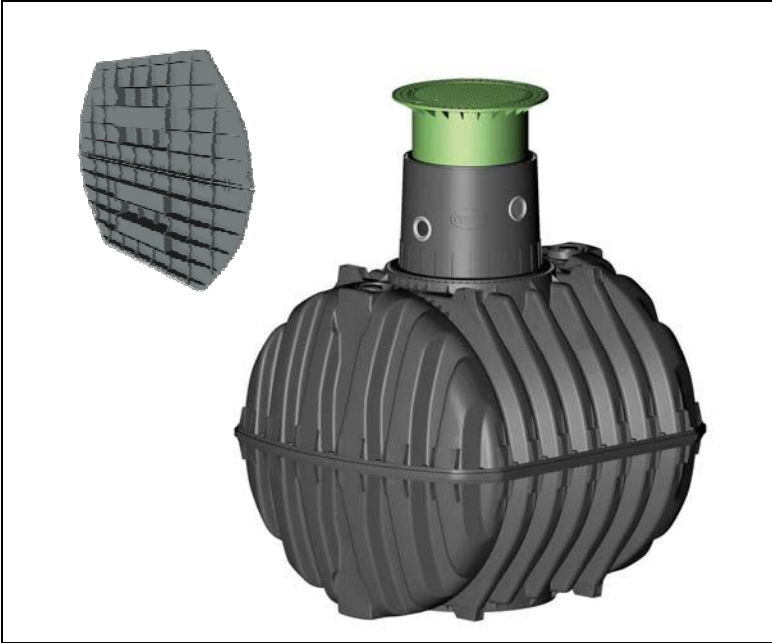


Installation and maintenance instructions for GRAF septic tanks, Carat series

3750 L	Order No. 370016
4800 L	Order No. 370017
6500 L	Order No. 370018



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.

Missing instructions can be downloaded on www.graf.info or can be requested from GRAF.

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1. General notes

1.1 Safety

The relevant accident prevention regulations according to BGV C22 must be observed during all work. Particularly when walking on the tanks, a 2nd person is required to secure the tank.

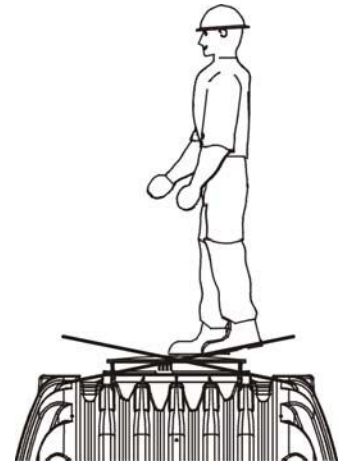
The relevant regulations and standards must additionally be taken into consideration during installation, assembly, servicing, repair, etc. Relevant notes can be found in the corresponding sections of these instructions.

When entering the tank it is indispensable to empty all chambers. Under no circumstances one must not enter the container if there is still an unemptied chamber.

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. The rain protection installed on delivery is merely transportation packaging. It cannot be walked on and is not child-proof; it must be replaced with a suitable cover immediately following delivery (telescopic dome shaft with corresponding cover)! 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.

The mini dome shaft produces a depth of cover of between 420 – 620 mm.

Maximum coverage heights with intermediate section and telescopic dome shaft.

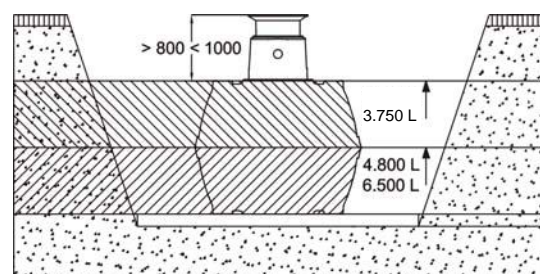
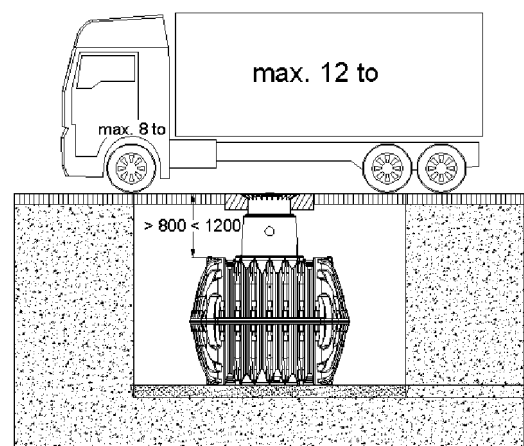
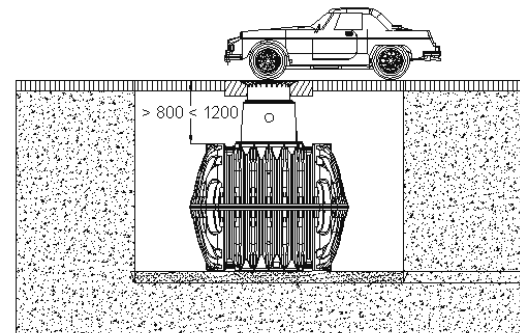
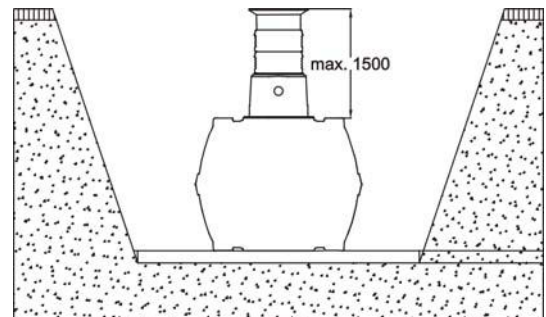
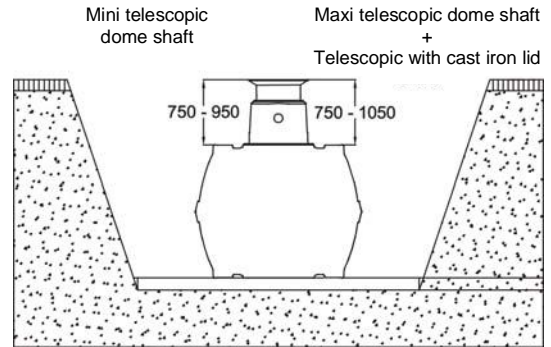
(in green areas only, without groundwater and stratum water)

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

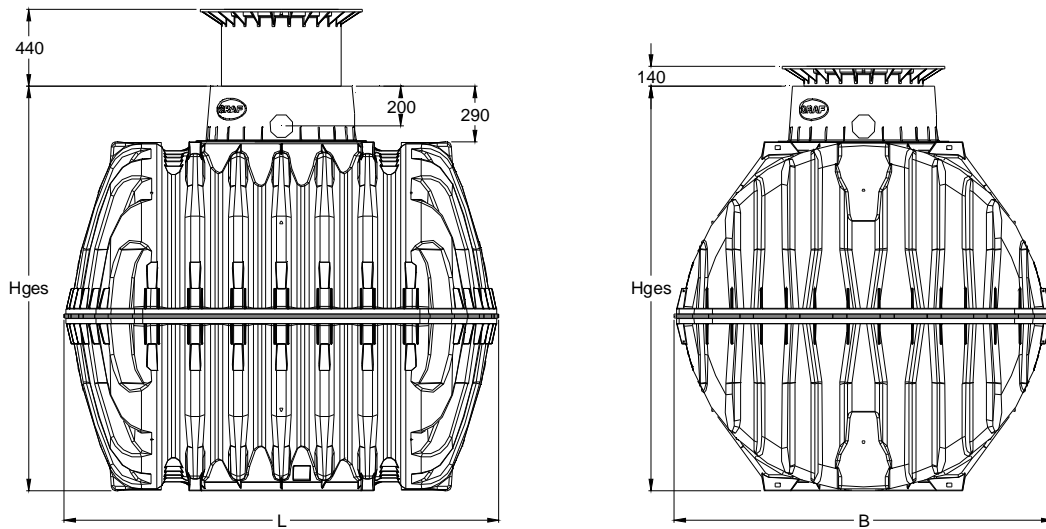
Coverage heights with truck telescopic dome shaft (with cover class D – to be provided at construction site) in areas used by trucks with a max. weight of 12 t.

Coverage heights on installation in groundwater – the hatched areas specify the permissible immersion depth for the adjacent tank size.

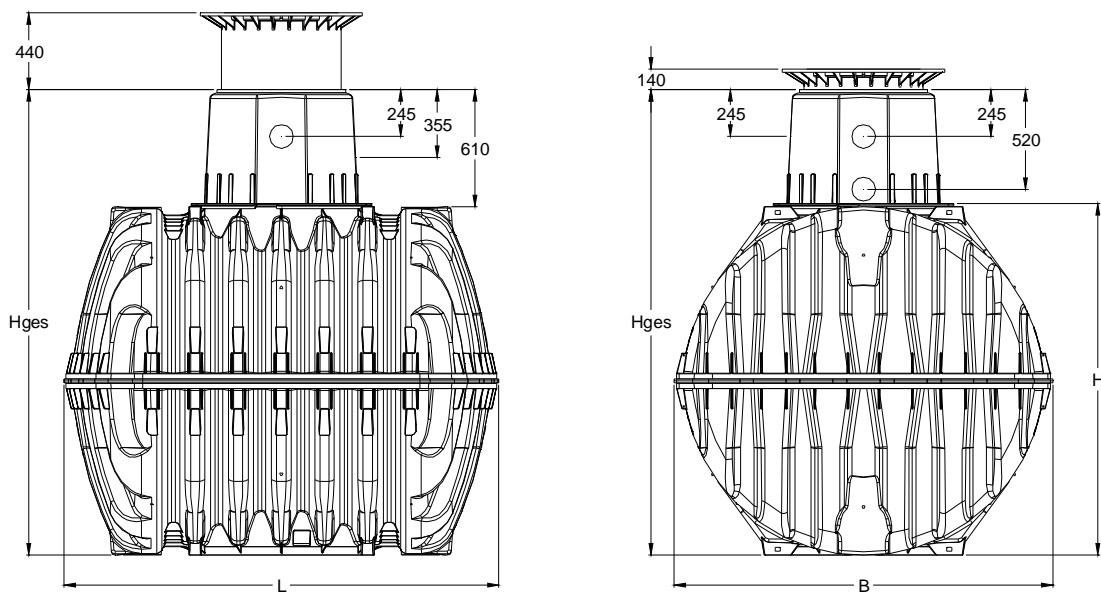
(not under areas used by passenger cars or trucks)



3. Technical data



with mini tank dome



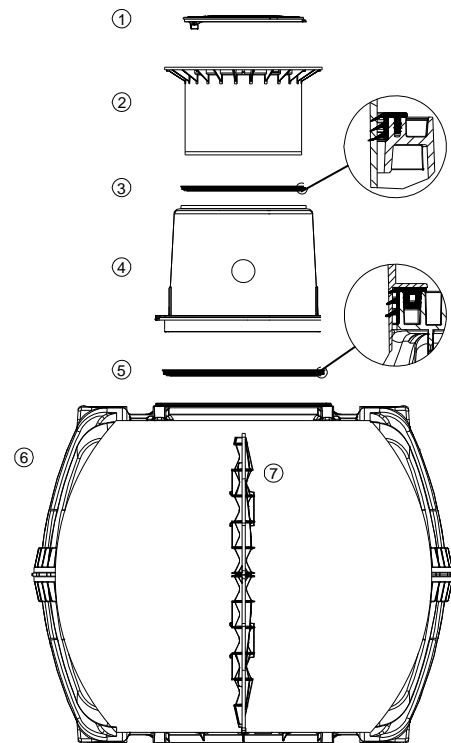
with tank dome, high version

Tank	3750 litres	4800 litres	6500 litres
Art. No.	370002	370003	370004
Weight	150 kg	185 kg	220 kg
L	2280 mm	2280 mm	2390 mm
W	1755 mm	1985 mm	2190 mm
H	1590 mm	1820 mm	2100 mm
Htot*	2200 mm	2430 mm	2710 mm
Htot* with mini tank dome	1870 mm	2100 mm	2380 mm

*Htot = total height

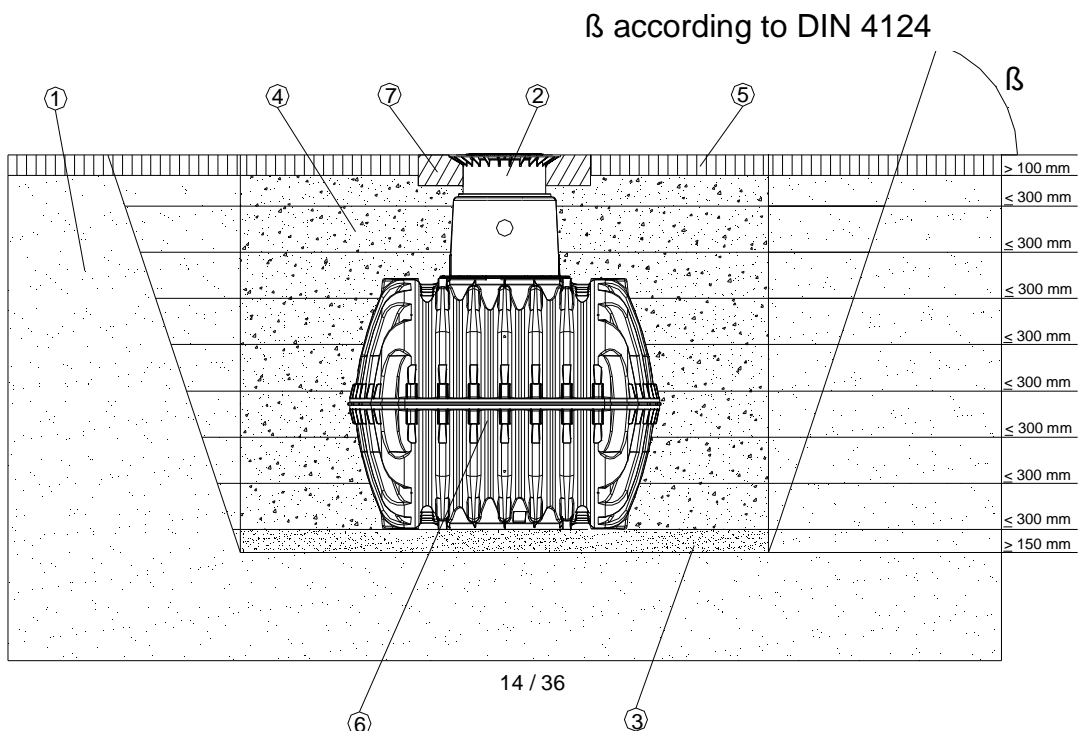
4. Tank structure

- 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 Carat underground tank
- ⑦ Baffle



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 / trucks |
| ④ Surrounding (round-grained gravel, max. grain size 8/16) | |



5. Installation and assembly

5.1 Construction site

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

- The structural suitability of the ground according to DIN 18196
- 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.

5.2 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.

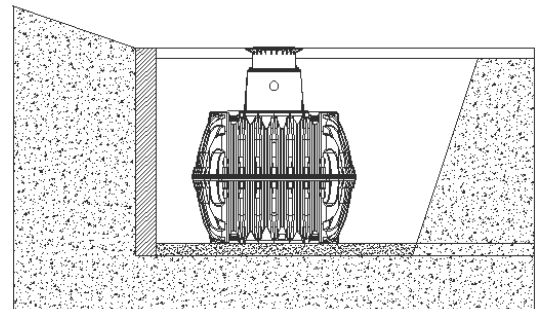
The embankment must be designed according to DIN 4124. The construction site must be horizontal and plane and must guarantee sufficient load-bearing capacity.

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 8/16, thickness approx. 150 - 200 mm) is applied as the foundation.

5.2.1 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.



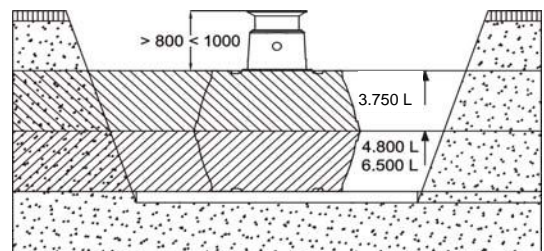
5.2.2 Groundwater and cohesive (water-impermeable) soils (e.g. clay soil)

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

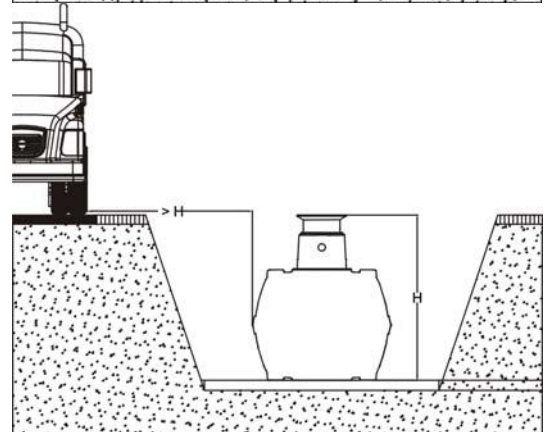
cohesive, water-impermeable soils.

Tank size	3750 L	4800 L	6500 L
Immersion depth	1590 mm	910 mm	1050 mm



5.2.3 Installation adjacent to surfaces used by vehicles

If the underground tanks are installed adjacent to surfaces which are used by heavy vehicles weighing over 12 t, the minimum distance away from these surfaces is at least the depth of the trench.

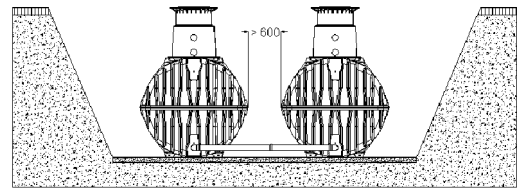


5. Installation and assembly

5.2.4 Connection of several tanks

Two or more tanks are connected via the assembly surfaces by means of GRAF special seals and basic pipes (to be provided at construction site).

The apertures must be drilled to the corresponding size using only the GRAF special crown bit. It must be ensured that the distance between the tanks is at least 600 mm. The pipes must project at least 200 mm into the tanks.

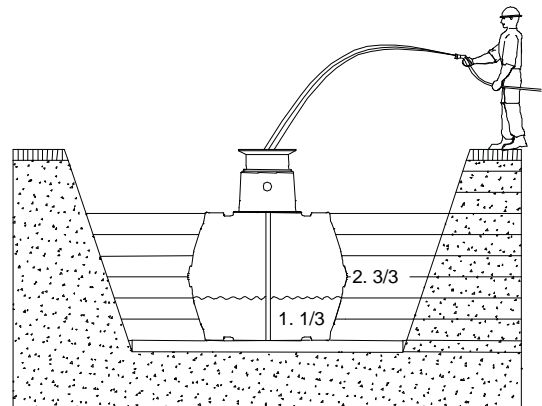


5.3 Insertion and filling

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 8/16) 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.

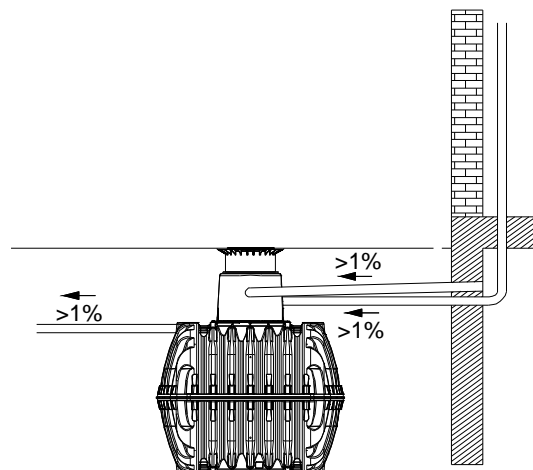


5.4 Routing connections

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).

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.

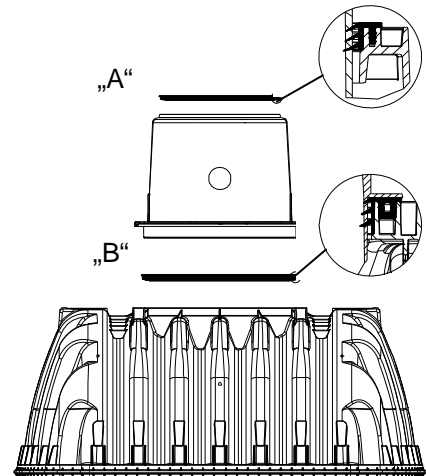
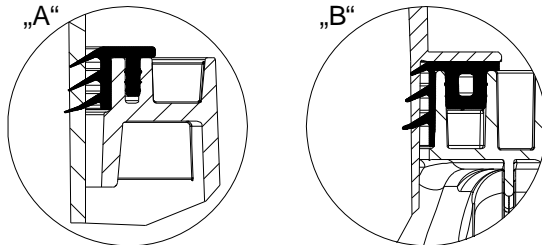
Important: The empty pipe must be connected to an aperture **above** the max. water level.



6. Assembling the tank dome and telescopic dome shaft

6.1 Assembling the tank dome

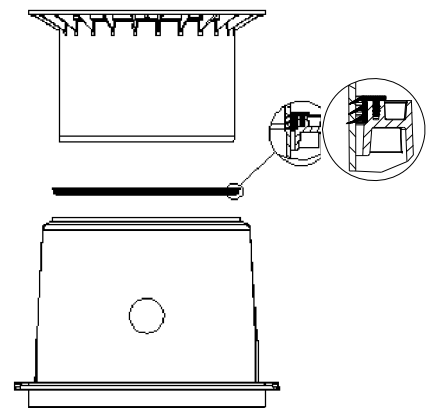
Prior to assembly, the enclosed seal is inserted into the tank dome's groove „B“. The tank dome is then aligned with the piping connections and is locked to the tank neck. It is essential to make sure that the upper seal "A" is correctly installed.



6.2 Assembling the telescopic dome shaft

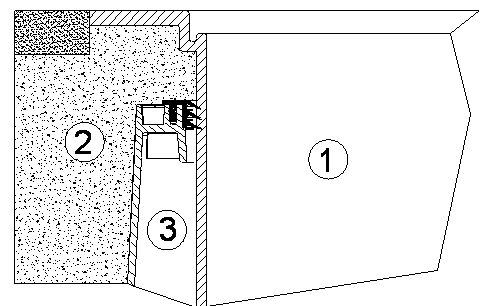
The telescopic dome shaft enables infinite adaptation of the tank to given site surfaces with earth coverage of between 750 mm and 950 mm (Mini telescopic dome shaft) or 750 mm and 1050 mm (Maxi telescopic dome shaft).

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

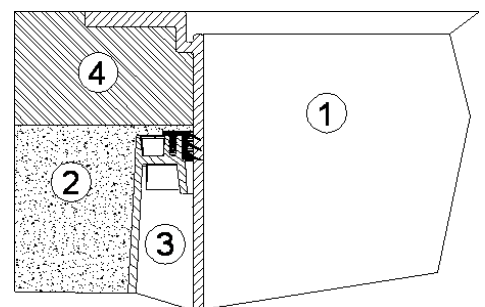
Important: To prevent loads from being transferred onto the tank, round-grain gravel ② (max. grain size 8/16) is filled in in layers around the telescope ① and is evenly compacted. Damage to the tank dome ③ and telescope must be avoided during this step. The cover is then positioned and is sealed to 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 (max. 1050 mm with telescope, coverage up to max. 1200 mm possible with intermediate section).

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

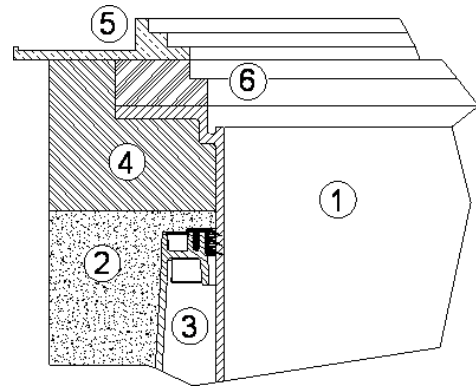


6. Assembling the tank dome and telescopic dome shaft

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 6.2. 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).



6.6 Assembling the adapter

For larger coverage heights a adapter is needed. To insert the adapter into the tank dome, soft soap is needed. Into the highest groove of the adapter the profile seal is inserted and greased generously. Afterwards push the telescopic dome shaft into the adapter and adapt it to the planned area surface.

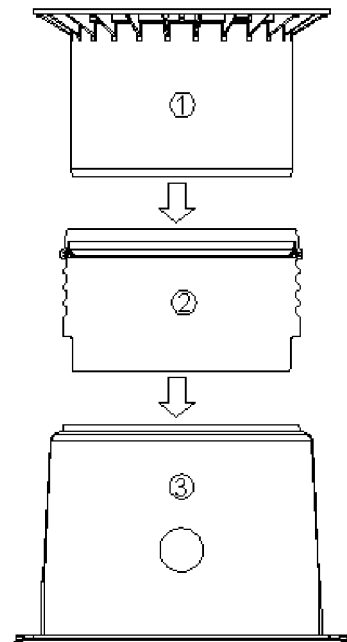
max. earth-cover 1500 mm

(in each case in connection with the Maxi telescopic dome shaft)

① Telescopic dome shaft (can be inclined by 5°)

② Adapter

③ Tank dome (can be rotated by 360°)



7. Inspection and servicing

The entire system must be checked for leaks, cleanliness and stability at least every three months.

The entire system should be serviced at intervals of approx. 5 years. In this case, all parts of the system must be cleaned and their function checked. Servicing should be carried out as follows:

All chambers of the tank have to be emptied completely, one must not enter the tank if there is still an unemptied chamber.

- Drain the tank completely
- Clean surfaces and internal parts with water
- Remove all dirt from the tank
- Check that all internal parts are firmly seated.

Notice de montage et d'entretien du collecteur d'eau de pluie GRAF série Carat

3750 L N° de réf. 370016
4800 L N° de réf. 370017
6500 L N° de réf. 370018



Afin de garantir le bon fonctionnement et la longévité de votre installation, les différents points décrits dans cette notice doivent scrupuleusement être respectés. Tout manquement à ces règles annulera systématiquement la garantie. Lisez également toutes les notices des autres éléments fournis par la société GRAF. Vous trouverez les notices de montage jointes dans l'emballage.

Avant de positionner la cuve dans la fosse, il est important de vérifier que celle-ci n'a pas été endommagée.

Les notices manquantes peuvent être téléchargées sur www.graf.info ou être demandées auprès de la société GRAF.

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