

Assembly and Installation Instructions GRAF Carat XXL

Volume	No. Accesses	Order No.
16,000l	(1)	40.0001
22,000l	(2)	40.0002
26,000l	(1)	40.0003
28,000l	(3)	40.0004
32,000l	(2)	40.0005
36,000l	(1)	40.0006
38,000l	(3)	40.0007
42,000l	(2)	40.0008
46,000l	(1)	40.0009
48,000l	(3)	40.0010
52,000l	(2)	40.0011



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 Australia. Missing instructions must be requested from us immediately.

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

Missing instructions can be downloaded on <https://www.graf.info/en-au/> or can be requested from GRAF Australia.

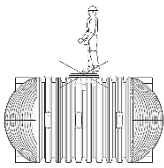
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1. Safety notice

The applicable accident prevention regulations in accordance with the Work Health and Safety Act 2020 (WHS Act) and Work Health and Safety (General) Regulations 2022 (WHS Regulations) must be observed during all work, including excavation and earthwork compliance.

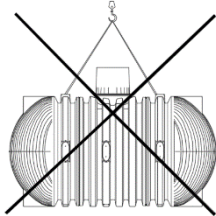
Furthermore, all relevant regulations and standards must be observed during assembly, installation, maintenance and repair. All installation of fittings and arrangements to be undertaken by a suitably qualified plumber. The work must be performed by a licensed plumber and a second person should be present for safety reasons.



Do not walk on the tank or the protection cover. The protection cover mounted at delivery only serves against rain and dust during transport and backfilling to the shoulder of the tank. It must be removed and replaced by an appropriate cover following installation instructions (dome, telescopic shaft, and respective lid option).



The tank cover must remain closed at all times, otherwise there is an increased risk of accident. Only original GRAF covers or covers approved in writing by GRAF must be used.



The tank installation must be shock-proof and lifted by adequate equipment into the prepared pit following the lifting instructions. The tank must be lifted completely empty with just the rain/dust protection cover.

All GRAF manufactured tanks comply with AS/NZS 1546.1 and are subject to our quality system which is QMS:ISO 9001 certified.

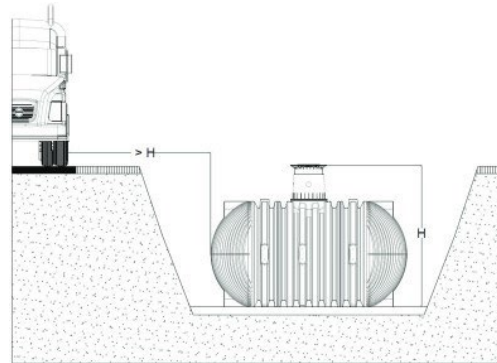
GRAF offers a wide range of accessory parts which are precisely coordinated and can be used to complete systems. The use of different accessory parts can impact the functionality of the system, and void liability for consequential damages.

Drawings and lifting instructions must be observed while planning unloading from transport provider and lifting to excavation trench. Servicing and associated works should also be planned beforehand, to provide accessibility for cleaning vehicles and ensure correct operation, among other reasons.

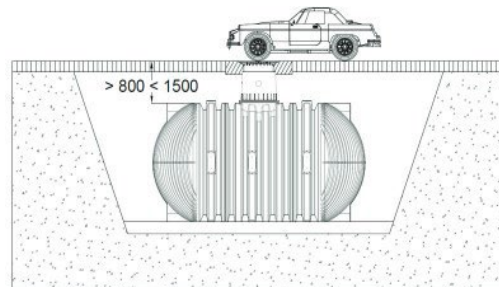
Please consult relevant authority prior to installation.

2. Installation conditions

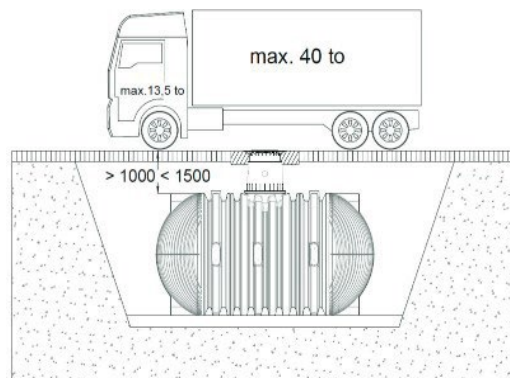
Minimum 750mm earth cover in green areas (pedestrian loads only). The clearance to the trafficable areas must correspond with the trench depth.



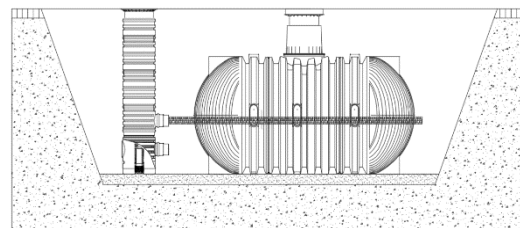
Under areas subjected to traffic of cars (load up to 3.5 t), a minimum 800mm earth cover is required, and class B lid must be installed.



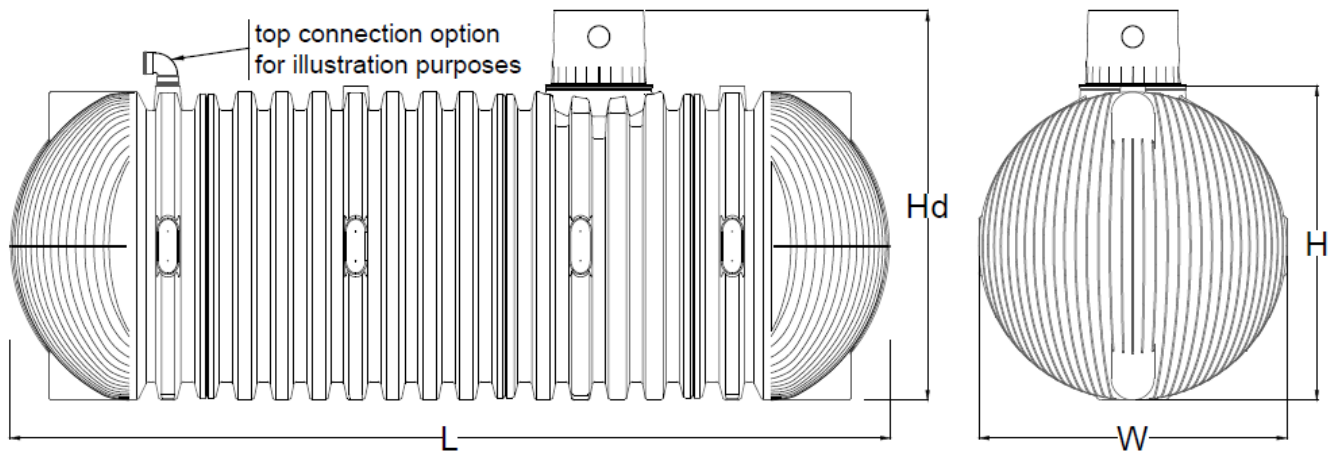
Under areas subjected to traffic of trucks (load up to 40 t), a minimum 1000mm earth cover is required, and class D cover must be installed.



Under areas subjected to groundwater, a class B or D cover must be installed. The groundwater must be discharged via a drain line at maximum 1275mm from the bottom.



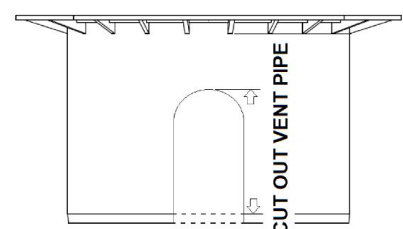
3. Technical data



Tank (litres)	16kl	22kl	26kl	28kl	32kl	36kl	38kl	42kl	46kl	48kl	52kl
Order no	40.0001	40.0002	40.0003	40.0004	40.0005	40.0006	40.0007	40.0008	40.0009	40.0010	40.0011
Weight (kg)	780	1060	1140	1340	1420	1500	1700	1780	1860	2060	2140
L (mm)	4725	6250	7150	7775	8675	9575	10200	11100	12000	12625	13525
W (mm)	2500										
H (mm)	2550										
Hd (mm)	3160										
End section (1600 mm)	2										
Mid-section with access (1525 mm)	1	2	1	3	2	1	3	2	1	3	2
Mid-section without access (2425 mm)	0	0	1	0	1	2	1	2	3	2	3

The tank must be vented, unless exempt by a relevant regulation, considering:

- Inlet and outlet lines must be adequately vented.
- All plumbing and venting pipework connections need to be performed as per requirements of Water Services Licensing Regulations of relevant state and the latest versions of AS/NZS 3500.2 and AS/NZS 3500.3.
- If the telescopic shaft falls in front of the vent opening, please make sure to cut out the section that obstructs the venting as shown below.
- For special requirements please consult the local relevant authority.



4. Installation and assembly

4.1. Construction site

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

- The structural suitability of the ground.
- Maximum occurring short-term groundwater levels.
- Site requirements must be considered (embankment, expected loads, etc.).
- Safety against buoyancy and flotation must be ensured by an expert specifically to site.

4.2. Earth cover requirements

- Under pedestrian areas not subject to traffic load nor groundwater

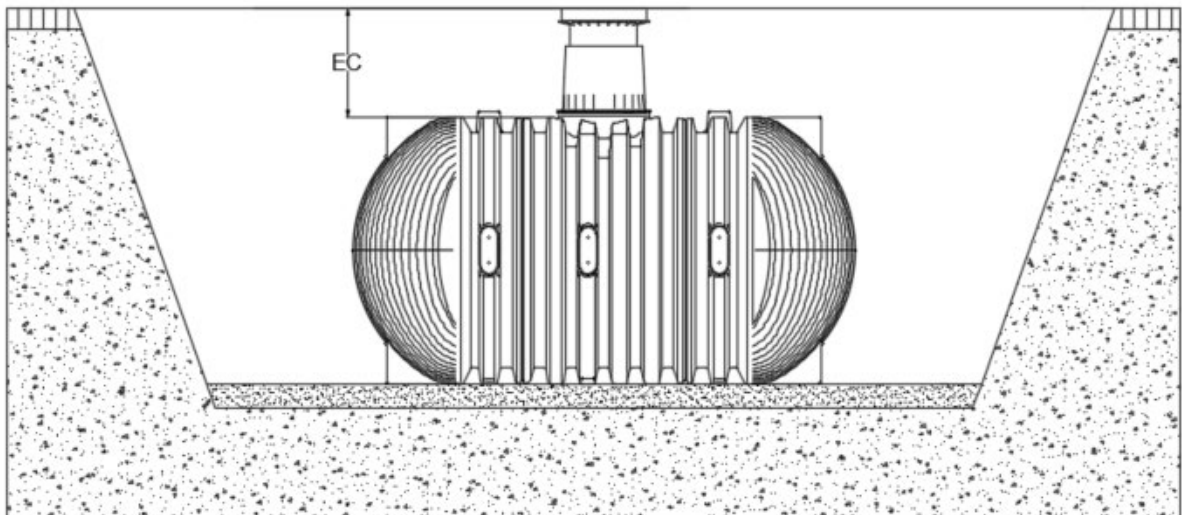
EC min: 750mm EC max: 1500mm

- Under areas trafficked by cars (class B installations)

EC min: 800mm EC max: 1500mm

- Under areas trafficked by trucks (class D installations)

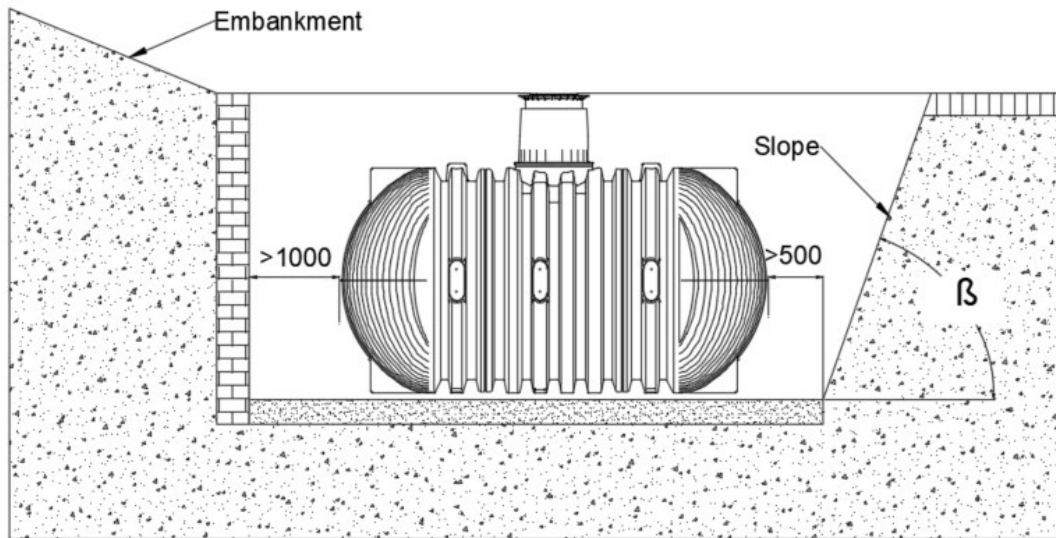
EC min: 1000mm EC max: 1500mm



4. Installation and assembly

4.3. Trench

The building site must be horizontally even and must provide adequate load-bearing capacity. 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 depth of the trench must be dimensioned so that the maximum earth coverage (see section 2. Installation conditions) above the tank is not exceeded. A layer of compacted, round-grain gravel (grain size 8/16, thickness approx. 150 - 200 mm) must be laid down as a minimum foundation.

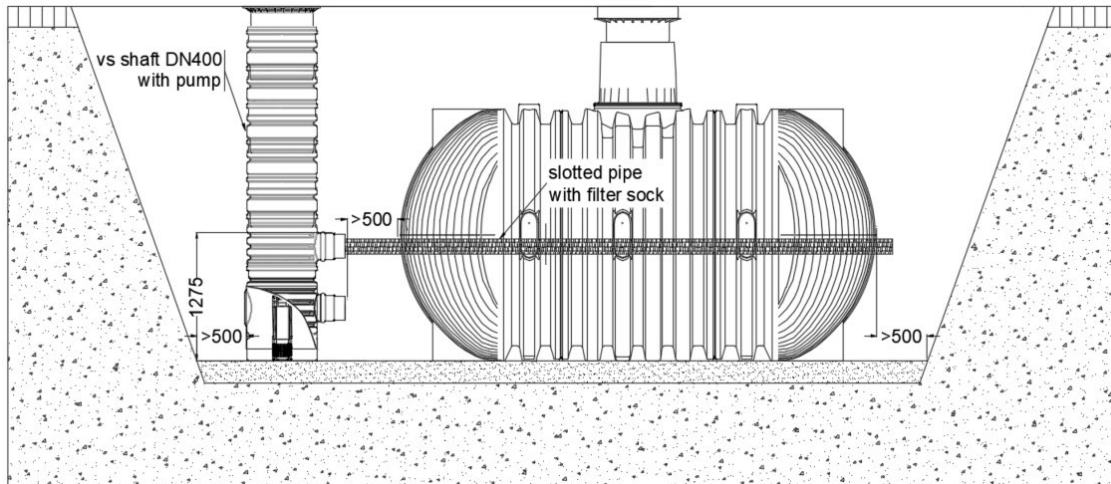
If the tank is in proximity (less than 5m) to an embankment (greater than 5°) or a building with footings shallower than the depth of the trench, an engineered retaining wall must be designed to absorb the site-specific pressures. A minimum clearance of 1m must be ensured to all fixed structures. If there is no embankment on site or if its more than 5m away from the excavation pit, a slope with the angle β must be applied according to the following table.

Soil type	Required slope β angle
Non-cohesive or soft, cohesive soil	$\leq 45^\circ$
➔ If tank must be suitable for car traffic	$\leq 50^\circ$
Stiff or semi-firm, cohesive soil	$\leq 60^\circ$
Rock	$\leq 80^\circ$

4. Installation and assembly

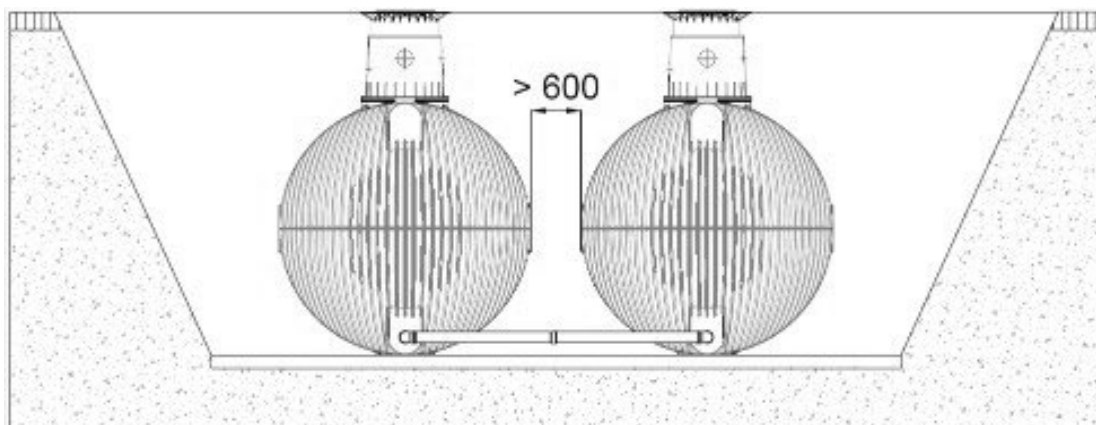
4.4. Groundwater and cohesive soils (e.g. clay soil)

If the groundwater levels exceed the 1275mm from the bottom of the tank (depending on application), even if only occasionally, it must be drained. GRAF offers a VS shaft DN400 / DN600 in which a slotted pipe with filter sock can be connected to drain the excess water. We recommend the general laying of a drainage line, since a prolonged rainfall event could cause the groundwater level to rise unexpectedly. The pump must be installed by an electrician and inspected at regular intervals.



4.5. Connection of several tanks

Two or more tanks are connected via the assembly surfaces by means of GRAF Special Seals (DN 100 and DN 150 available) and basic pipes (no pipework is included).



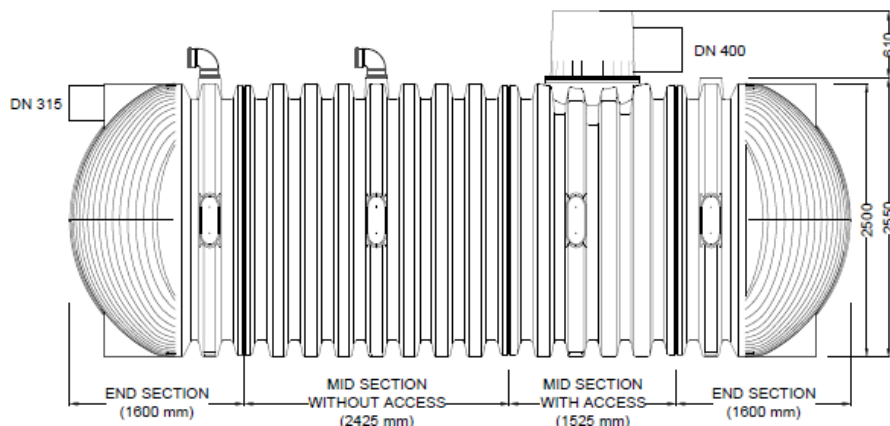
The distance between the tanks must be at least 600 mm. The pipes must project 100 mm - 150 mm into the tanks.

The apertures must be drilled to the corresponding size using only the GRAF special crown bit.

4. Installation and assembly

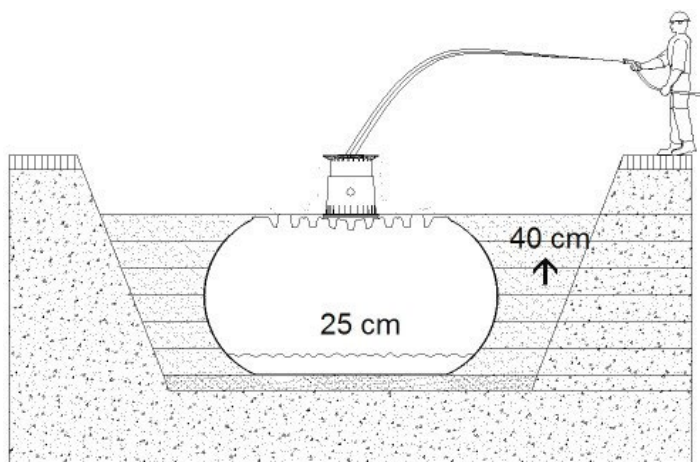
4.6. Customised connections

Customised connections (including welding spigots) and section arrangements are available, please contact GRAF for form.



4.7. Insertion and backfill

The tank must be inserted, impact-free, into the prepared trench using suitable equipment. Once in place, the tank is filled with approx. 250mm of water before backfilling. It must be well-compacted, by manual tamper, in layers of max. 400mm. Mechanical compaction machines must not be used under any circumstances.

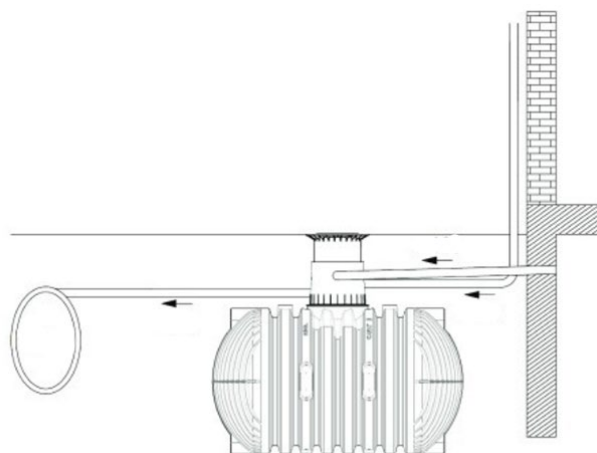


For backfilling material, we recommend using round grain gravel, grain size 8-16mm e.g. blue metal, quarter minus, drainage gravel, river pebble etc. Cohesive soils, such as loam or clay, are not suitable for backfilling.

4.8. Routing connections

All feed, vent, and overflow pipes must be routed with a decline in the direction of flow (subsequent settling must be taken into consideration in this case).

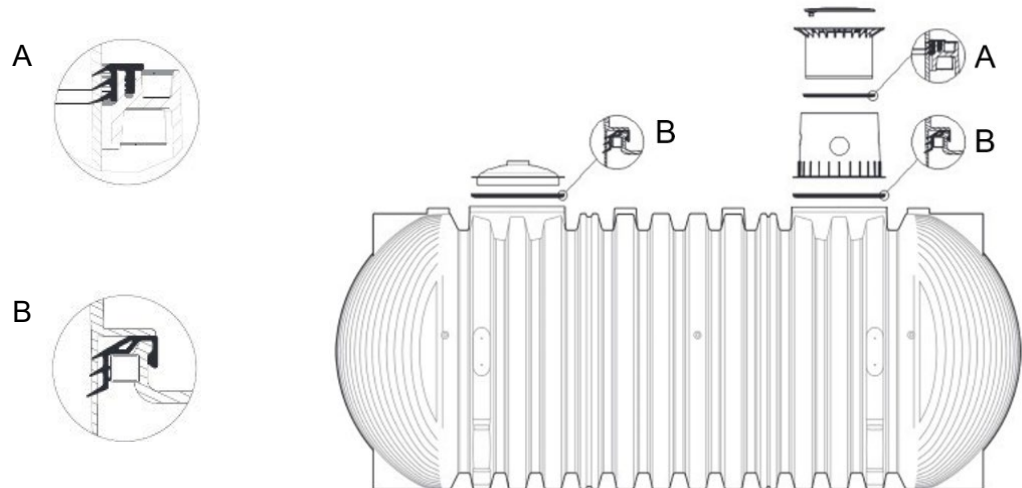
All suction, pressure and control lines must be routed in a conduit, which must be routed as straight as possible, to the tank, without bending, with a decline. Necessary bends must be formed using 45° elbows.



5. Assembling the tank dome and telescopic shaft

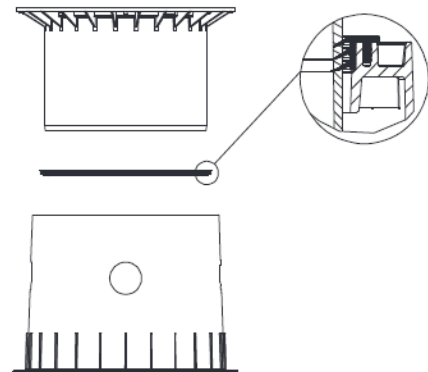
5.1. Assembling the tank dome

Prior to assembly, the tubular seal (B) is locked onto the tank access. 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 profile seal (A) is correctly installed as per next section.



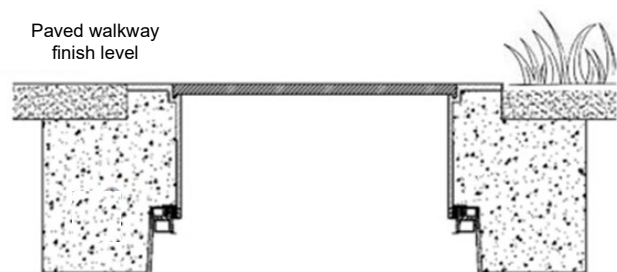
5.2. Assembling the shaft

The enclosed dome seal (material EPDM) is coated generously with soft soap (do not use mineral oil-based lubricants, as these attack the seal) and inserted into the tank dome's sealing groove. The telescope shafts are then greased, inserted and aligned with the surface following their specific load installation as following.



5.2.1. Covers for pedestrian loads

To prevent transferring loads onto the tank, the non-trafficable telescope shaft is backfilled with layers of grounded gravels (maximum grain size 8/16) and compacted evenly.

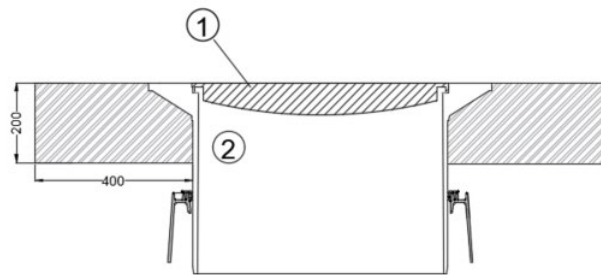


Optionally, a foam rubber ring seal (104022) is inserted into the groove of the top of the shaft for tightness. Lastly, the pedestrian cover lid ① is placed and bolted. This lid should not be submitted to more than 150kg. Please observe all requirements prior to lid installation (earth cover, venting, etc).

5. Assembling the tank dome and telescopic shaft

5.2.2. Covers for traffic of cars – insert option

For the insert option, a concrete underlay (property class N25) must be placed in a concrete support collar around GRAF telescopic trafficable shaft class B insert option (319502) ②. The circumference of the concrete layer to be filled in must be at least 400 mm wide and approximately 200 mm high.

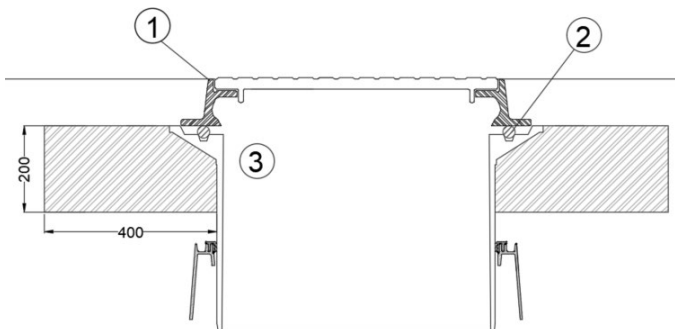


Afterwards, the class B cover lid (381515) ① is placed on the GRAF telescopic trafficable shaft class B insert option (319502) ②.

The minimum coverage above the shoulder of the tank is at least 800 mm. The installation can have a maximum coverage of 1500 mm and it is achieved with the assembly of the extension riser. A suitably designed finished floor is to be constructed to support the required designed vehicle load. Please observe all requirements prior to lid installation (earth cover, venting, etc).

5.2.3. Covers for traffic of cars – frame option

If the tank is installed underneath an area with car traffic (class B), concrete underlay (property class N25) must be placed in the concrete support collar around the trafficable telescopic heavy-duty shaft (371021). The circumference of the concrete layer to be filled in must be at least 400 mm wide and approximately 200 mm high.



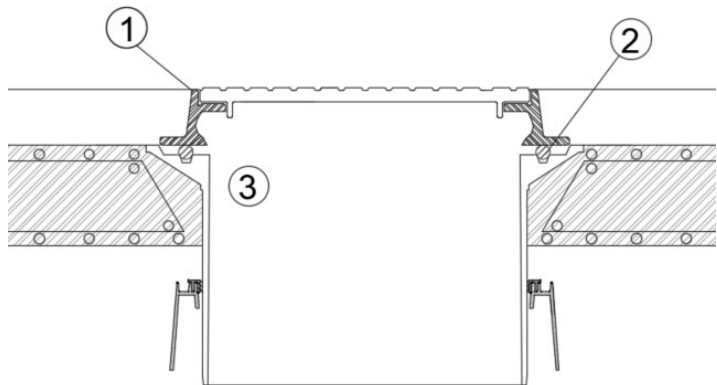
Optionally, a gas-tight seal (934609) ② is inserted into the groove of the trafficable telescopic heavy-duty shaft (371021) ③ for gas tightness. Lastly, the class B cover lid (75.0016) ① is placed.

The minimum coverage above the shoulder of the tank is at least 800 mm. The installation can have a maximum coverage of 1500 mm and it is achieved with the assembly of the extension riser. A suitably designed finished floor is to be constructed to support the required designed vehicle load. Please observe all requirements prior to lid installation (earth cover, venting, etc).

5. Assembling the tank dome and telescopic shaft

5.2.4. Covers for traffic of trucks

If the tank is installed underneath an area with truck loading (class D), concrete underlay (property class N25) must be placed in the steel reinforced concrete support collar around the trafficable telescopic heavy-duty shaft (371021). The cast frame must have a supporting area of approx. 1 m².



Optionally, a gas-tight seal (934609) (2) is inserted into the groove of the trafficable telescopic heavy-duty shaft (371021) (3) for gas tightness. Lastly, the class D cover lid (1) (75.0017) is placed.

The minimum coverage above the shoulder of the tank is at least 1000 mm. The installation can have a maximum coverage of 1500 mm and it is achieved with the assembly of the extension riser. A suitably designed finished floor is to be constructed to support the required designed vehicle load. Please observe all requirements prior to lid installation (earth cover, venting, etc).

5.3. Assembling the extension riser

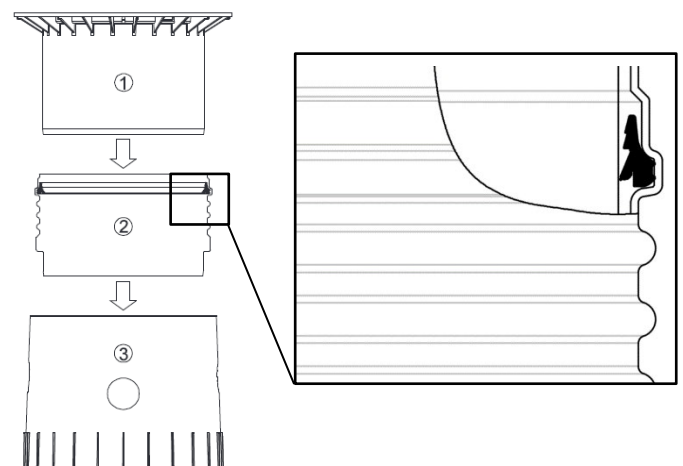
For deeper installations an extension riser is used. To insert the riser into the tank dome, soft soap is needed. The profile seal is inserted into the highest groove of the extension riser and greased generously. Afterwards push the telescopic shaft into the riser and adapt it to the planned area surface.

max. earth-cover 1500 mm

① Telescopic shaft (can be inclined by 5°)

② Extension riser (ensure the seal is in the correct position as shown)

③ Tank dome (can rotate 360°)



6. 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:

- Drain the tank completely
- Clean surfaces and internal parts with water
- Remove all dirt from the tank
- Inspect internal parts that might be present

Servicing intervals may change due to the tank use and application, please liaise with the relevant local authority.