



Installation and Maintenance Instructions for GRAF Septic Tank Carat - RS - Series

2700 L	Order No. 372028
3750 L	Order No. 372029
4800 L	Order No. 372030
6500 L	Order No. 372031
Baffle Carat 2700L 1/3 Order No. 375077	
Baffle Carat 3750L 1/3 Order No. 375080	
Baffle Carat 4800L Order No. 375026	
Baffle Carat 6500L Order No. 375027	



The points described in these instructions must be observed under all circumstances. All warranty rights are invalidated in the event of non-observance. Separate installation instructions are enclosed in the transportation packaging for all additional articles purchased from GRAF.

The tank must be checked for any damage prior to insertion into the trench under all circumstances.

Please refer to www.grafaustralia.com.au for further instructions or contact GRAF office.

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1. General notes

1.1 Safety

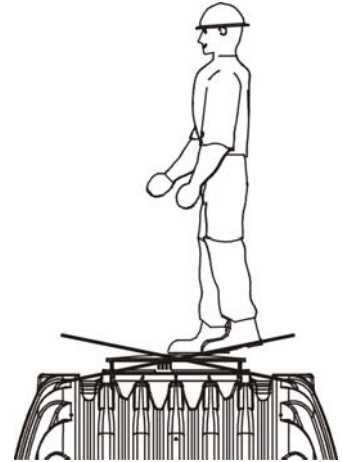
The relevant accident prevention regulations must be observed during all work. Particularly when walking on the tanks, a 2nd person is required to secure the tank.

The relevant regulations and standards must additionally be taken into consideration during installation, assembly, servicing, repair, etc.

During all work on the system or parts of the system, the entire system must always be rendered inoperable and secured to prevent unauthorised reactivation.

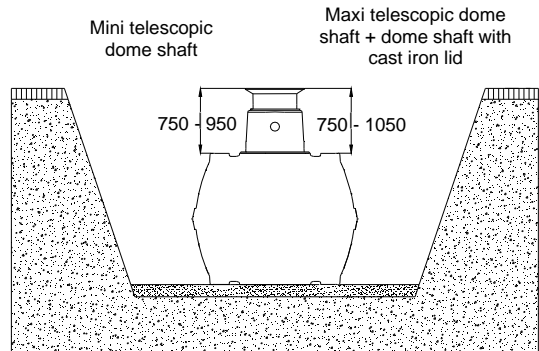
Except in the event of work carried out in the tank, the cover of the tank must always be kept sealed, as this otherwise constitutes a maximum risk of accident. Only original GRAF covers or covers approved in writing by GRAF must be used.

GRAF offers an extensive range of accessories, all of which are designed to match each other and which can be extended to form complete systems. The use of other accessories may lead to impediments to the system's functional capability, therefore invalidating liability for resulting damage.

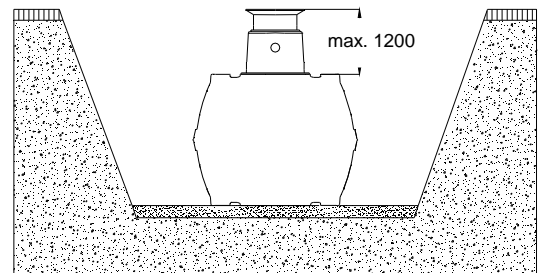


2. Installation conditions

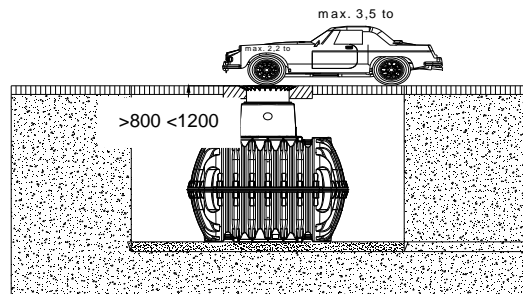
Coverage heights with telescopic dome shaft in green areas.



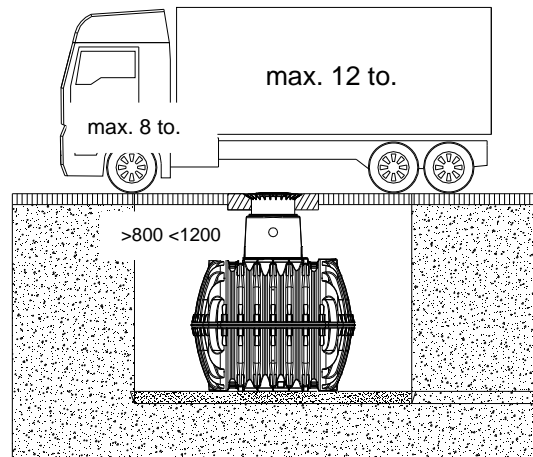
Maximum coverage heights with extension and telescopic dome shaft.



Covering heights with cast telescopic dome shaft (with class B cast cover) in areas with car traffic (load up to 3.5 t).



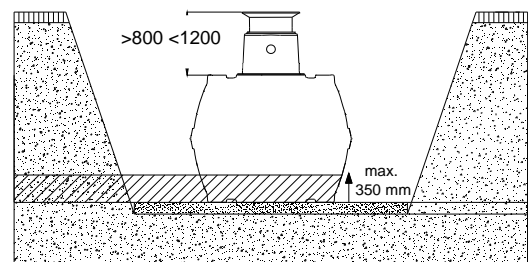
Coverage heights with telescopic dome shaft (with cover class D – to be provided at construction site) in areas used by trucks with a max. weight of 12 t.



Coverage heights on installation in groundwater – the hatched area specifies the permissible immersion depth for the tanks.

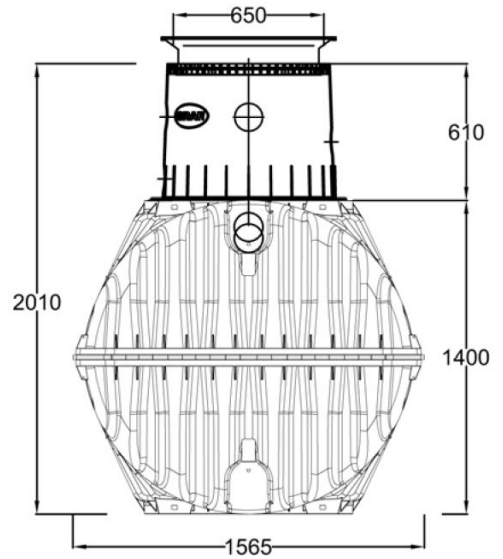
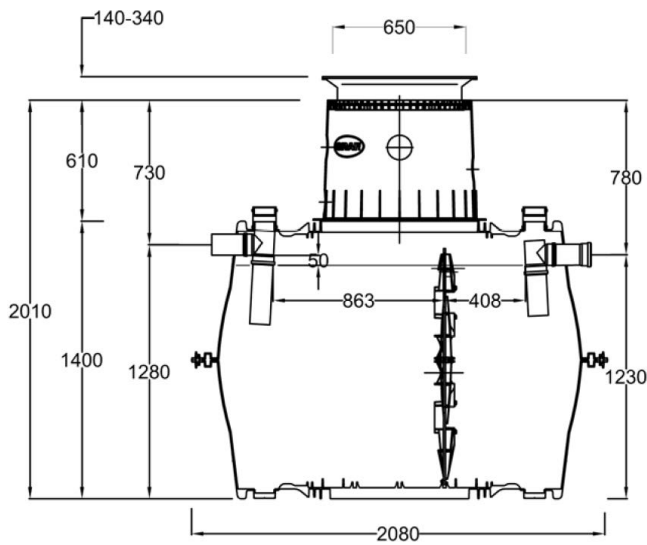
(The immersion depth is 350mm).

Note: Please contact GRAF for advice if ground water is higher than specified above.

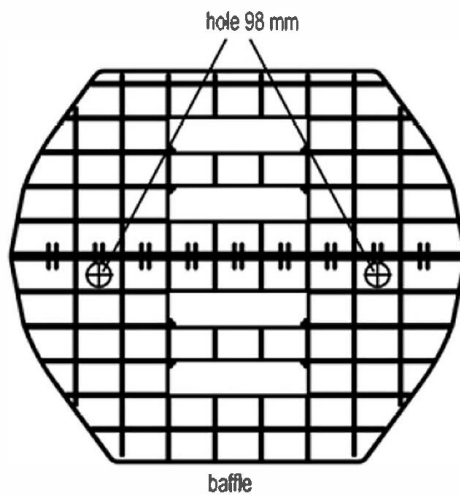
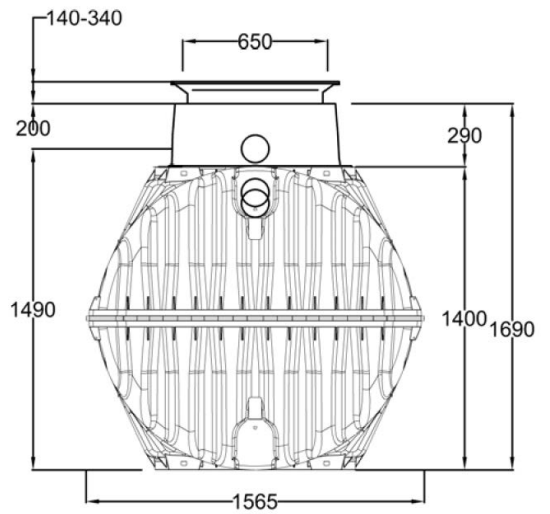
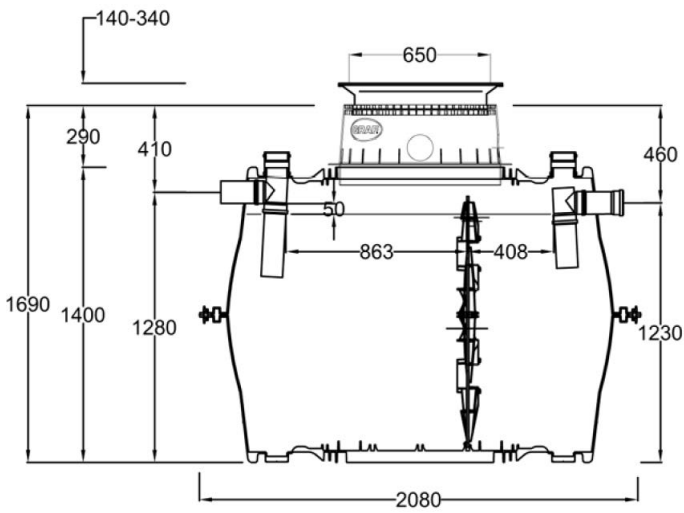


3. Technical data

2700L with Maxi dome



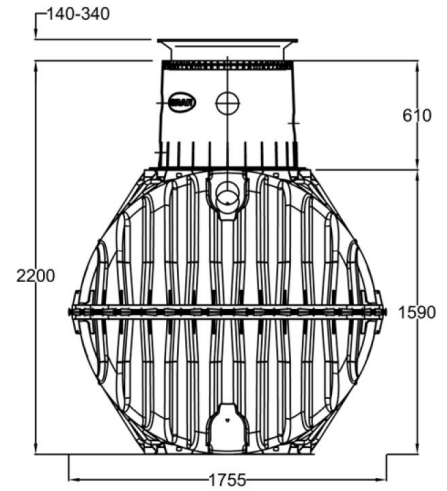
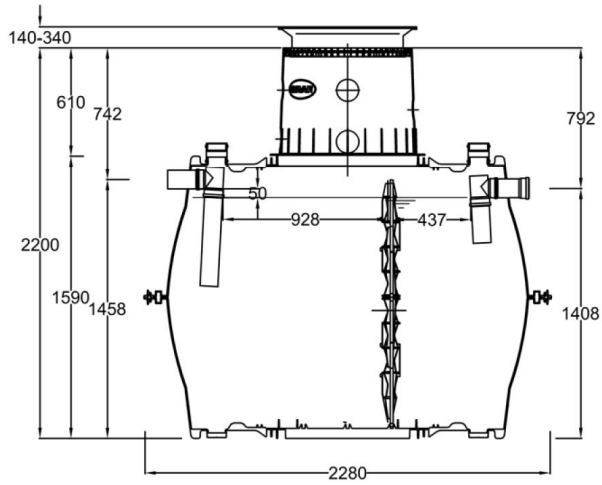
2700L with Mini dome



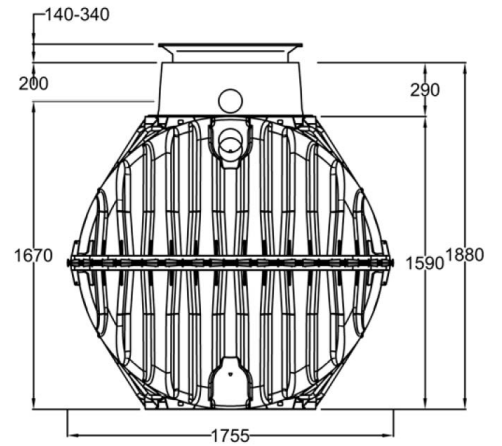
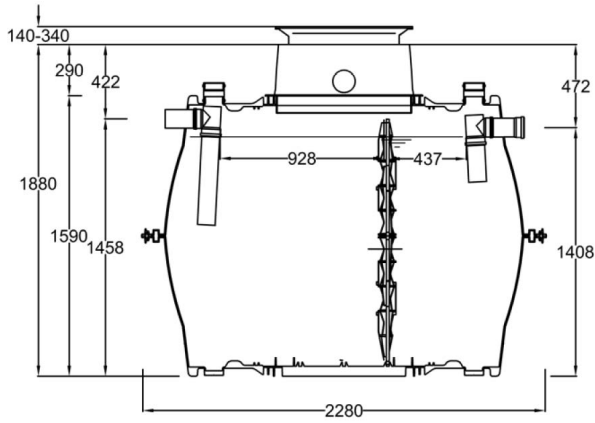
Baffle for Carat tanks

3. Technical data

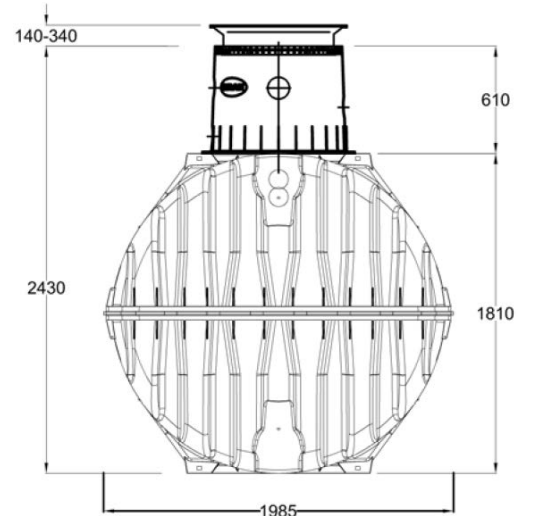
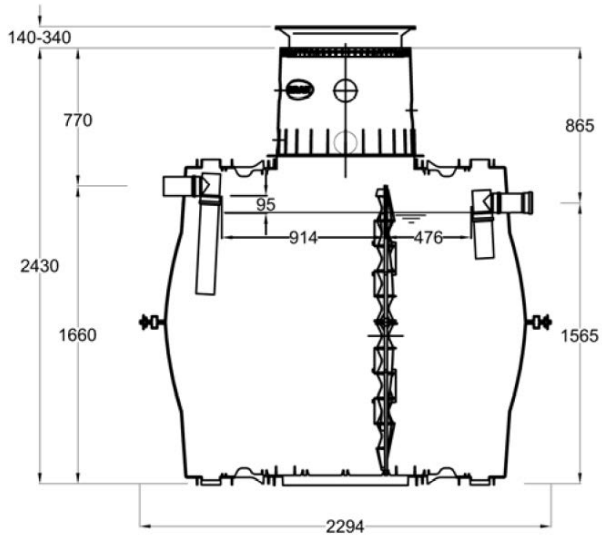
3750L with Maxi dome



3750L with Mini dome

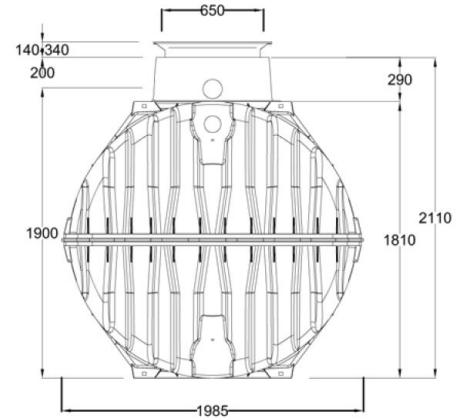
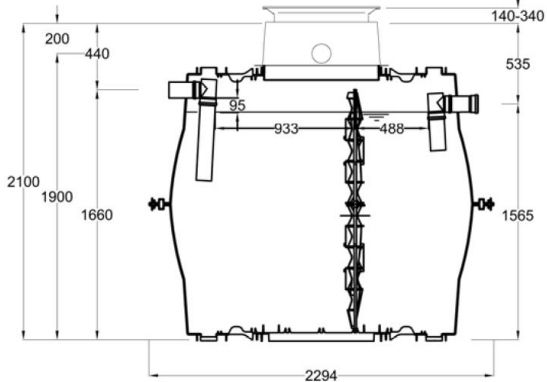


4800L with Maxi dome

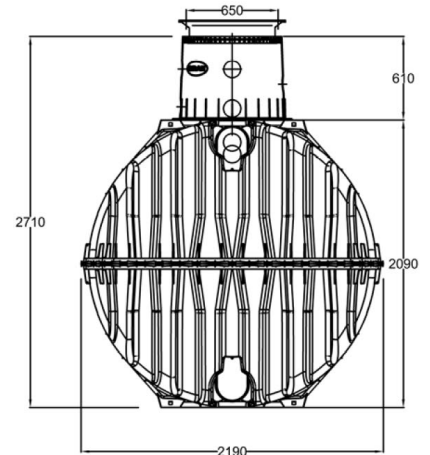
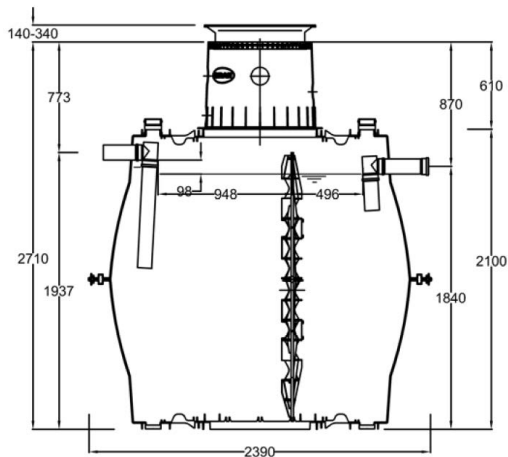


3. Technical data

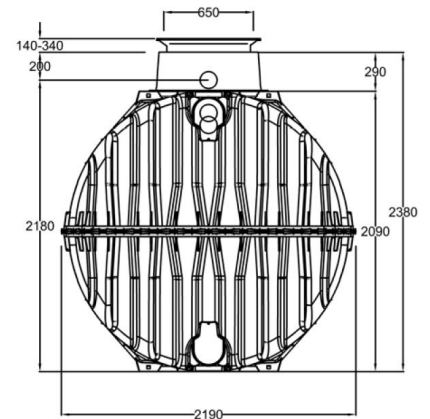
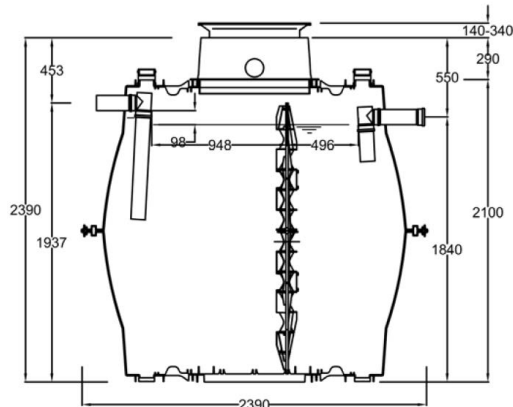
4800L with Mini dome



6500L with Maxi dome



6500L with Mini dome

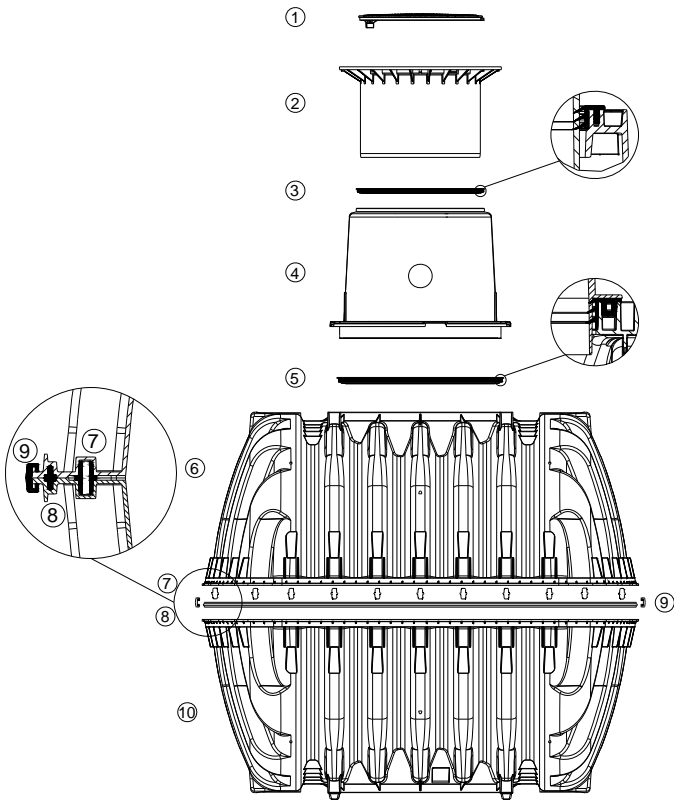


Tank	2700 litres	3750 litres	4800 litres	6500 litres
Art. No.	372028	372029	372030	372031
Weight	120 kg	150 kg	185 kg	220 kg
Weight With mini tank dome	116 kg	146 kg	181 kg	220 kg
L	2080 mm	2280 mm	2280 mm	2390 mm
W	1565 mm	1755 mm	1985 mm	2190 mm
H	1400 mm	1590 mm	1820 mm	2100 mm
Htot*	2010 mm	2200 mm	2430 mm	2710 mm
Htot* with mini tank dome	1680 mm	1870 mm 14 / 40	2100 mm	2380 mm

* Htot = total height

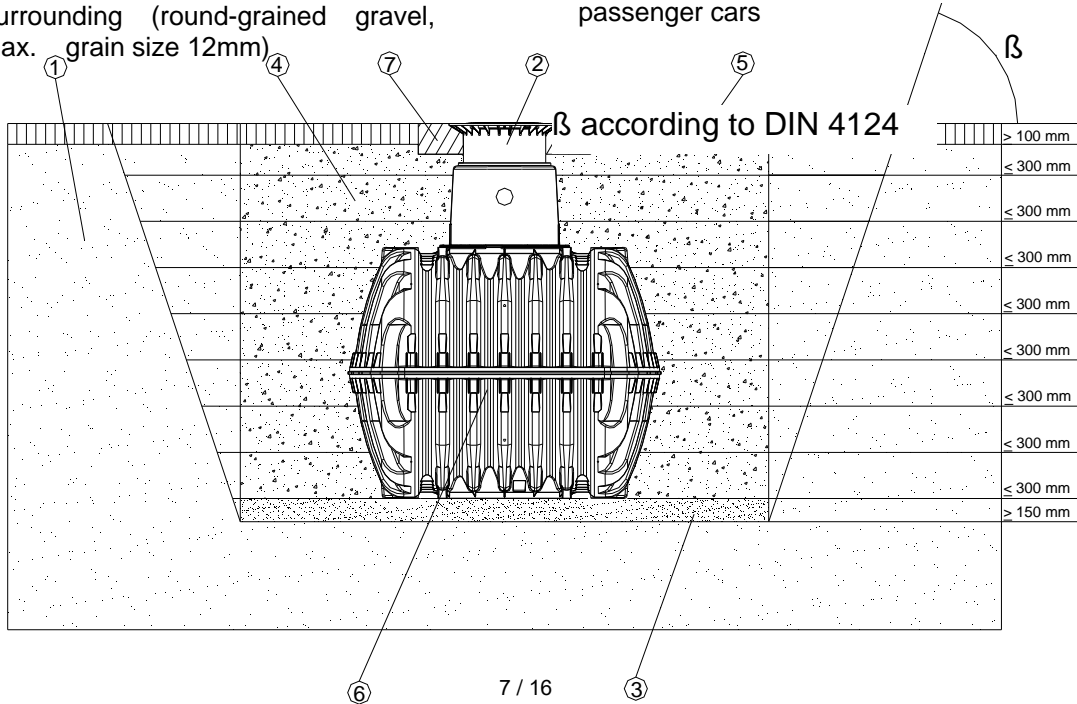
4. Tank structure

- ① Cover
- ② Telescopic dome shaft (can be inclined by 5°)
- ③ Profile seal
- ④ Tank dome (can be rotated by 360°)
- ⑤ Tank – Tank dome seal
- ⑥ Upper half shell / Carat RS underground tank
- ⑦ Centring pins
- ⑧ Profile seal
- ⑨ Quick connection
- ⑩ lower half shell / Carat RS underground tank



5. Installation and assembly

- | | |
|--|--|
| ① Subsoil | ⑤ Covering layer |
| ② Telescopic dome shaft | ⑥ Carat underground tank |
| ③ Compacted foundation | ⑦ Concrete layer for surfaces used by passenger cars |
| ④ Surrounding (round-grained gravel, max. grain size 12mm) | |



5. Installation and assembly

5.1 Baffle assembly

Please refer to the Installation instructions for GRAF baffle in section 7 of this manual.

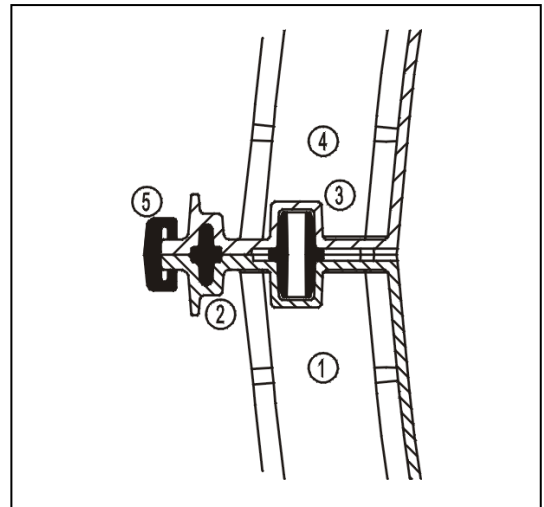
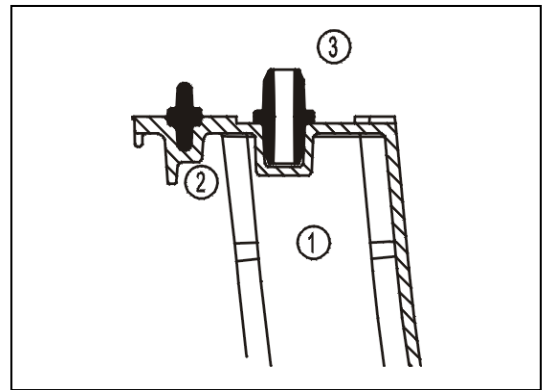
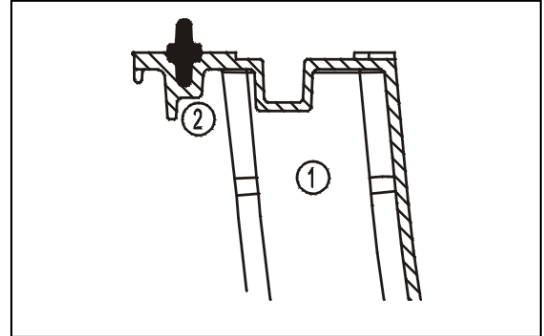
5.2 Tank assembly

First insert the circumferential profile seal ② into the sealing groove in the lower half shell ①. Lightly coat the seal with the enclosed soft soap.

Then insert the centring pins ③ into the intended mountings around the circumference.

The upper half shell ④ is now positioned onto the lower half shell ① and the quick connections ⑤ are installed. To do this, each 2nd quick connector is pre-adjusted in the 1st step and is secured with a hammer and a wooden support. The quick connectors engage in their end position. The remaining quick connectors are then installed.

Attention: When positioning the upper half shell, it must be ensured, under all circumstances that the seal does not slip out of the groove.



5.3 Construction site

Under all circumstances, the following points must be clarified prior to installation:

- The structural suitability of the ground
- Maximum groundwater levels which occur and drainage capability of the subsoil
- Types of load which occur, e.g. traffic loads

An expert ground report should be requested from the local planning authority to determine the physical characteristics of the subsoil.

5. Installation and assembly

5.4 Trench

To ensure that sufficient space is available for working, the base area of the trench must exceed the dimensions of the tank by 500 mm on each side; the distance from solid constructions must be at least 1000 mm.

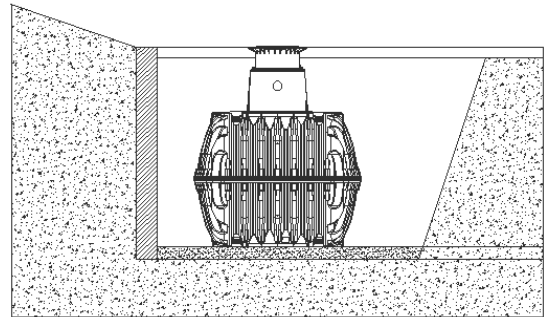
The trench embankment must be designed so that slippage or collapse of the embankment wall is not to be anticipated. The construction site must be horizontal and plane and must guarantee sufficient load-bearing capacity.

The depth of the trench must be dimensioned so that the max. earth coverage (see point 2 – installation conditions) above the tank is not exceeded. To use the system throughout the entire year, it is necessary to install the tank and those parts of the system which conduct water in the frost-free area. The frost-free depth is usually approx. 600 mm – 800 mm; precise information in this regard can be obtained from the responsible authority.

A layer of compacted, round-grain gravel (grain size 12mm, thickness approx. 150 - 200 mm) is applied as the foundation.

5.4.1 Slope, embankment, etc.

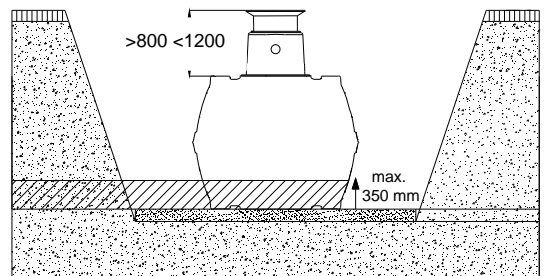
On installation of the tank in the immediate vicinity (< 5 m) of a slope, earthen mound or slope, a statically calculated supporting wall must be erected to absorb the soil pressure. The wall must exceed the dimensions of the tank by at least 500 mm in all directions, and must be located at least 1000 mm away from the tank.



5.4.2 Groundwater and cohesive (water-impermeable) soils (e.g. clay soil)

If it is anticipated that the tanks will be immersed deeper into the groundwater than is shown in the adjacent figure, sufficient dissipation must be ensured. (See table for max. immersion depth).

Dissipation of the drainage water (e.g. via an annular drainage system) is recommended in the case of cohesive, water-impermeable soils.

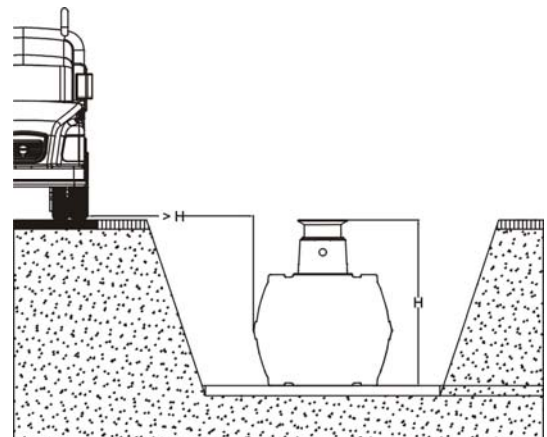


Note: Please contact GRAF for advice if ground water is higher than specified here.

Tank size	2700 L	3750 L	4800 L	6500 L
Immersion depth	350 mm	350 mm	350 mm	350 mm

5.4.3 Installation adjacent to surfaces used by vehicles

If the underground tanks are installed adjacent to surfaces which are used by vehicles heavier than passenger cars, the minimum distance away from these surfaces is at least the depth of the trench.



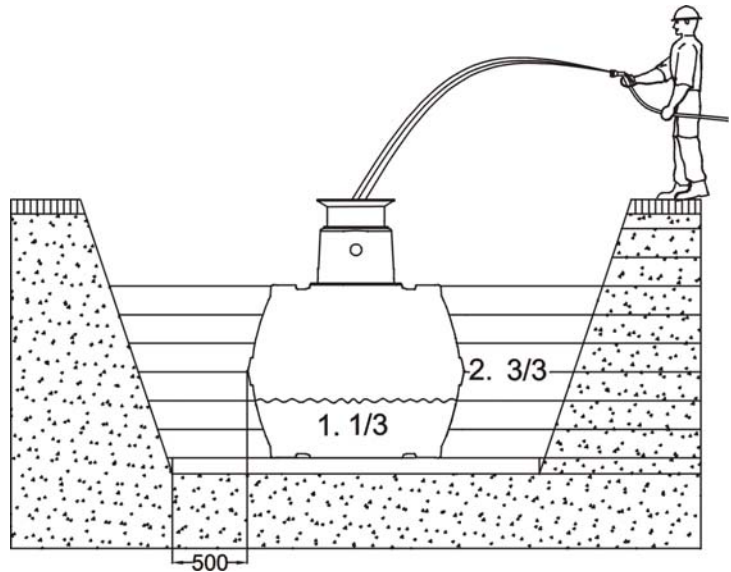
5. Installation and assembly

5.5 Insertion and filling

The tanks must be inserted, impact-free, into the prepared trench using suitable equipment. The tank is filled with 1/3 water before filling in the tank surrounding.

Afterwards the surrounding (roundgrain gravel, max. grain size 12mm) is then filled in layers of max. 30 cm steps and is compacted.

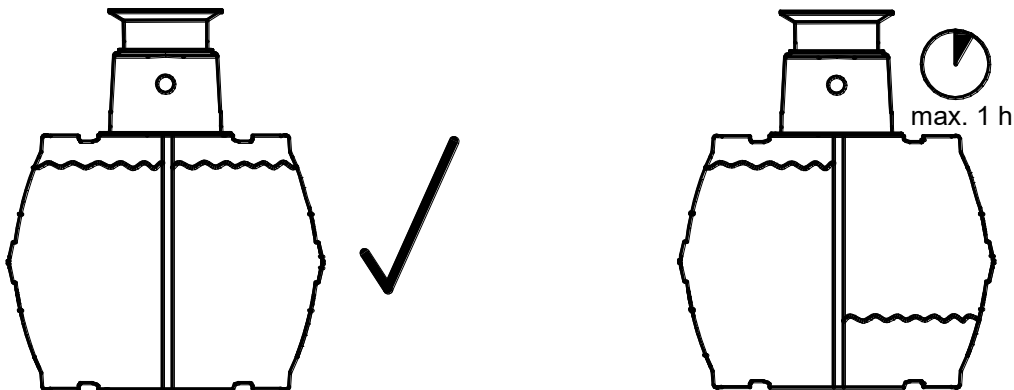
The individual layers must be well-compacted (manuel tamper). Damage to the tank must be avoided during compaction. Mechanical compaction machines must not be used under any circumstances. The surrounding must be at least 500 mm wide.



Before the tanks get filled completely, the trench has to be filled up to the top ground surface.

5.5.1 Empty the tank

If the tank is emptied for a longer period, it is indispensable to empty all chambers. Larger water level differences should be limited to one hour.



5.6 Routing connections

All feed and overflow pipes must be routed with a decline of at least 1% in the direction of flow (possible, subsequent settling must be taken into consideration in this case). If the tank overflow is connected to a public sewer, this must be protected against reflux by means of a lifting station (mixed sewer) or reflux seal (pure rainwater sewer).

All suction, pressure and control lines must be routed in an empty pipe, which must be routed as straight as possible, without bending, to the tank with a decline. Necessary bends must be formed using 30° moulded sections.

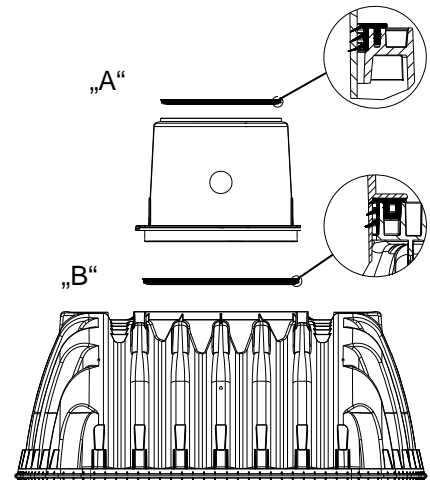
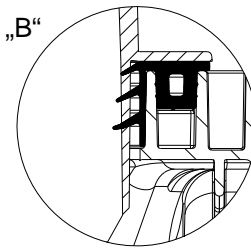
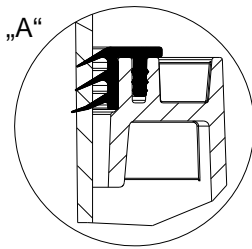
Important: The penetration pipe must be connected to an aperture **above** the max. water level.



6. Assembling the tank dome and telescopic dome shaft

6.1 Assembling the tank dome

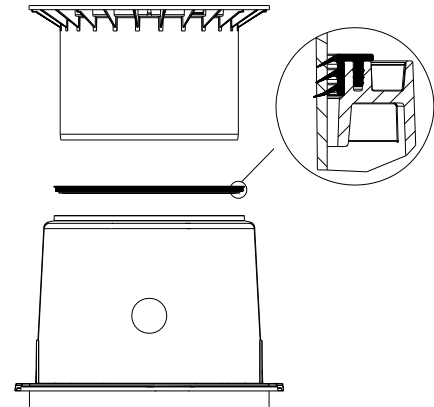
Prior to assembly, the enclosed seal is inserted into the tank domes' groove „B“. The tank dome is then aligned with the piping connections and is locked to the tank neck. It is essential to make sure that the upper seal "A" is correctly installed.



6.2 Assembling the telescopic dome shaft

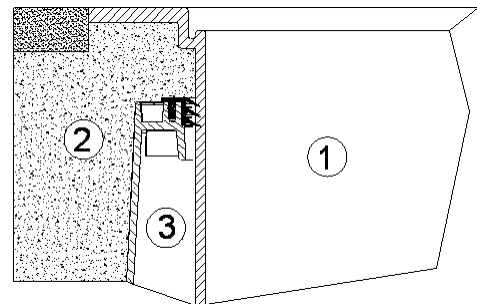
The telescopic dome shaft enables infinite adaptation of the tank to given site surfaces with earth coverage of between 750 mm and 950 mm (Mini telescopic dome shaft) or 750 mm and 1050 mm (Maxi telescopic dome shaft).

For assembly purposes, the enclosed profile seal (material EPDM) is inserted into the tank dome's sealing groove and is coated generously with soft soap (do not use mineral oil-based lubricants, as these attack the seal). The telescope is then greased, inserted and aligned with the surface of the site.



6.3 Telescopic dome shaft on which persons may walk

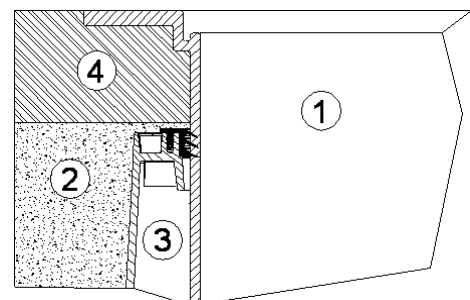
Important: To prevent loads from being transferred onto the tank, round-grain gravel ① (max. grain size 12mm) is filled in in layers around the telescope ② and is evenly compacted. Damage to the tank dome ③ and telescope must be avoided during this step. The cover is then positioned and is sealed to prevent entry by children. **Tighten the threaded connection on the cover so tightly that it cannot be opened by a child!**



6.4 Telescopic dome shaft over which passenger cars may drive

If the tank is installed under areas used by passenger cars, the collar area of the telescope ① (colour anthracite) must be supported with concrete ④ (load class B25 = 250 kg/m²). The layer of concrete to be installed must be at least 300 mm wide and approx. 200 mm high all around. The minimum coverage above the shoulder of the tank is at least 800 mm. The maximum coverage above the shoulder of the tank is 1200 mm.

Attention: It is essential to use the cast telescopic dome shaft (with class B cast cover).

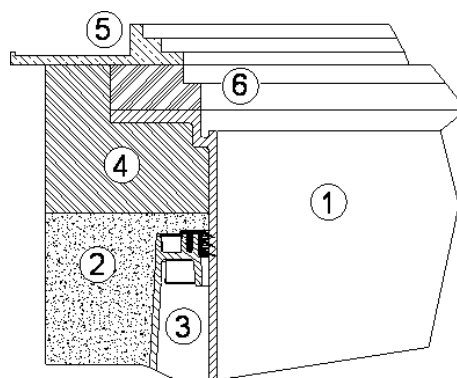


6. Assembling the tank dome and telescopic dome shaft

6.5 Truck telescopic dome shaft

On installation under areas used by trucks with a maximum weight of 12 t, the telescope ① is supported as described in point 6.4. The concrete rings ⑥ (Ø 600 mm) and a cast frame ⑤ with star-shaped load distribution for mounting the cast cover are then installed (observe earth coverage of at least 800 mm, max. 1200 mm). The cast frame must have a supporting area of approx. 1 m².

Attention: It is essential to use the truck telescope dome shaft (class D cover to be provided by customer).



7. Inspection and servicing

Pump out is as required by local bylaws, normally 3 to 5 yearly. Please contact your local authority.

100mm of sludge should always be left in the bottom of the tank to reseed the new batch after being pumped out, tank must be topped up with potable water immediately after pump out.

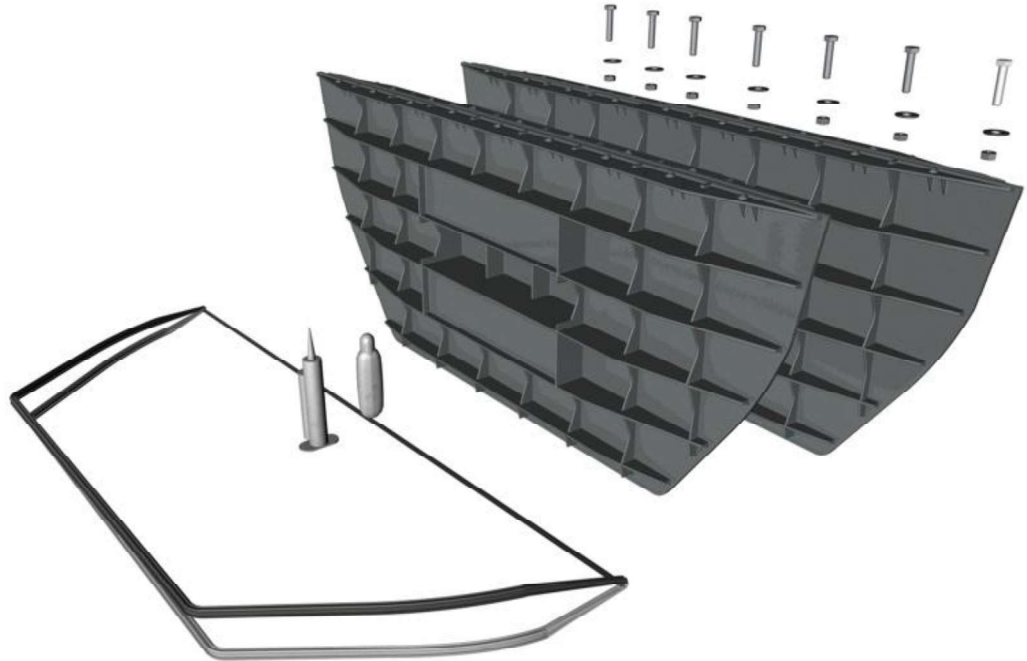
In addition, please:

- KEEP TANK FULL OF WATER AT ALL POSSIBLE TIMES ONCE INSTALLED IF GROUND WATER IS PRESENT OR LIKELY TO BE.
- ENSURE EXCAVATION HAS A MINIMUM OF 500MM CLEARANCE AROUND TANK.
- ENSURE TANK IS COMPLETELY BACKFILLED WITH APPROVED MATERIAL.
- ENSURE GROUND WATER FROM SURROUNDING AREA CANNOT ENTER EXCAVATION.
- CONTACT GRAF AUSTRALIA OFFICE FOR ANY ASSISTANCE.

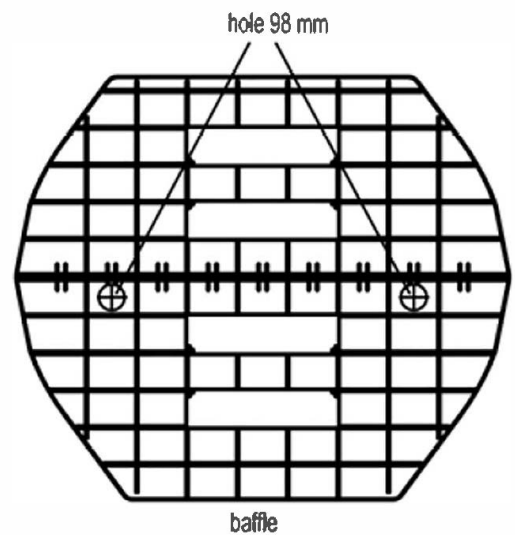
8. GRAF Carat Baffle Scope of Supply

Scope of supply:

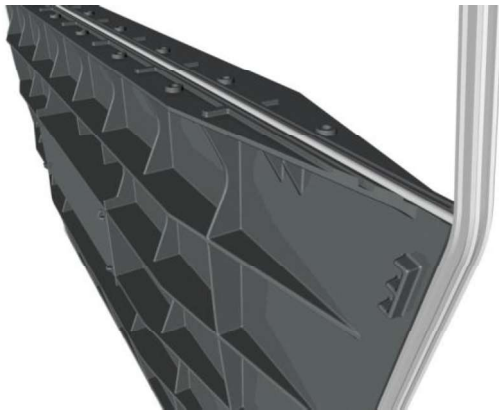
- Baffle upper part
- Baffle lower part
- Sealing
- Screws, nuts and grommet
- Tube of seal lubricant



Note: It is required to drill 2x 98mm holes directly below the top of the "lower" baffle for all Carat septic tanks.



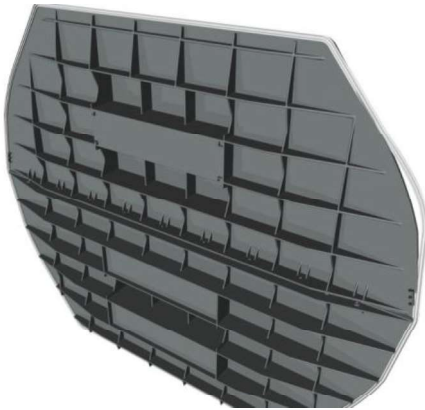
9. Installation of baffle



1. Put the sealing of the baffle in the lower side of the baffle. The upper baffle part is smaller than the lower part. So, the smaller part of the sealing must be put on the upper part of the baffle.



2. Put the upper side of the baffle on the lower side of the baffle. Connect with screws. Start to tighten with the outside screws, go around one by one to the middle.



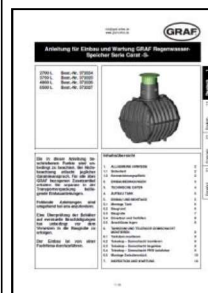
3. Put the sealing circumferentially in the baffle.



4. Install the baffle in the lower Carat half shell. Use lubricant on the lower part on the baffle sealing before installing.

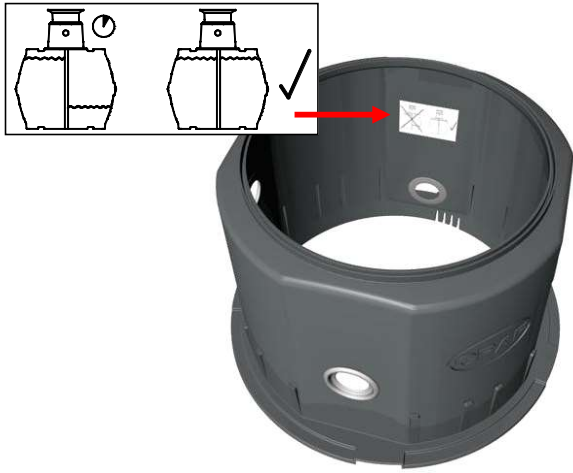


5. Lubricate the sealing with soap in the upper side of the baffle.



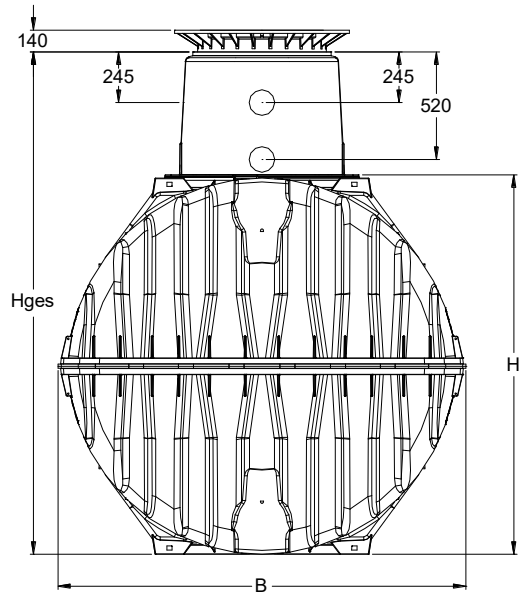
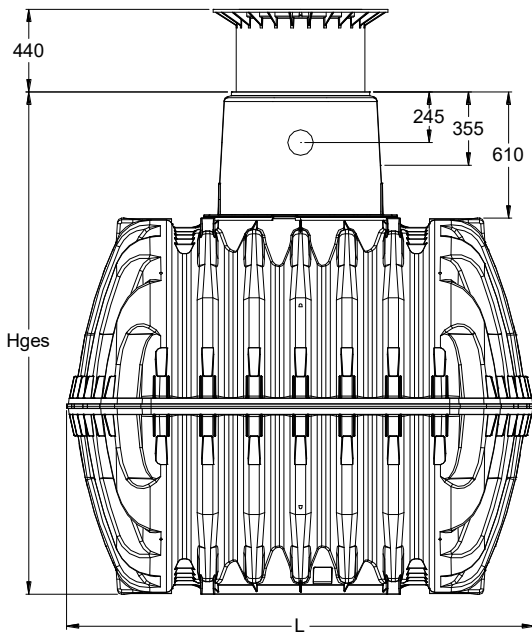
6. Continue assembling the tank according to the installation instructions (section 5 of this manual).

9. Installation of baffle



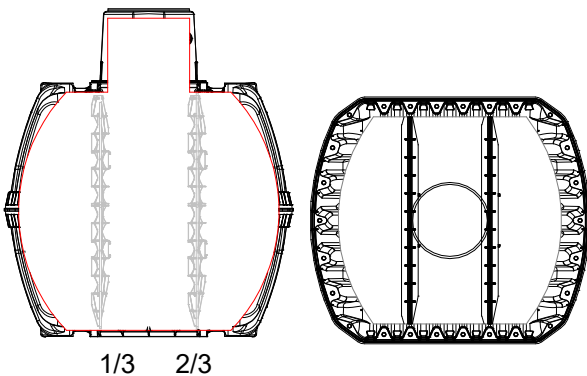
7. Put the label inside the tank dome.

10. Carat Baffle Technical data



10.1 Possible baffle positions

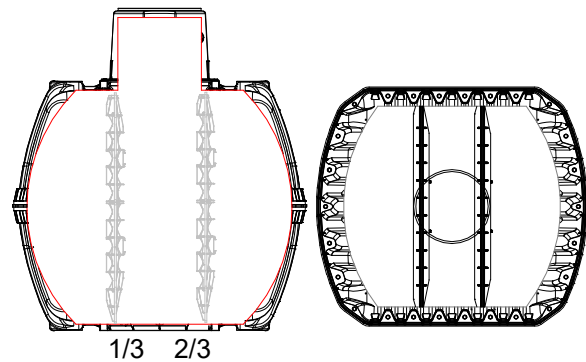
**2700L
3750L**



There is one baffle available for the 2700L and 3750L tanks which can be installed in 1/3 or 2/3 locations as shown above.

375077	Baffle for Carat S 2700L	1/3
375080	Baffle for Carat S 3.750L	1/3

**4800L
6500L**



The installation of the baffle is possible in 1/3 or 2/3 position.

375026	Baffle for Carat S 4.800L
375027	Baffle for Carat S 6.500L

Note: The inlet must be installed on the larger 2/3 side of the tank.

