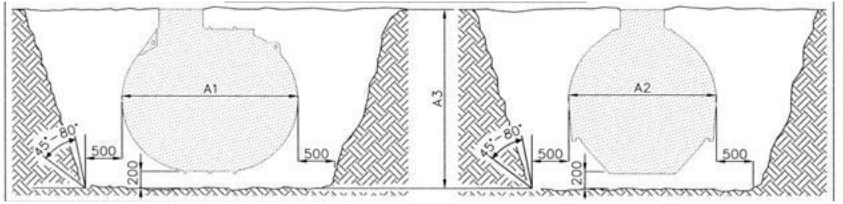
## 2.3 Emergency Overflow

Make sure on site that the plant has an emergency overflow. Specially plants with a pump (instead of airlift) have to ensure on site that an emergency overflow is installed and/or the operator is well informed.

## 2.4 Excavation Pit

The depth of the excavation pit should follow the below:

- Location/depth requirements of the serving pipes.
- Tank height and effluent discharge level.
- The soil coverage required above the tank (standard max. 1,50 meter, depend also on the traffic loads). The soil coverage E (shown below) should not be more than 1.2m from the top of the tank (1.5 from the IL), otherwise maintenance of the sewage treatment systems cannot not be carried out.



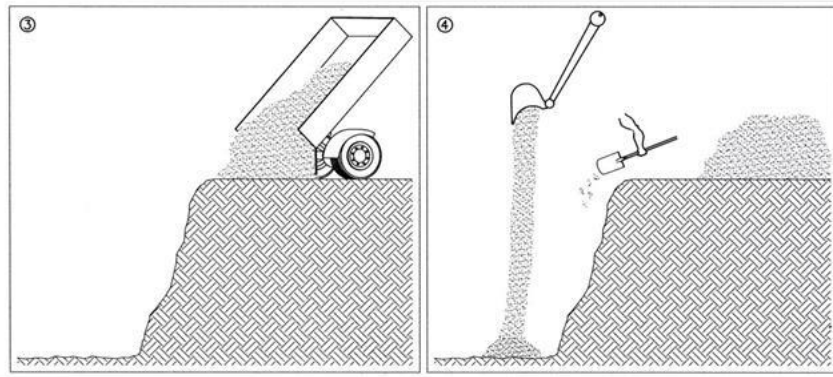
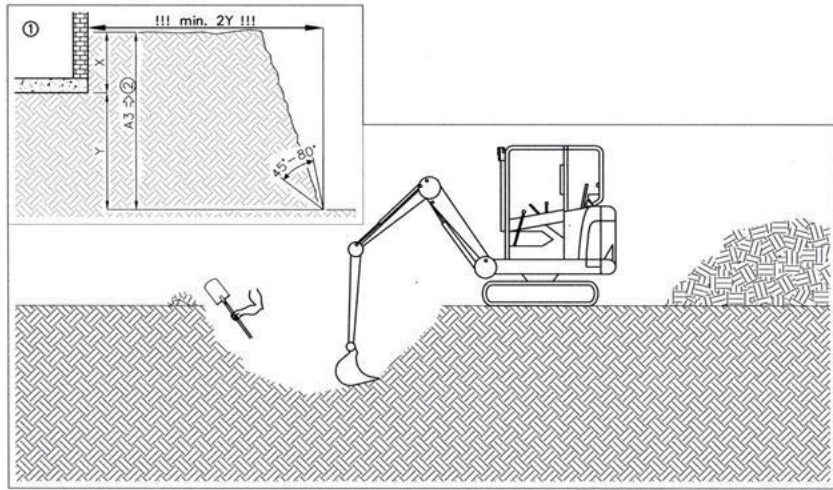
For better stability of the excavation walls a 45°–80° gradient is recommended. (As per BS 6031:2009)

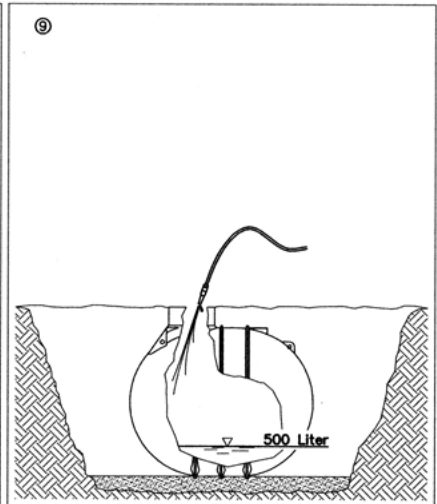
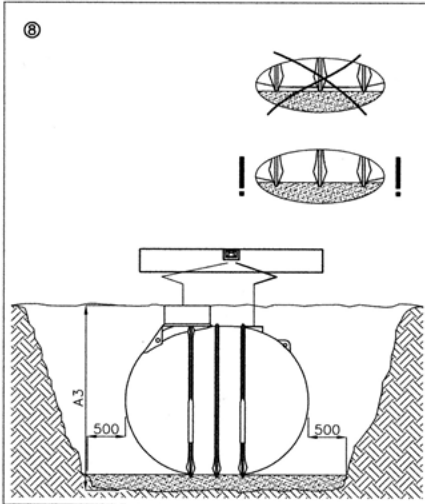
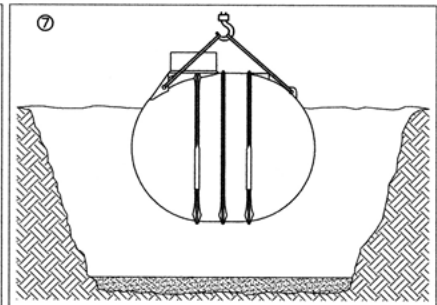
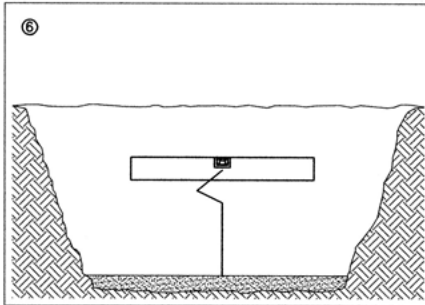
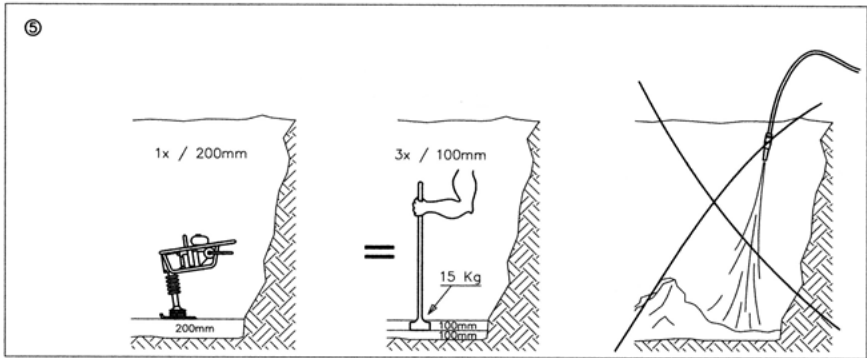
A  $\geq 170$ mm void between tank and excavation wall is recommended. (further details on BS 6031:2009)

Note: In a single chamber plant there is a drop of 100mm between inlet and outlet.

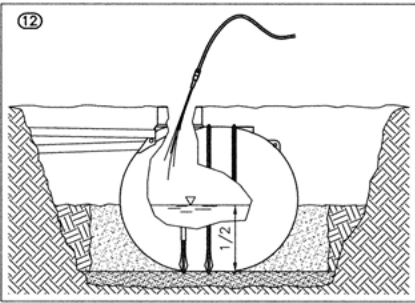
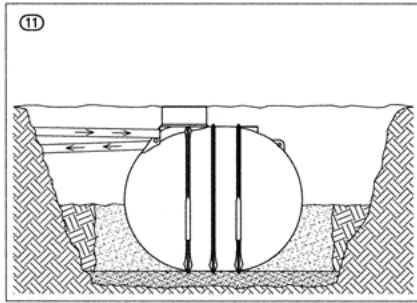
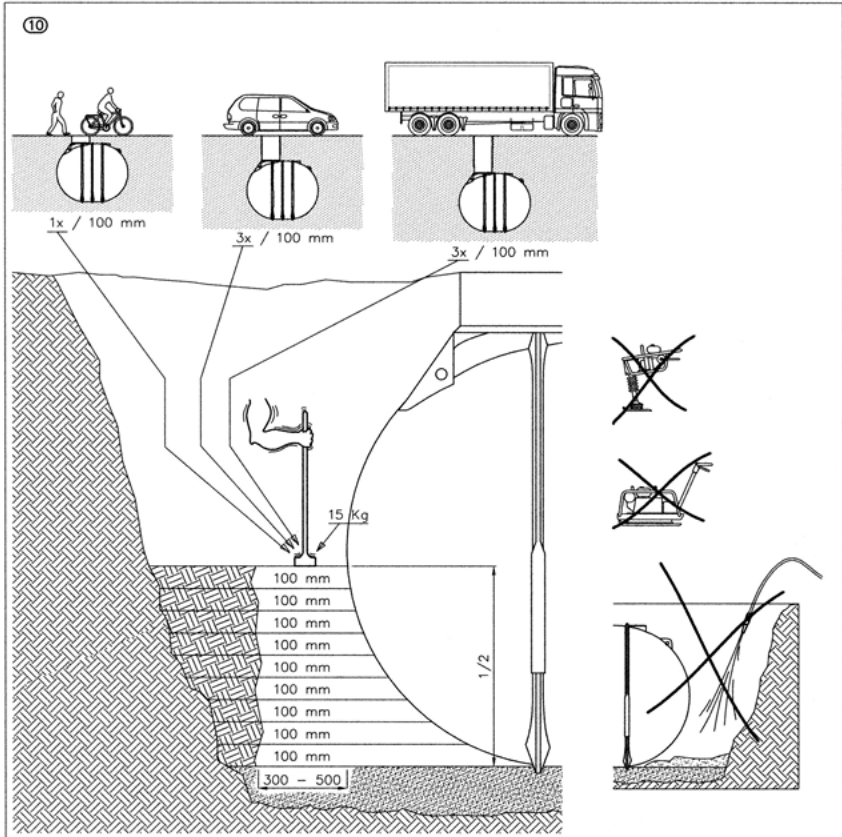
# 3. Installation Guide

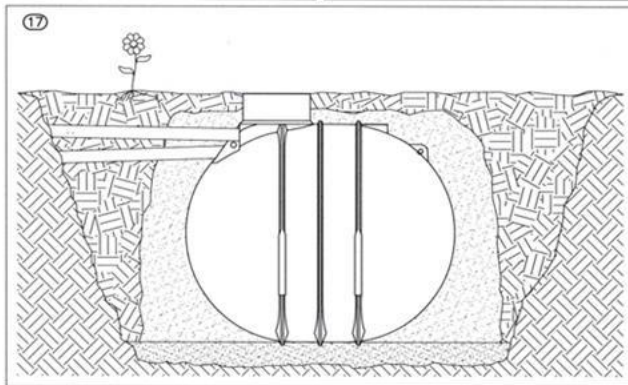
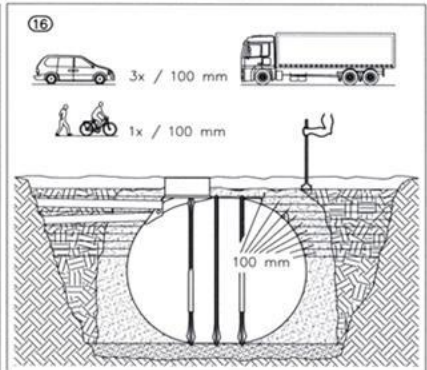
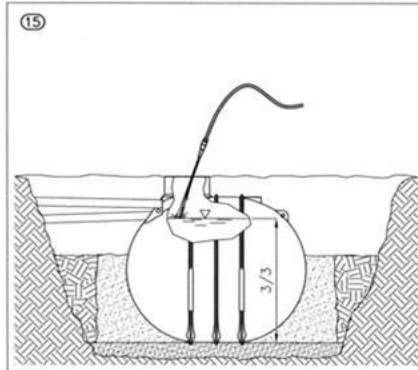
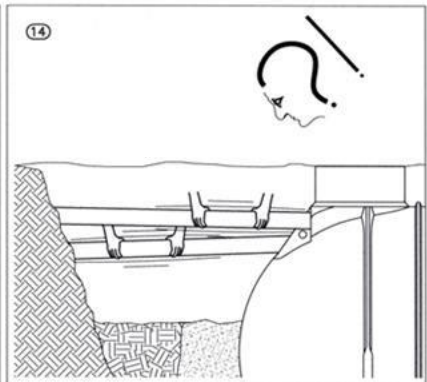
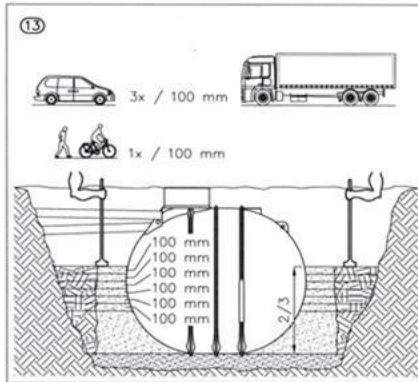
Please follow the illustrations below:





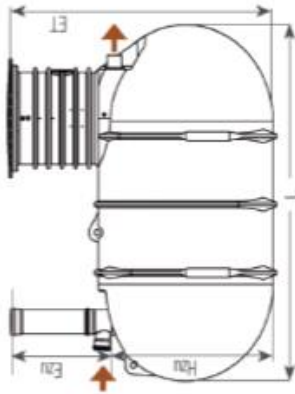
Use backfill material in layers around the tank compressing each layer in turn. This will provide more stable backfill volume.





# 4. Technical Data

<b>BL (BlueLine)</b>	
Drivable version (max. axle load)	11,5 t
Groundwater	up to middle of tank / for extra price: up to shoulder of tank
Max. soil coverage	1,5 m



Type BL (BlueLine)	2600	3000	4500	5200	7600	10000
PE 85 Solido SMART	5	6	9	12	18	25
weight	100	145	185	180	250	360
length (L)	240	242	242	240	277	340
width	136	142	170	201	231	233
height (ET)	min. 191	201	229	254	271	271
	max. 216	220	248	273	301	301
Inlet to ground level (Ezu)	min. 69	54	55	48	32	32
	max. 94	73	74	92	100	100
Inlet to bottom (Hzu)	122	147	174	207	240	240
alternative inlet	-	-	-	181	202	202
Inlet - Outlet (level difference)	9	7	6	26	37	37
alternative inlet	-	-	-	6	4	4
Diagonal length	224	236	236	230	269	324



## 5. Shafts and Covers

### 5.1 Desludge Pipe

Key parts of the products are a) the pipework for desludging (DN160, L=50cm), and b) its cover (KG DN160) (if necessary to be extended or shortened on site depending on ground level)

### 5.2. Access Shaft and Cover

The BL2600, BL3000, BL4500 & BL5200 use the VS60 access shaft

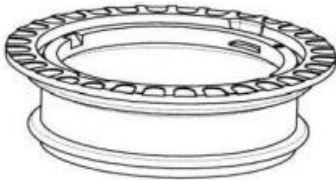
Max height of 600 mm



The BL5200, BL7600, BL10,000 use the VS20 access shaft.

(The BL52000 can take either versions)

Max height of 250 mm

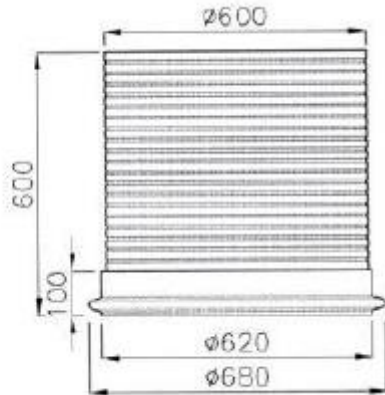


The BL3000 and BL5200 can take the telescoping manway with increments of 100mm

The options BL5200 up to BL10,000 tanks use the spacer ring (DN600).

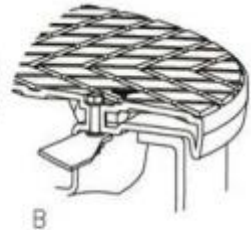
### Spacer ring DN600

- Height 600 mm
- lengthens up to 550mm
- can be shortened by cutting



### 5.3. Top Cover for all Tank Types

The top cover should remain closed (positioned and locked) at all times except when tank inspection is in progress



with child security:

A closed

B opened

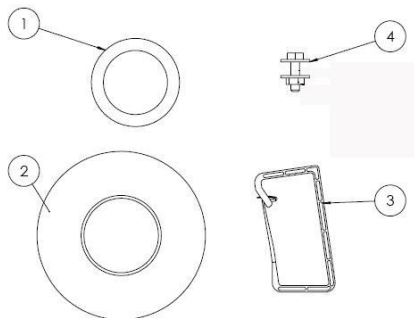
#### IMPORTANT NOTE:

Please pay attention to the fact that following any work done at the sewage container the child security of the Top Cover has to be closed again!

## 5.4. Parts for Shaft Assembly

### Solido (Smart and Smart +P)

- 1 pcs. seal DN 40 (1)
- 1 pcs. Lip seal DN 50 (2)
- 1 pcs. Cable holder (3 + 4)



# 6. Optional Accessories for Tanks

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## 6.1. Drivable Cover Option

The figure below illustrates the optional setup of a driveable cover on top of the tank's manway. It also displays on the way to install the tank at up to 1.2m depth from cover level to the top of the tank (or approx. 1.5m to the inlet invert).

