Assembly and Installation Instructions
Grease Separator Sapphire (KLsepa.pop/Saphir)

It is imperative to observe the items described in these instructions. In case of non-compliance, all warranty claims shall lapse. For all add-on items from GRAF, you shall receive separate installation instructions included with the transport packaging.

It is imperative to check the components for potential damage prior to transferring them into the building pit. The items described in these instructions apply to the separator as well as to a potential additional upstream sludge trap. For the operation and maintenance of the system, you shall receive separate instructions.

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1. Safety notices

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. The work must be performed by a licensed plumber and a second person should be present for safety reasons.

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 tank cover must remain closed at all times, except for work in the tank, otherwise there is an increased risk of accident.

The rain protection mounted at delivery only serves as packaging for the transport and is not accessible or childproof, it must not be walked on. It must be replaced by an appropriate cover (telescopic dome shaft with respective cover). Only original GRAF covers or covers approved in writing by GRAF must be used.

All GRAF manufactured tanks comply with AS/NZS 1546.1 and are subjected 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 lead to impact on the functionality of the system, and to void liability for consequential damages.

2. Installation conditions

2.1. Installation basics

- Existing drainpipes should be checked for matching connection heights.
- The materials of the inlet and outlet pipes must be resistant to wastewater containing grease.
- The required pipe diameter, depending on the nominal size of the separator and the required slope of the line according to the corresponding standards (EN 752-4, EN 12056-2, EN 1825-1 or equivalent AS/NZS 3500.1 and AS/NZS 3500.2), must be adhered to.
- Safety against buoyancy and flotation must be ensured.
- The installation instructions for the tank must be followed.
- A sampling option has to be provided. See 2.2.1.
- Proper ventilation of the inlet and outlet pipes. See 2.3.
- The condition of all components must be checked before installation and protected from damage or dirt.
- The covers must be complaint with the latest version of AS 3996. They will need to be water and gas tight.

2.2. Requirements for the installation site

Please ensure that the following requirements are met by the installation site. For special requirements which may apply in your region please see 2.2.1.

- The installation site must be frost-protected.
- The installation site should be as close as possible to the wastewater accumulation location.
- The accessibility of the inlet and outlet area for cleaning vehicles and for inspection must be ensured (alignment of the shaft structures).
- The excavation base must be installed horizontally and must have sufficient base course / bearing capacity.
- The inlet and outlet lines must be installed in compliance with EN 12056 and EN 1825-2 or equivalent AS/NZS 3500.1 and AS/NZS 3500.2.
- Separators are to be operated without backflow by gravity. Separators with outlets below the locally specified backflow level are to be connected to the drainage system according to EN 12050 by means of sewage lifting units.
- Before filling the building pit, and possibly before connecting the inlet and outlet line, the system including shaft structure should be checked for leaks. Procedures and results of the inspection should be documented.
- Special local requirements must be taken into account (e.g. water protection area, flood prone areas etc.).
- The building site must be coordinated with the relevant food and hygiene monitoring if necessary.

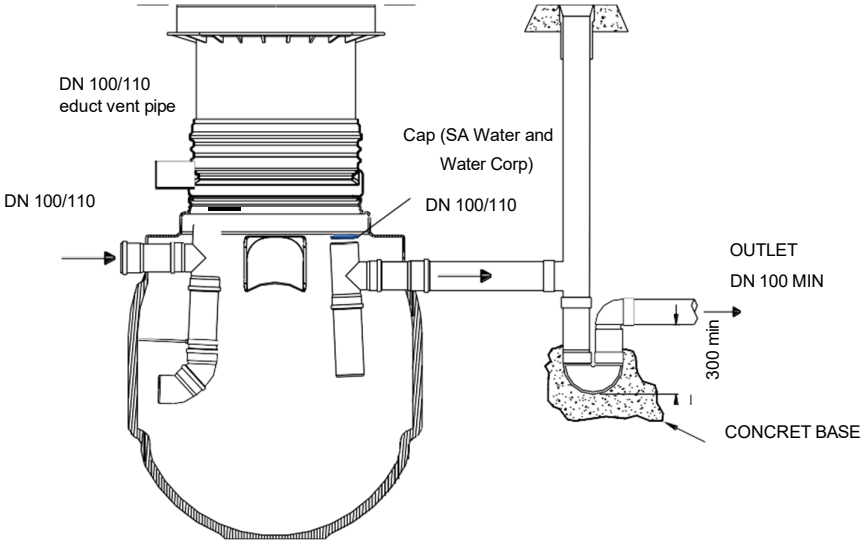
2. Installation conditions

2.2.1. Special requirements

Water Corporation (WA): A sampling point has to be installed after the separator according to HX33-10-00 / HX33-10-10 from Water Corporation's Typical Trade Waste Product Drawings. A cap to be placed on top of the outlet pipe (refer below drawing). This will prevent any greasy waste flowing to sewer in the event of an overflow of the arrestor.

Standard Plumbing and Drainage Regulation (QLD): A Disconnector Gully Trap must be installed on the outlet pipe of the arrestor.

SA Water: A cap to be placed on top of the outlet pipe (refer below drawing). This will prevent any greasy waste flowing to sewer in the event of an overflow of the arrestor.



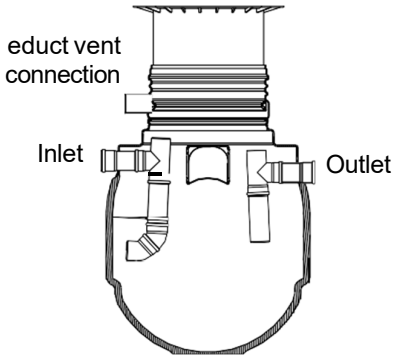
2.3. Venting

The separator has to be vented after the following points. For special requirements which may apply in your region please see 2.3.1.

- Inlet and outlet lines on grease separators must be adequately vented.
- All plumbing and venting pipework connections need to be performed as per requirements of Water Services Licensing (Plumbers Licensing and Plumbing Standards) Regulations 2000 (WA only) and the latest versions of AS/NZS 3500.1 an AS/NZS 3500.2.
- Prevent water from entering the tank's vent.

2.3.1. Special requirements

Water Corporation (WA) and QLD Standard Plumbing Regulation: A venting pipework with DN 110 has to be installed according to HX33-10-00 and HX33-10-10 from Water Corporation's Typical Trade Waste Product Drawings. A DN110 pipe is preassembled on the riser of the tank to install the venting pipework on site.



2.4. Building site

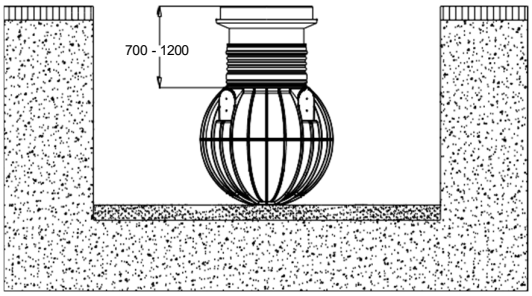
The tank must only be installed in non-cohesive soil to slightly cohesive soil (G1 group, condition A4 and B4, degree of compaction DPR = 97 %, according to ATV-DVWK-A 127). In case of deviating installation conditions, a separate verification must be carried out.
The following issues must be clarified prior to installation:

- The structural suitability of the ground.
- Maximum occurring ground water levels and infiltration capacity of the ground.

To determine the soil physical factors, a ground assessment must be carried out.

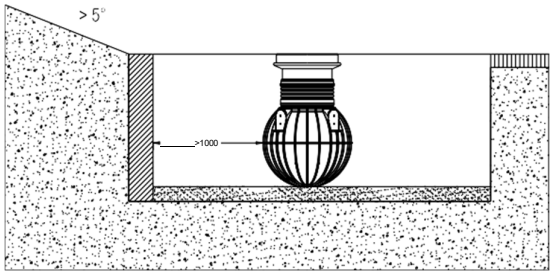
2.4.1. Ground level cover

Attention: The ground level cover over the tank collar must be between 700 and 1200 mm.



2.4.2. Slope, embankment, etc.

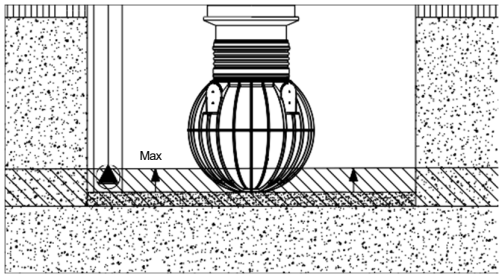
During the installation of the tank in close proximity (<5 m) to a slope, mound or embankment (greater than 5°), a statically calculated retaining wall must be built to absorb the active earth pressure. The wall must exceed the tank dimensions by at least 500 mm and must have a minimum clearance of 1000 mm to the tank.



2.4.3. Ground water and cohesive (water-impermeable) soil (e.g. clay soil)

The tank must only be installed into groundwater/stratum water up to the levels specified in the following table. If it is to be expected that groundwater/stratum water levels - even if only occasionally - exceed these levels, it must be drained.

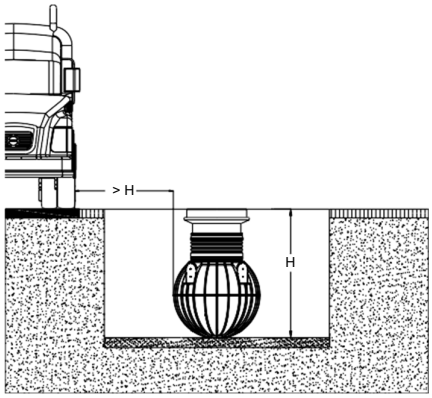
The drainage line may end up in a vertically installed DN 300 pipe, equipped with a submersible pressure pump that drains the excess water. The pump must be inspected at regular intervals.



Model	max. ground water level [mm]
600L	430
900L	430
1,200L	550
1,500L	550

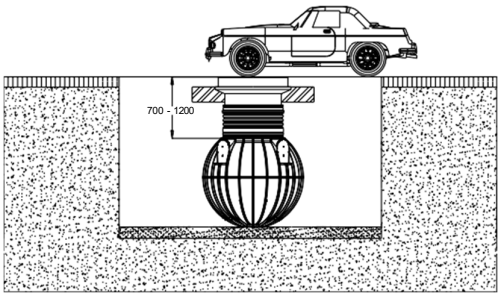
2.4.4. Accessible cover Class A (AS 3996)

If there is no car traffic over the tank area and no load distribution plate is installed, the clearance to the passable areas must correspond with the depth of the building pit.



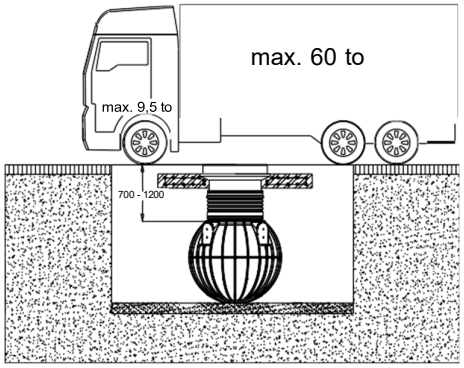
2.4.5. Cover suitable for car traffic Class B (AS 3996)

In case of car traffic, an appropriate cover according to AS 3996 class B must be used. In addition, the cover must be equipped with a concrete collar. In reference to this, please see section 3.3.2.



2.4.6. Cover suitable for truck/heavy load Class D (AS 3996)

In case of heavy truck traffic, an appropriate cover according to AS 3996 class D must be used. In addition, a load distribution plate must be provided on site (structural drawing available at GRAF).



3. Assembly and Installation

3.1. Building pit

In order to leave adequate workspace, the ground surface of the building pit must exceed the tank dimensions by > 500 mm on each side. The clearance to fixed structures must be at least 1000 mm.

A slope with the angle ß must be applied according to the following table.

Soil type	Slope angle β in °
Non-cohesive or soft, cohesive soil	≤ 45°
➔ Tank must be suitable for car traffic (cover B125, D400)	≤ 50°
Stiff or semi-firm, cohesive soil (tank accessible only)	≤ 60°
Rock (tank accessible only)	≤ 80°

Attention: In order to be suitable for car traffic, a slope angle of a maximum of 50° must be adhered to. The building site must be horizontal and even, and must provide adequate load-bearing capacity.
The depth of the pit must be dimensioned, so that a maximum ground level cover (a maximum of 1200 mm over the tank collar) is not exceeded.
A layer of compact grounded gravel (maximum grain size 8/16 mm, thickness at least 150 mm) must be laid down as a substructure.

3.2. Final installation

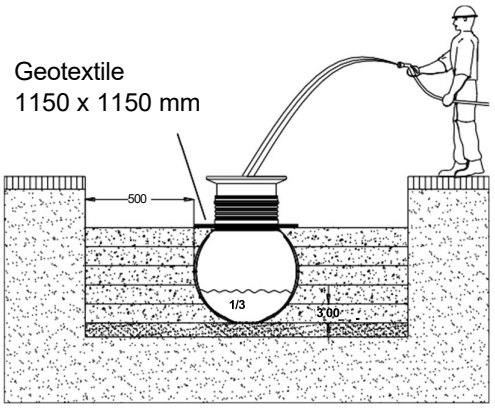
3.2.1. Positioning of the tank

The tank must be placed shock-proof and with adequate equipment into the prepared building pit. After placing the tank, it must be positioned in the pit in such a way that the inlet is aligned along the axis of the inlet line. The tank should be positioned vertically. Make sure the outlet of the separator is placed 7cm deeper than the inlet. After positioning the tank, fill the pit layer by layer according to section 3.2.2.

3.2.2. Filling in the building pit

Before filling the tank encasement, the tank shall be filled 1/3 with water, then the encasement (grounded gravel of maximum grain size 8/16) in layers of a maximum of 30 cm until the tank is filled up to the upper edge. The individual layers must be compacted well (manual compactor). In order to prevent damage to the tank, the use of mechanical compacting equipment is not permitted at any time. The encasement must be at least 500 mm wide.

Attention: In order to be suitable for truck traffic (SLW40), a geotextile must be horizontally installed around the clearance areas.

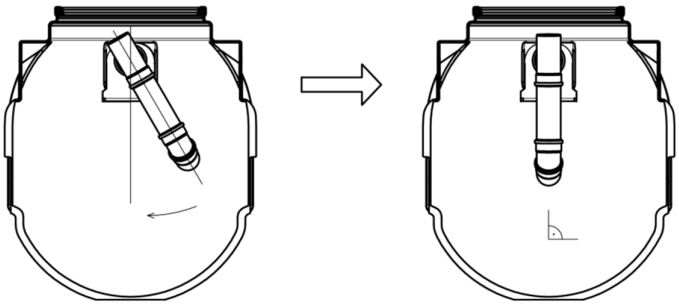


3.2.3. Connection of inlet and outlet

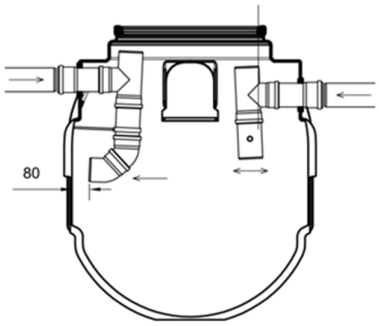
Connect the inlet and outlet lines once the pit has been filled up to the connections.

3.2.4. Positioning of the assembly components

Before connecting the inlet and outlet lines, check whether the assembly components are in a vertical position. If they are not, position them according to the following figure. Hand-tighten the T junctions to the pipe connections on site. The outlet pipe must be pushed as far from the wall, until the complete pipe cross section is visible from above, as illustrated below.

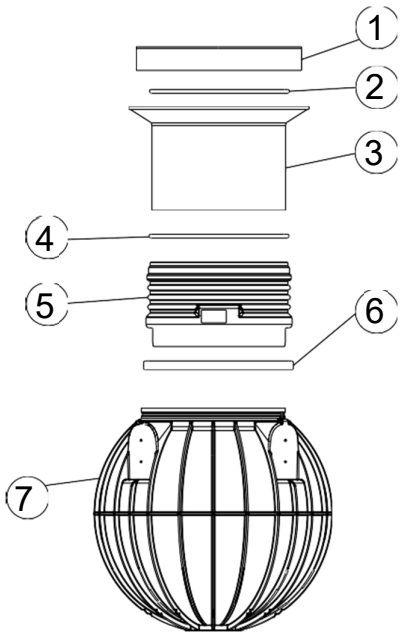


Position the inlet and outlet constructions vertically.



Positioning the pipe axis

3.2.5. Tank installation



* Up to two adaptors with respective seals can be installed.

① Cast iron cover

② Tubular seal

③ Telescopic shaft

④ Gasket for adaptor

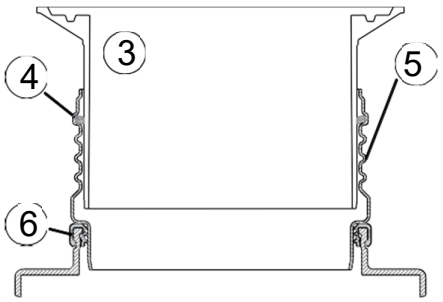
⑤ Adaptor (extension riser)

⑥ Profile gasket

⑦ Separator tank

3.2.6. Installation of adaptors and the telescopic dome shaft

The profile gasket ⑥ must be mounted onto the tank opening and the adaptor ⑤ inserted as far as the stop. Before inserting the adaptor, the seal must be lubricated with soft soap.
The seal ④ is mounted into the adaptor and the telescopic dome shaft ③ is inserted.



3.2.7. Installation of telescopic dome shaft directly onto the tank

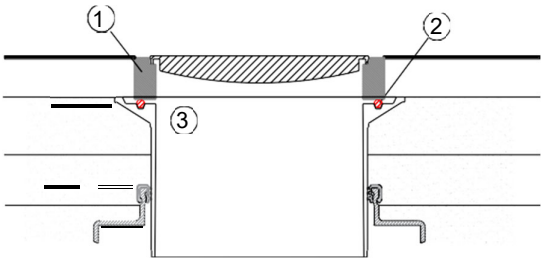
In order to install the telescopic dome shaft onto the tank, the profile gasket ⑥ is mounted onto the tank opening and the telescopic dome shaft is inserted.

3.3. Installation of the shaft structures

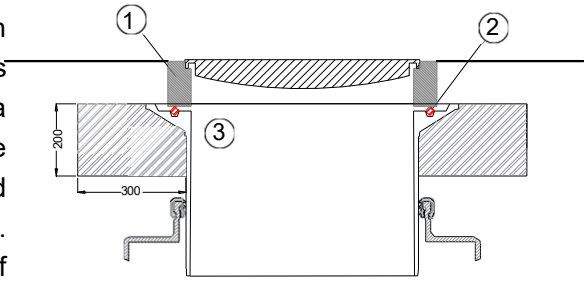
Instructions regarding the covers: The covers used for grease separators must meet the provisions of the latest version of AS 3996. The cover(s) must not be equipped with openings to vent. Do not attempt to rotate the cast iron cover (perhaps to aesthetically align the GREASE marking), because this may cause the displacement of the NBR seal. The lids shall need to be operated by common (Gatic type) lid lifters (see images below).

3.3.1. Suitable for pedestrian loads in grass areas

In order to prevent transferring loads onto the tank, the telescope is filled with layers of grounded gravels (maximum grain size 8/16) and compacted evenly. Run a continuous bead of sealant into the groove of the telescopic dome shaft. A tubular seal ② is then inserted on top of the sealant bead and seated into the groove of the telescopic dome shaft ③. Finally, the pedestrian cover ① is placed onto the telescopic dome shaft.



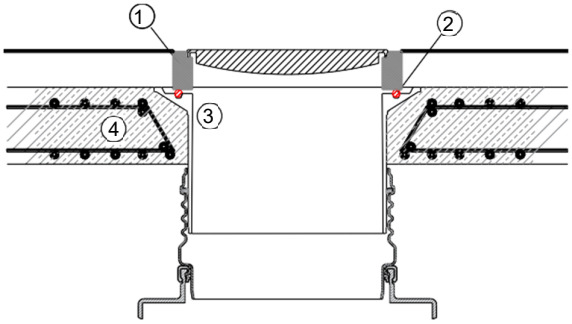
3.3.2. Suitable car traffic (cover B125)



If the tank is installed underneath an area with car traffic, concrete underlay (property class C25/30) must be placed in the collar area under the telescopic dome shaft for trucks. The circumference of the concrete layer to be filled in must be at least 300 mm wide and approx. 200 mm high. Run a continuous bead of sealant into the groove of the telescopic dome shaft. A tubular seal ② is then inserted on top of the sealant bead and seated into the groove of the telescopic dome shaft for trucks ③. At last, the cast iron cover ① is placed onto the telescopic dome shaft.

The attachment parts may only bear load after the installation is complete (concrete is cured).

3.3.3. Suitable for heavy load traffic (SLW40, cover D400)



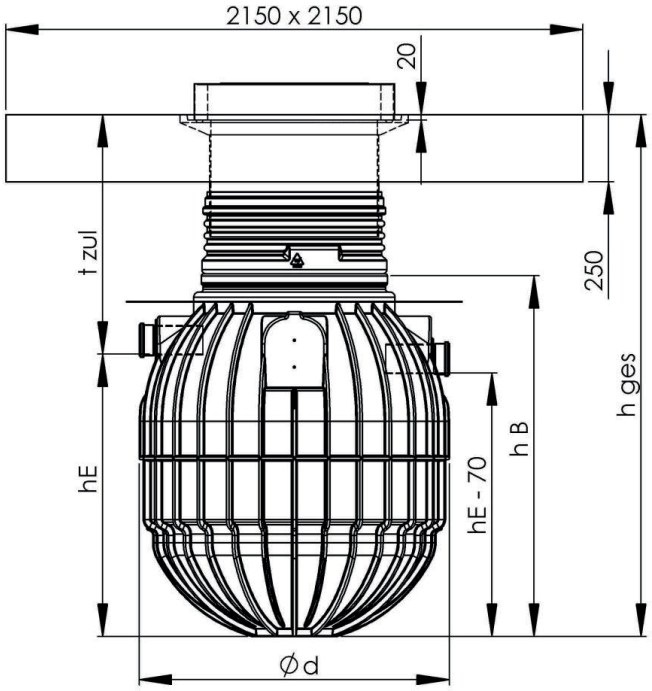
A load distribution plate (property class C40/50) must be installed under the cover for installations in areas with heavy load traffic. A respective formwork and reinforcement plan is available from the manufacturer. An adequately compacted, anti-capillary and draining base course must be installed underneath the load distribution plate. A geotextile must be laid horizontally at the level of the tank opening. Run a continuous bead of sealant into the groove of the telescopic dome shaft. A tubular seal ② is then inserted on top of the sealant bead and seated into the groove of the telescopic dome shaft for trucks ③. At last, the cast iron cover ① is placed onto the telescopic dome shaft.

3.4. Commissioning

Each grease separator is delivered with an identification plate pre-installed on the last riser closest to the finished cover level. If there isn't one in place already, please contact GRAF Australia immediately. To commission the separator, fill it with grease-free and oil-free water until the water begins to flow out of the discharge pipe.

4. Technical data

4.1. Sapphire tank series



KLsepa.pop		600L	900L	1,200L	1,500L
Diameter	d [mm]	1125	1155	1155	1155
Heights	h_E [mm]	840	1055	1380	1773
	h_{zul} [mm]	660 - 860	750 - 950	750 - 950	667 - 867
	h_{ges} [mm]	1500 - 1700	1805 – 2005	2130 - 2330	2440 - 2640
	h_B [mm]	1040	1345	1670	1980
Connections	DN	110	110	110	110
Weight	[kg]	42	73	84	98