GRAF UNDER GROUND RAINWATER TANKS

Graf Platin Installation Instructions

Graf Platin Fill Materials

Backfill Materials

7mm Minus (preferred)
Washed Sand

100mm compacted, hole base – 20mm type B crush rock

100mm "Compacted" Hole Base
20mm Type B Crushed Rock
(porous)

Wrong Backfill – Non Porous Materials (Do Not Use)

Builders Sand, Clay, Cement, Types C & D Crushed Rock, and any other non porous or water holding soils. Incorrect soils used may "void warranty".

Installation and maintenance instructions for GRAF PLATIN Underground Rainwater Tank & Minimax Filter

5,000L
3,000L
1,500L

Platin Tank & Minimax Filter Packages

Pedestrian or Vehicle

5,000L
3,000L
1,500L

Platin Tank Only Packages

Pedestrian or Vehicle

The Graf Platin is suitable for below ground installation.

The points described in these instructions must be observed under all circumstances.

All warranty rights are invalidated in the event of non-observance.

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

Platin Manufactuer:

Certified to Quality standard ISO9001-2008

Platin Tank Certified to AS/NZS 4766-2006 and AS1546.1

Table of contents

1.	INTRODUCTION	3
1.1 – 1.5	GENERAL NOTES ON SAFETY & MAINTENANCE	4
2.	INSTALLATION CONDITIONS	5
3.	TECHNICAL DATA	6
4.	TANK ASSEMBLY	6
5.	INSTALLATION AND ASSEMBLY	7
5.1	Construction site	7
5.20 – 5.25	Trench, Ground water, Connecting several tanks	7-8
5.3	Insertion and filling	9
5.4	Plumbing connections	9
6.	ASSEMBLING THE AND TELESCOPIC DOME SHAFT	10
6.1	Assembling the telescopic dome shaft	10
6.2	Telescopic dome shaft on which persons may walk	10
6.3	Telescopic dome shaft over which passenger cars may drive	10
7.	ASSEMBLY OF THE EXTENSION RISER	11
7.1	Assembling the adapter	11
8.	INSPECTION AND SERVICING	11
9.	MINMAX FILTER PACKAGE INSTALLATION	12 -13
10.	PICTORIAL INSTALLATION GUIDELINES	14 - 15
11.	INSTALLER SUPPORT SERVICE	15

1. General notes

1.1 Safety

As Occupational Health and Safety legislation differs in each state and territory, it is necessary to refer to all relevant Occupational Health and Safety legislation, regulations and Australian Standards in your state or territory at all times during installation, assembly, servicing and repair of the Graf Platin rainwater storage tank systems.

Current statutory regulations and all relevant Australian standards shall be taken into consideration at all times. The system and any of its individual parts must be installed by a licensed person. Installation by a nonlicensed person may void warranty.

The entire system must be shut down before any maintenance can be undertaken. Once any maintenance is completed the tank must be properly sealed/locked by means provided with the tank to prevent future unauthorized entry.

Graf offers a wide range of accessories which all match each other. The use of non Graf accessories may lead to the voiding of warranty and any subsequent claims of liability from any resulting damages.

1.2 Identification of water pipes and outlets

All service water pipes and outlets leading from the Graf water tank should be identified in accordance with AS/NZS3500.1:2003-Section 9 and other relevant local plumbing regulations to avoid inadvertent connection with the drinking water supply.

In order to avoid the wrong connection between the drinking water and the rain water pipe work, all conduits and tappings of rain water have to be marked clearly with “RAINWATER” in writing and be in accordance with local standards.

All non-drinking tank water outlets should be clearly marked “RAINWATER” and we recommend they be installed with vandal proof taps. Depending on local laws, rain water may or may not be suitable for human consumption and/or use for personal hygiene.

Example of typical rainwater pipe work rainwater signage.

Continuous green pipe marker for pipe work less than 40mm diameter used to identify.

1.3 Maintenance

In the event of work needing to be carried out inside the tank, as Occupational Health and Safety legislation differs in each state and territory, reference should be made to confined spaces legislation in your state or territory.

1.4 Site

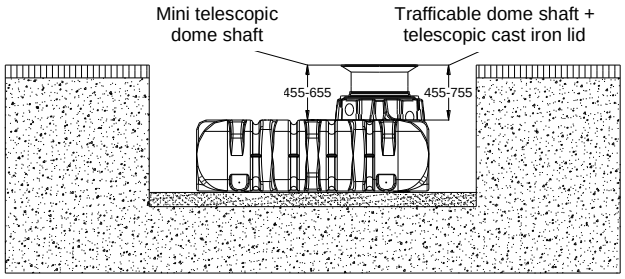
As Occupational Health and Safety legislation differs in each state and territory, reference should be made to excavation and trenching legislation in your state or territory with respect to the use of excavation equipment and relevant trenching legislation in reference to shoring, battering and depth specific regulations.

1.5 Lifting of Tanks

Occupational Health and Safety legislation and regulations differ in your state and territory, therefore reference should be made to your state or territory legislation when lifting, handling or moving of Graf water tanks.

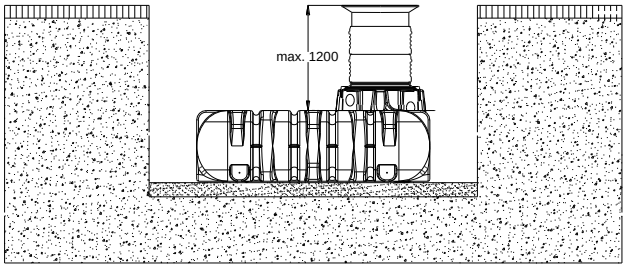
2. Installation conditions

Coverage heights with telescopic dome shaft in green areas.



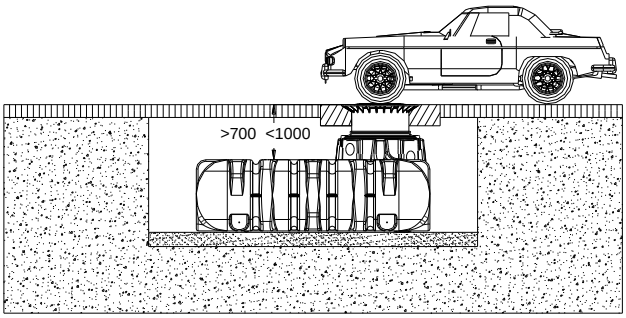
Maximum coverage heights with the maximum two extension risers and telescopic dome shaft.

(in green areas only – not under areas used by passenger cars)



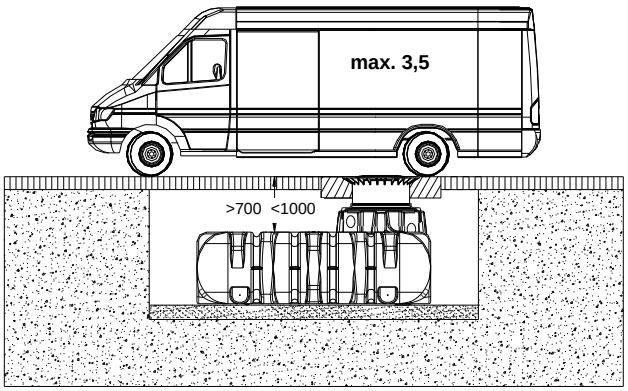
Coverage heights with cast telescopic dome shaft (class B) in areas used by passenger cars.

(without groundwater and stratum water)



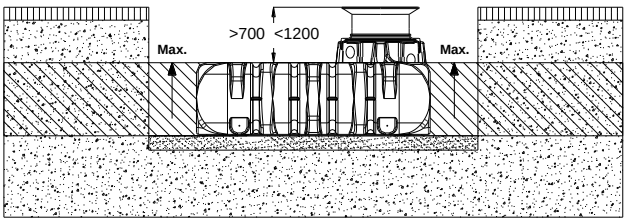
Coverage heights with telescopic dome shaft with cast iron lid. Maximum load of the area used by passenger cars 3.5 tonne.

(without groundwater or stratum water)



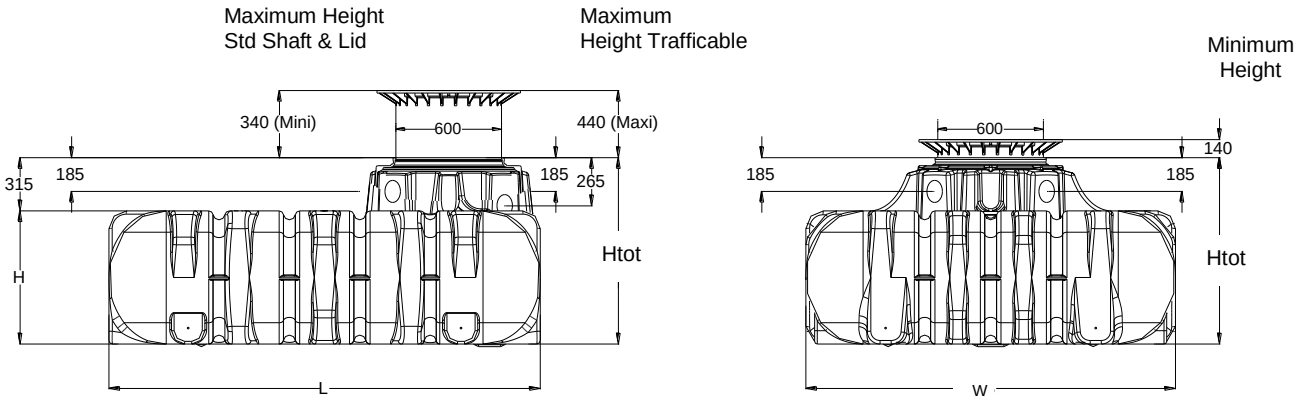
Coverage heights on installation in groundwater – the hatched area specifies the permissible immersion depth for the tank.

(not under areas used by passenger cars)



3. Technical data

Platin Tank with Telescopic Shaft & Lid



Graf Platin Tank	1500 Litres	3000 Litres	5000 Litres
Weight	80 kg	170 kg	240 kg
L	2100 mm	2450 mm	2890 mm
W	1250 mm	2100 mm	2300 mm
H	700 mm	735 mm	950 mm
Htot*	1015 mm	1050 mm	1265 mm

4. Tank Assembly

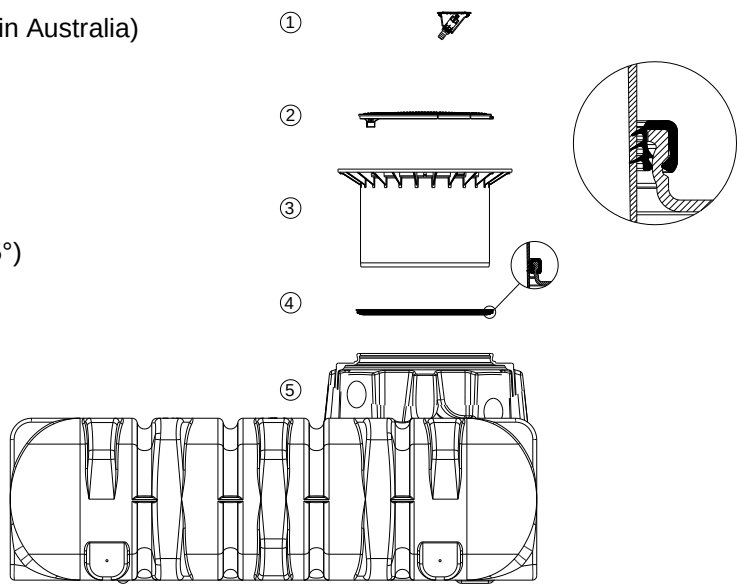
① Water connector box internal (not available in Australia)

② PE cover for telescopic dome shaft

③ Telescopic dome shaft (can be inclined by 5°)

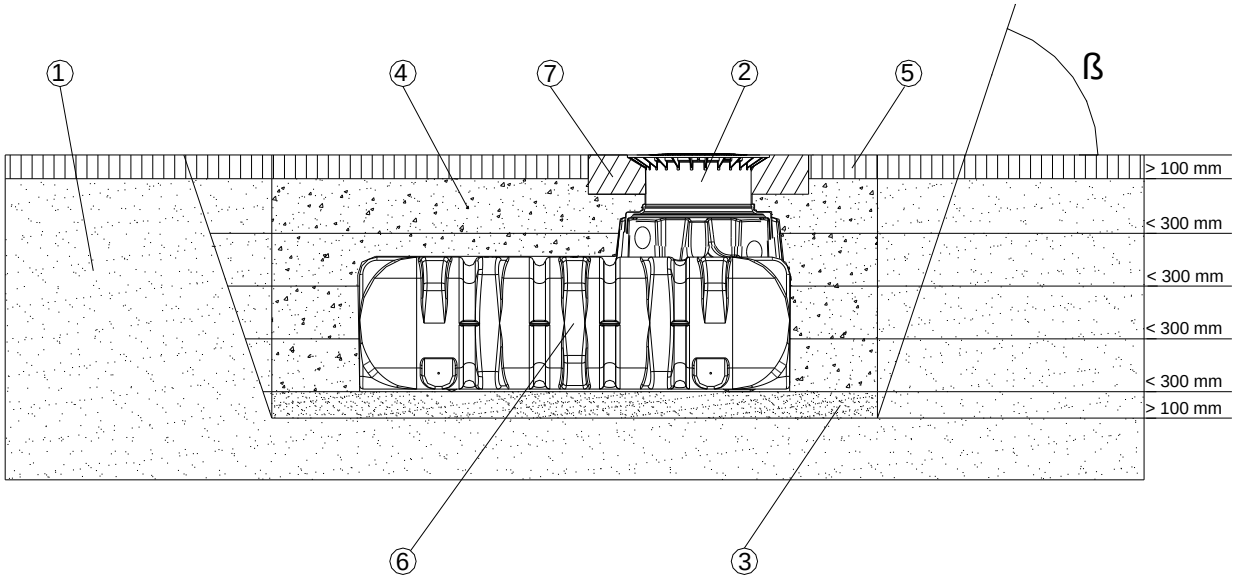
④ Profile seal

⑤ Tank dome



5. Installation and assembly

① Subsoil
② Telescopic dome shaft
③ Compacted foundation refer page 2.
④ Backfill Material, 7mm Minus or washed sand fill material must be porous see page 2.
⑤ Covering layer
⑥ PLATIN Rainwater Underground Tank
⑦ Concrete layer for surfaces used by passenger cars
ß --> angle of cut to depth of the trench



5.1 Construction site pre-check

The following points should be clarified before installation commences:

- The structural suitability of the ground (geotechnical report recommended)*
- Maximum groundwater levels which occur and drainage capability of the subsoil
- Types of load expected, for example: traffic loads
- Location of all underground services

* A geotechnical report conducted by civil testing engineers is strongly recommended to determine the physical characteristics of the subsoil before installation/excavation commences. For setback distance from neighbouring boundary and any buildings, please contact local council.

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 > 100 mm on each side; the distance from solid constructions must be more than the depth of the trench away from the structure.

If the depth of the trench is > 1250 mm an embankment must be designed according to meet all safety standards. The construction site must be level and must guarantee sufficient load-bearing capacity.

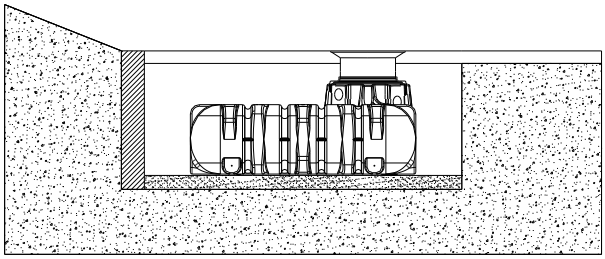
The depth of the trench must be sized, so that the maximum earth coverage (see point 2 – installation conditions) above the tank is not exceeded.

A layer of compacted, Type B Crushed Rock (porous round-grain gravel grain size 8/16, thickness approx. 100 - 150 mm) is applied as the foundation. . See Page 2.

5. Installation and assembly

5.2.1 Slope, embankment, etc.

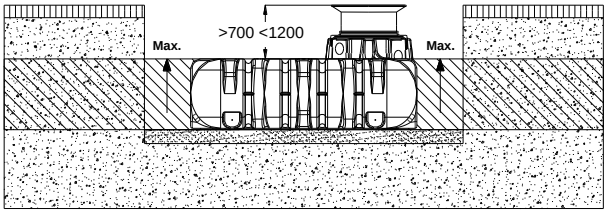
If installation of the tank is in the immediate vicinity (< 5 m) of a slope, earthen mound or slope, a statically calculated supporting wall must be erected to absorb the soil pressure. The wall must exceed the dimensions of the tank by at least 500 mm in all directions, and must be located at least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

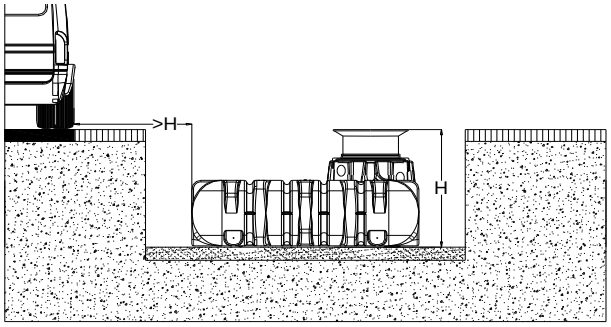
Dissipation of the drainage water (e.g. via an annular drainage system) is recommended in the case of cohesive, water-impermeable soils.



1500L -> 700mm / 3000L -> 735mm / 5000L -> 950mm

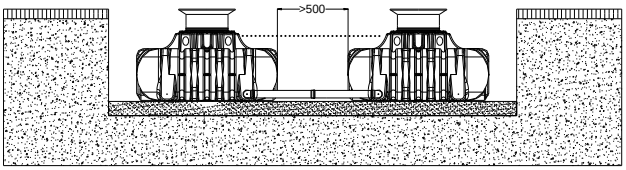
5.2.3 Installation adjacent to surfaces used by vehicles

If the underground tanks are installed adjacent to surfaces which are used by heavy vehicles weighing over 3.5 tonne the minimum distance away from these surfaces is at least the depth of the trench.



5.2.4 Connection of several tanks

When two or more tanks are to be connected together this is done by joining the tanks together by using the GRAF Platin Interconnect Tank Seal (Red) and basic 100mm PVC pipes (to be provided by the installer at the construction site).

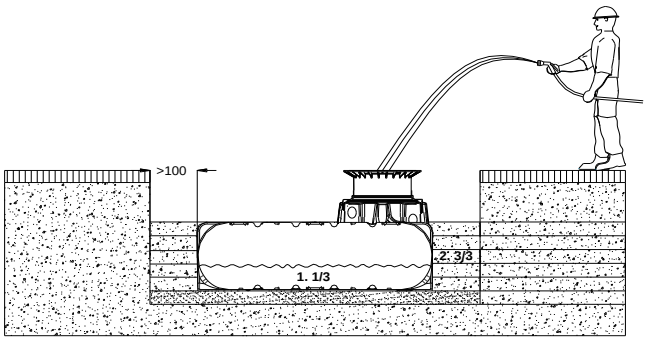


The connecting holes must be pre cut using “only” the special GRAF 124mm hole saw. The distance between the tanks must be a minimum 500mm. The pipes must project at least 100mm inside the tanks.
Note: Connected tanks must be ordered with the Pre Drilled Holes and interconnecting tank seal.

Use 40mm pressure pipe (or equivalent approved pipe) for airline between tanks.

5. Installation and assembly

5.3 Insertion and filling

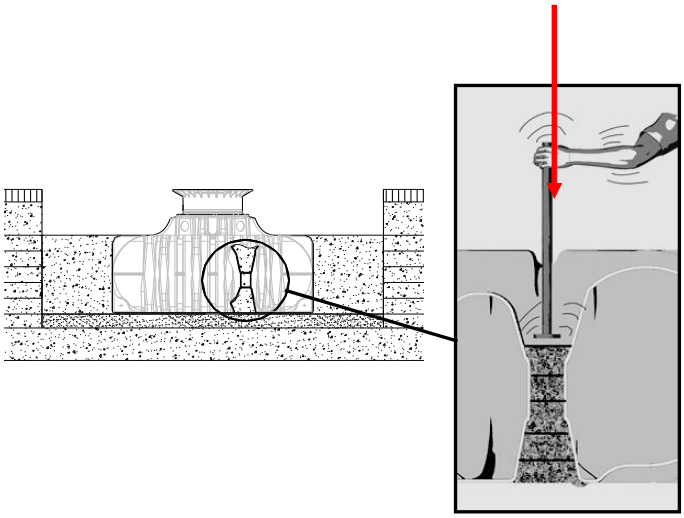


The tanks must be inserted, impact-free, into the prepared trench using suitable equipment. To avoid deformities, the tank is to be 1/3 filled with water before undertaking any backfilling.

Ensure minimum distances between trench wall (100mm) and between tanks (500mm).

Once sufficient water is in the tank the surrounding trench is then filled with 7mm Minus in layers of 30 cm steps and is manually compacted. See page 2.

The individual layers as well as the anti floatation holes (see pictures to the right) must be well-compacted by manual tamper.

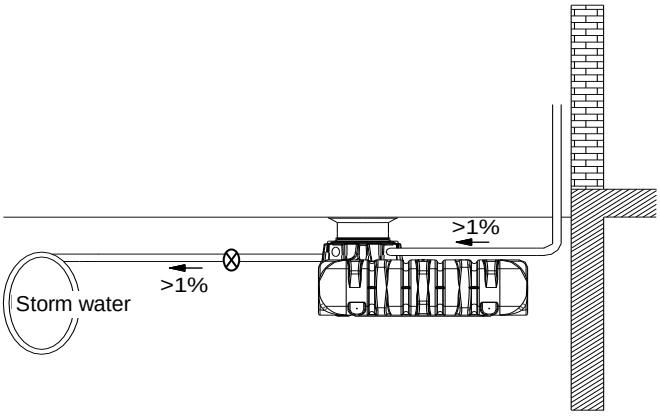


Damage to the tank must be avoided during compaction. Mechanical compaction machines must not be used under any circumstances.

Note: The surrounding trench must be a minimum 100mm wider on all sides than then the tank.

5.4 Plumbing connections

All feed and overflow pipes must be plumbed 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 the public storm water, this must be protected against reflux by means of a Reflux Valve refer AS/NZS3500.1:2003

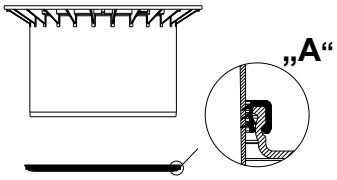


All suction, pressure and control lines must be routed inside an empty pipe, which must be routed as straight as possible, without bending, to the tank with a decline. Necessary bends must be formed using 45° moulded sections.

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

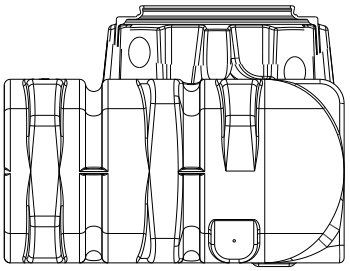
6. Assembling the and telescopic dome shaft

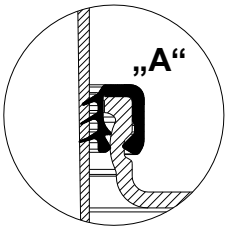
6.1 Assembling the telescopic dome shaft



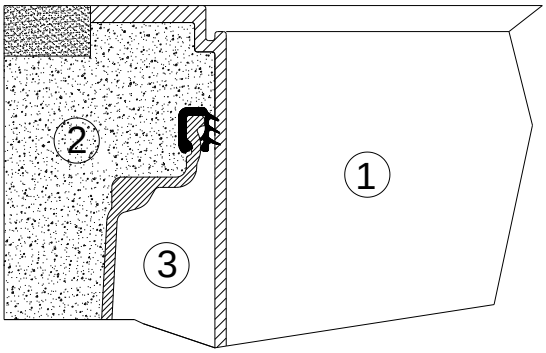
The telescopic dome shaft enables infinite adaptation of the tank to given site surfaces with earth coverage of between 455mm and 655mm (standard telescopic dome shaft) or 455mm and 755mm (trafficable telescopic dome shaft).

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



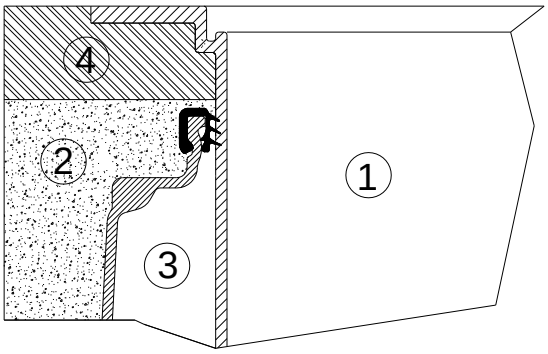


6.2 Telescopic dome shaft on which persons may walk



Important: To prevent loads from being transferred onto the tank, ② (7mm Minus) is filled 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 and tightened to prevent entry by children.

6.3 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 grey) 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 permitted coverage above the shoulder of the tank is min. **700 mm** and max. **1000mm**.

Attention: Use the cast cover under all circumstances.

7. Assembly of the extension riser

7.1 Assembling the extension riser

For larger coverage heights an extension riser is needed. Insert the extension riser into the tank dome, (soft soap is needed) then into the highest groove of the extension riser inserted the profile seal and soap generously. Afterwards push the telescopic dome shaft into the extension riser and adjust it to the planned area surface.

1 Extension Riser = max. earth-cover 955 mm (with standard lid and shaft)

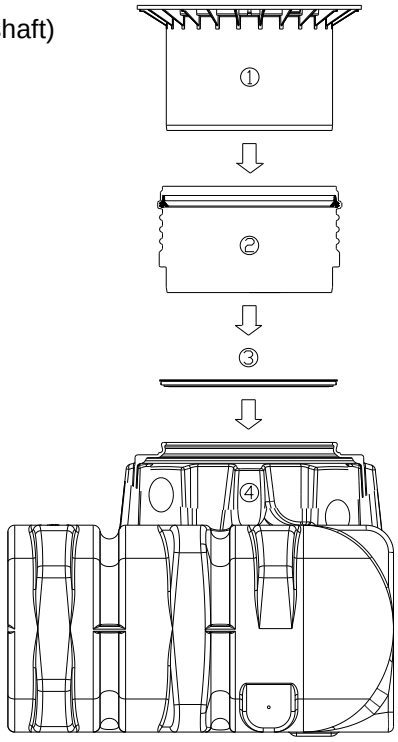
respectively 1055 mm (with vehicle lid and shaft)

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

② Extension Riser

③ Profile seal

④ Platin Tank dome



8. 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
- Check that all internal parts are firmly seated.

9. Minimax Pro Filter Package Installation

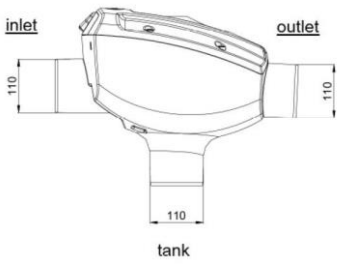
9.1 Minimax Pro Internal Filter consists of: (supplied)

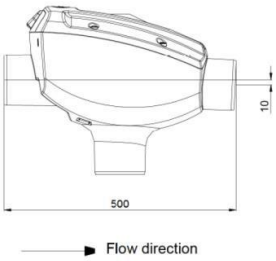
- Filter Body, Filter Basket
- Two Spannfix Collars
- Emergency Overflow Siphon & Rodent Guard
- Settled Inlet Connection
- 1 x 150mm Rubber Ring Grey Pipe Adaptor (for outlet)
- 1 x 250mm Rubber Ring Grey Pipe Adaptor (for inlet)

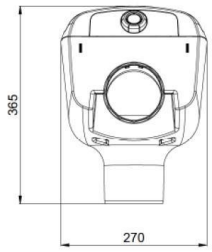
Notes:

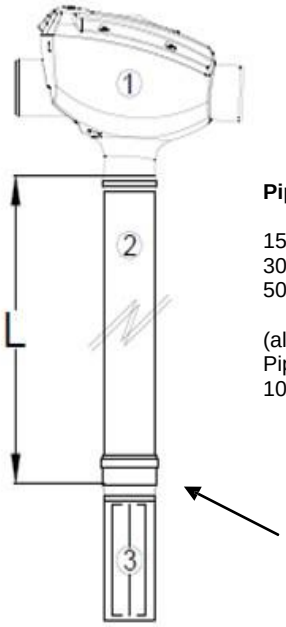
- The filter has a built in difference between inflow/outflow of 10mm
- The filter is suitable for roof areas up to 350 square metres
- The mesh width in the sieve insert is 0.35mm.

9.2. Technical Specifications







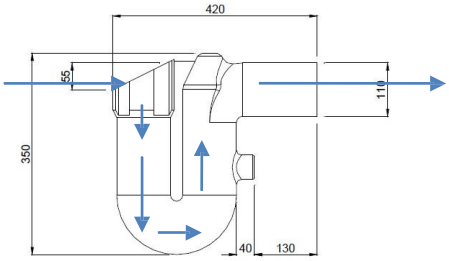


Pipe length (L) with bush:

1500L = 335mm
3000L = 365mm
5000L = 545mm

(all dimensions = +/- 3%)
Pipe dimensions =/- 10mm)

Settled inlet connection DN 100



Emergency Overflow Siphon

9.3 Installation of inflow pipe and overflow siphon

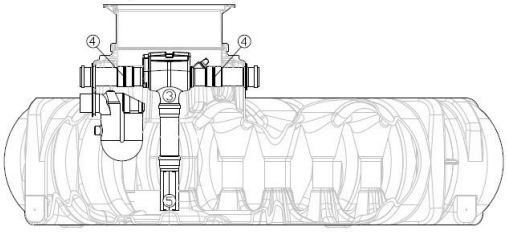
The emergency overflow siphon (pictured above) is installed at 90 degrees to the inlet and outlets of the tank; the Rodent Guard is inserted in the opening of the trap.

9.4 Filter Installation

Connect the filter body into the bell end of 100 mm PVC pipe as per (L) above using a 100mm plumb quick (not supplied). Having already cut the pipe to the required length connect it into the rubber ring of the inlet stilling system ensuring it is firmly in place before lowering it into the tank.

9. Minimax Filter Package Installation cont...

9.5 Insert the filter cartridge into the tank



Insert the filter, prepared with the inflow pipe and the inlet stilling system, into the tank.

Fix the filter into place using both rubber ring adaptors facing outwards from the dome with the 250mm adaptor on the inlet and the 150mm adaptor on the outlet.
These adaptors "butt" up against the filter body and are joined by the Graf Spannfix collars (supplied). They provide a simple disconnection of the filter body without tools.

To position the Minimax Filter correctly - push the 150mm rubber ring adaptor on the outlet, fully in, by doing this you will be positioning the inlet stilling system so it sits in between the tank bottom ribs.

9.6. Commissioning

The filter sieve functions only in one flow direction; the direction is marked on the stainless steel tray. Run water into the tank and filter system to check the connection.

9.7. Regular Maintenance

To ensure maximum water yield, the filter must be checked for dirt and debris immediately following the first rainfall occurrence after the tank installation. It must also be checked after any "major" rainfall event and/or after any long dry spells.

The complete system is to be inspected at least every 3 months for leakage, cleanliness and stability. To ensure the expected water yield is delivered, it is important to inspect and clean the filter sieve at regular intervals. The Spray Cleaner when connected provides additional insurance against filter blockage; it can be plumbed up to the tank rainwater pump line. Depending on the connection it can be operated manually by use of an external ball valve or automatically by the installation of a timer and solenoid valve.

When carrying out a service of the integrated filter it is also required that the overflow siphon is checked and cleaned.

Correct Installation of Graf Minimax Filter Package

10. Pictorial Installation of the Graf Platin Tank

1. Dig excavation and provide 100-150mm well compacted level base

2. Lift tank/s off truck using suitable lifting equipment

3. Use digger to lift tank/s into the hole

4. Back fill must be compactable porous with a maximum size of 7mm

5. Install geotextile cloth over tank and ditch and up to ground level if ground water could be above the shoulder of the tank.

6. Connect plumbing, 1/3 fill tank with water and then back fill

10. Pictorial Installation of the Graf Platin Tank

7. Insert tank seal and plumbing connection fittings

8. Connect Minimax Filter Package (see instructions pages 12-13)

9. Lube up rubber seal with liquid soap provided before inserting Shaft & Lid

10. Install Graf Telescopic Shaft & Lid (man hole) to tank and complete landscaping

Installer Support Service

Reece have available Plumbing Product Specialist in each state to support installing contractors as required with advice on installation of Graf Tanks & Filters. Contact your local Reece Branch for assistance.

Don't risk it, use a licensed plumber.™

Reece. Works for you.™

Call **1800 032 566** or visit **www.reece.com.au** for your nearest Reece store.

V2 [BROCHURE CODE 1008955]

ARID RAINWATER HARVESTING ASSOCIATION OF AUSTRALIA

12 years warranty

GRAF®

reece™