



GRAF UNDERGROUND RAINWATER TANKS

Rainwater Detention & Retention Installation Instructions
& Technical Information

1300 131 971 | www.grafaustralia.com.au

MNL- 031



TABLE OF CONTENTS

1. INTRODUCTION, FILL MATERIALS & GENERAL NOTES ON SAFETY	1-3
1.1 Selecting the right system	3
2. INSTALLATION CONDITIONS	4
3. TECHNICAL DATA	4
4. TANK ASSEMBLY	5
5. INSTALLATION AND ASSEMBLY	6
5.1 Construction site	6
5.2 Trench	6
5.21 Slope Embankment	7
5.22 Ground water	7
5.23 Installation adjacent to traffic	7
5.24 Installation connection of several tanks	7
5.3 Insertion and filling	8
5.4 Plumbing connections	8
5.5 Class D Installation	9
6. ASSEMBLING THE TELESCOPIC DOME SHAFT	10
6.1 Assembling the Telescopic dome shaft	10
6.2 Installation of pedestrian dome shaft	10
6.3 Installation of car dome shaft	10
7. ASSEMBLY OF THE EXTENSION RISER	11
8. INSPECTION AND SERVICING	11
9. MINIMAX PRO FILTER	12-13
9.1 Filter Components	12
9.2 Filter Specifications.....	13
10. PICTORIAL INSTALLATION GUIDELINES	14-16
11. INSTALLER SUPPORT SERVICES	17
12. CUSTOM MADE TO SUIT	17
13. ORIFICE FORMULA & FLOW CALCULATIONS	18
16. VOLUME MEASUREMENTS	19
17. PRODUCT CERTIFICATION	19

GRAF PLATIN RAINWATER DETENTION & RETENTION INSTALLATION & MAINTENANCE INSTRUCTIONS

The Graf Platin is made in Australia and is suitable for under-deck, semi-submerged and below-ground installations. Ready-made packages are offered in 1,500L, 3,000L, 5,000L, 7,500L, 10,000L and 15,000L in both pedestrian and car options. Larger-sized systems are available. Contact GRAF AUSTRALIA for different sizes and assistance

The product is manufactured and accredited to: AS/NZS 1546.

Platin Manufacturer: Certified to the Quality standard ISO9001-2015

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.

WHAT YOU WILL NEED

Hand tools - spade, shovel –supplied by others

Manual hand tamper – supplied by others

Lifting equipment and straps – supplied by others

Material for the base –supplied by others

Material for backfilling – supplied by others

Pipework and connections – supplied by others

PLATIN tank accessories – cover, seals and dome shaft plugs - GRAF

PLATIN tank - GRAF

DETENTION



RETENTION



SUITABLE FILL MATERIALS

Base materials

Base minimum thickness: 100mm compacted base

Material: Crushed rock or hardcore "20mm Type B" crushed rock



Backfill materials

8-16mm rounded gravel, compacted in layers or 7mm quarter minus



Backfill materials

Clean sand with no large stones or rocks



Unsuitable materials – Non-porous materials

Builders sand, clay, cement, type of C and D crushed rock and any other cohesive and water-holding soils. Incorrect soils may void the warranty



1. GENERAL NOTES

Safety

As Occupational Health and Safety legislation varies across states and territories, always refer to all relevant legislation, regulations, and Australian Standards when installing, assembling, servicing, or repairing Graf Platin storage tank systems. All statutory regulations and standards must be observed, and installation must be carried out by a licensed person to maintain warranty. The system must be fully shut down before maintenance, and the tank securely sealed afterward to prevent unauthorized entry. Graf provides a compatible range of accessories, and using non-Graf components may affect performance and warranty.

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 tapings 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 connected to a retention tank 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. The mixture of rainwater and surface stormwater should be avoided in retention systems.



Example of typical rainwater pipework signage



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

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.

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.

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.

1.1 SELECTING THE RIGHT SYSTEM

Selecting the right system

To Select Your System you need to know the following:

- Detention or Retention?
- Required volume of the system?
- Discharge flow rate or orifice size?
- Depth of invert level or legal point of discharge?

2. INSTALLATION CONDITIONS – NO GROUND WATER

Lid must be installed flush to the finished surface level

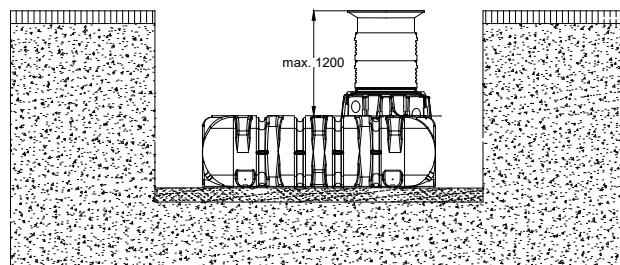
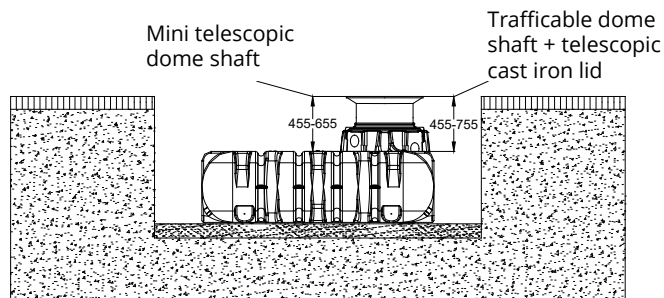
LANDSCAPED

NO GROUNDWATER assumed in this installation application. Maximum backfill depth required in landscaped, green areas:

455-655mm from the finished surface level

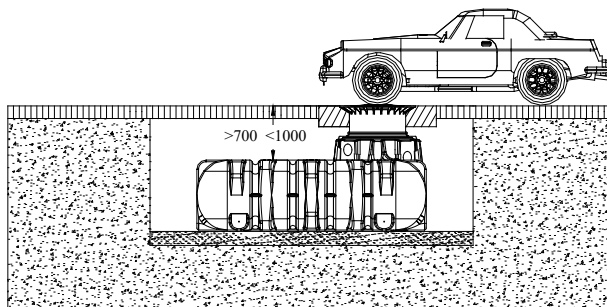
1.2m is the maximum backfill depth with the **maximum two extension risers** and **telescopic dome shaft**.

In green, landscaped areas only



CLASS B LOADING: VEHICLES < 3.5T

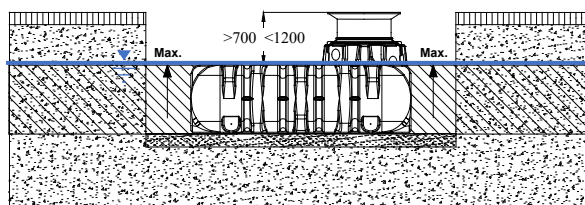
Provide **0.7–1m earth backfill** with a telescopic dome shaft and **250mm reinforced concrete surround (Class B and D)** in areas used by passenger cars. **(without groundwater and stratum water)**



GROUNDWATER

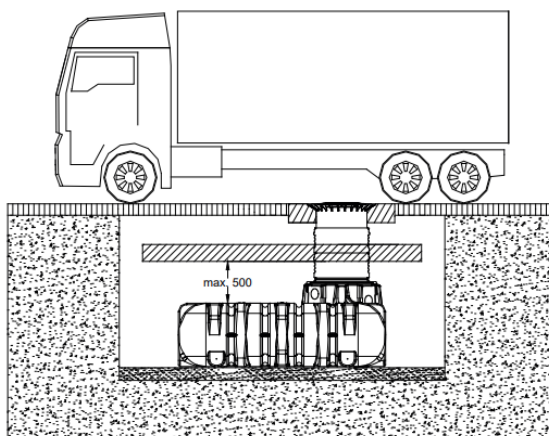
The PLATIN is suitable for installation in groundwater, up to the tank shoulder. The backfill depth is suitable 0.7m -1.2m

The tank **MUST NOT** be located in trafficked areas in this condition.



2. INSTALLATION AND ASSEMBLY - CLASS D INSTALLATIONS

5.5 Graf Platin – Class D Installation



Class D installation

The Platin is suitable in CLASS D load applications if there is **no groundwater or stratum water present**.

A reinforced concrete slab must be installed- please seek guidance from certified Engineer.
The slab must extend beyond the tank by 500mm.

Concrete Notes

The reinforced concrete slab must be designed and checked by an approved Engineer.

The following are guidance notes and must be checked by an Engineer for the load application.

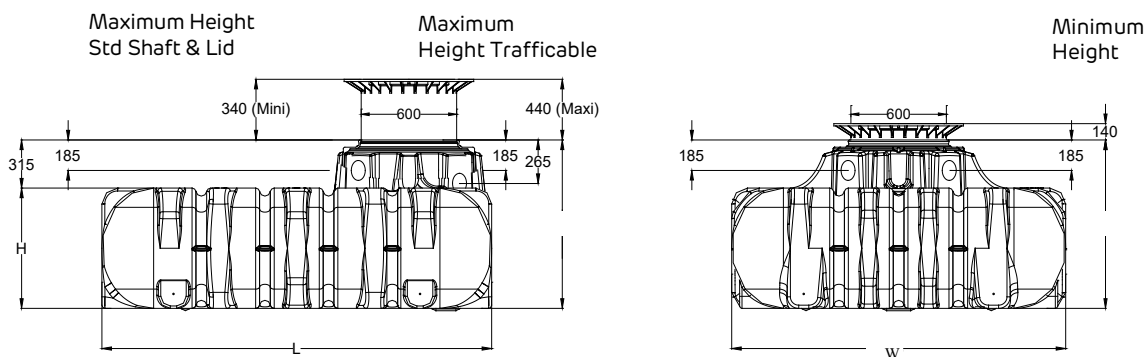
- C1. All concrete workmanship to be in accordance with AS 3600
- C2. All concrete to have the following properties:
 - 30/35 MPa min cylinder compressive strength
 - 7mm -20mm aggregate size
 - Wet flowable mix is suitable
- C3. All concrete to be cured by approved methods for a minimum of 7 days
- C4. Concrete slab to be minimum 250mm thick with SL102 mesh reinforcement top and bottom, and a nominal 35mm cover to the reinforcement
- C5. Steelwork to be treated in accordance with BCA corrosion requirements.
- C7. Damp-proof membrane to be used for surfaces in contact with soil
- C8. Steel reinforcement to be continuous at all locations, ensure minimum 50 x bar diameter lap at splices and corners.
- C9. Concrete admixtures may be used provided chloride ion resistance or sulphate contamination resistance. Content from sources is < 0.4% of the mass of Portland cement in the mix. Calcium chloride is not an acceptable admixture.

Foundation and Backfill Notes

- F1. The backfill must be placed in layers and compacted with a plate compactor maximum 600 x 300mm plate size.
- F2. Follow the manufacturer's guidance for maximum layer thickness and number of passes.
- F3. Ensure that the plate compactor exhaust does not get too close to the wall of the tank to prevent heat damage.

3. TECHNICAL DATA

Platin Tank with Telescopic Shaft & Lid



Graf Platin Tank	1500 Litres	3000 Litres	5000 Litres	6000 Litres (2 x 3000L)	10,000Litres (2 x 5000L)
------------------	-------------	-------------	-------------	-------------------------	--------------------------

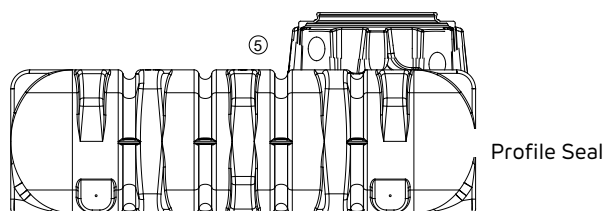
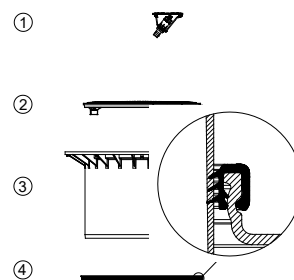
Product code

Weight	82 kg	180 kg	250 kg
L	2100 mm	2450 mm	2890 mm
W	1250 mm	2100 mm	2300 mm
H	700 mm	735 mm	950 mm
H total*	1015 mm	1050 mm	1265 mm

Minimum Hole Size (L x W x H)	2300 x 1450 x 1155mm	2650 x 2300 x 1190mm	3090 x 2500 x 1405mm	2650 x 4900 1190mm	3090 x 5300 1405mm
-------------------------------	----------------------	----------------------	----------------------	--------------------	--------------------

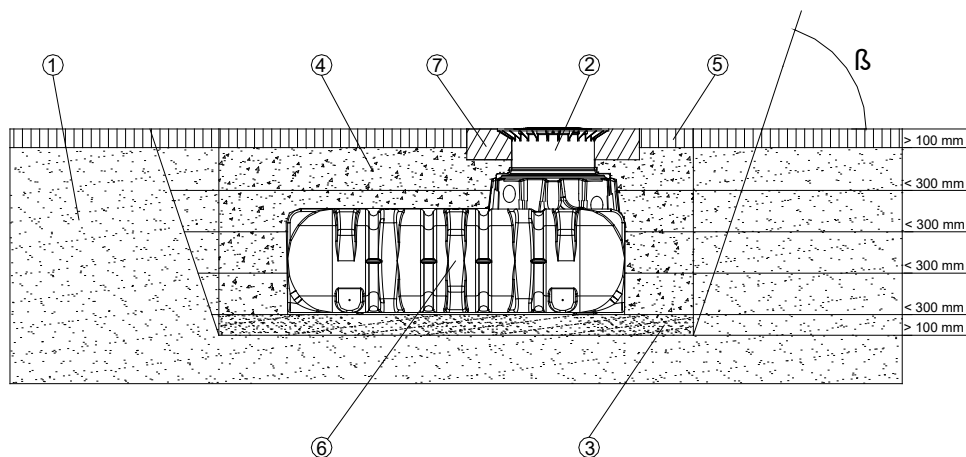
4. TANK ASSEMBLY

- ① Water connector box internal
- ② PE (pedestrian) or Cast Iron (car) lid for telescopic dome shaft
- ③ Telescopic dome shaft (can be inclined by 5°)
- ④ Tank Dome Seal (profile seal)
- ⑤ Tank dome



4. INSTALLATION AND ASSEMBLY

- ① Subsoil
- ② Telescopic dome shaft
- ③ Compacted foundation refer page 2.
- ④ Backfill Material, 8-16mm aggregate or washed sand fill material must be porous see page 2.
- ⑤ Covering layer
- ⑥ PLATIN Underground Tank
- ⑦ Concrete surround for trafficked areas
- β --> 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.*

5.1.2 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.

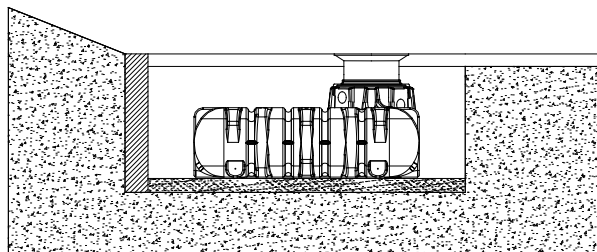
The depth of the trench must be sized, so that the maximum earth coverage (see point 2 – installation conditions) above the tank is not exceeded.

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.

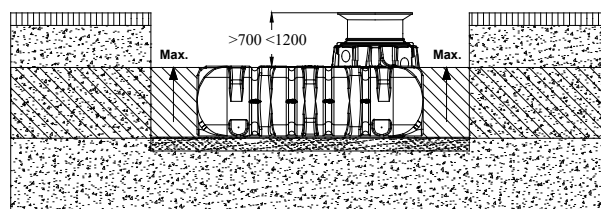
If installation of the tank is in the immediate vicinity (< 5 m) of a slope, earthen mound or stockpile- **a supporting wall must be designed and installed** to protect the tank from the earth pressure and prevent failure. The wall must exceed the dimensions of the tank by at least 500 mm in all directions, 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 **drainage to de-water the area must be installed**. (See table for max. immersion depth).

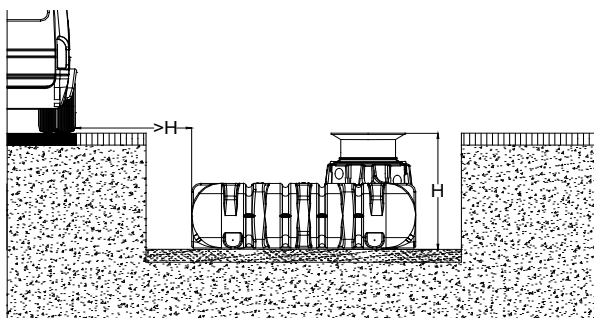
Installation of the de-watering system (e.g. via an annular drainage system) is recommended in the case of cohesive, water-impermeable soils.



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

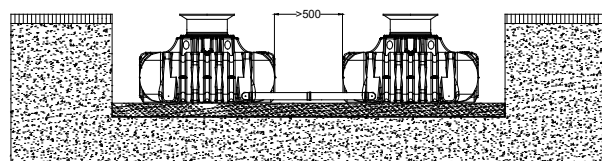
5.2.3 Installation adjacent to surfaces used by vehicles

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 standard 100mm PVC pipes (to be provided by the installer at the construction site).



The tanks must be spaced a minimum of **500mm apart**. 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 a 40mm pressure pipe (or equivalent approved pipe) for air balance pipe between tanks. DN 50mm seal provided.

5. INSTALLATION AND ASSEMBLY

5.3 Insertion and filling

The tanks must be inserted, impact-free, into the prepared trench using suitable equipment.

The top of the lid is flush to the finished floor level

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).

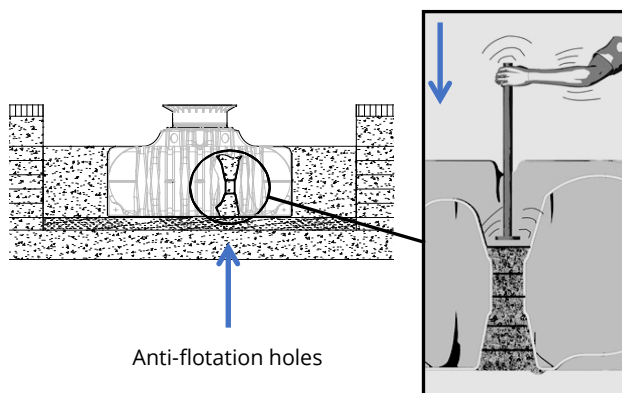
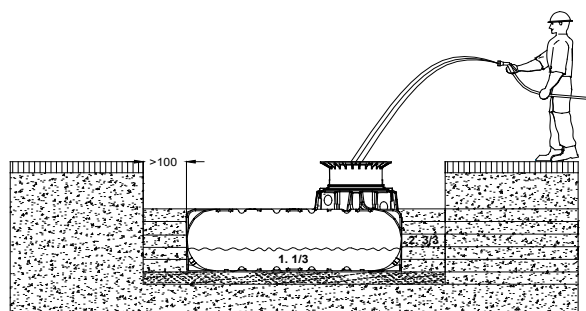
Once sufficient water is in the tank, the surrounding trench is then filled with 8-16mm aggregate in layers of 30 cm steps and is manually compacted. See page 2.

The individual layers, as well as the

Anti-flotation 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.

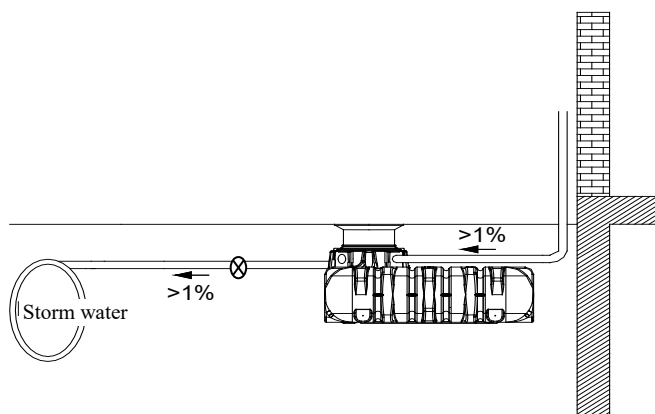
Note: The surrounding trench must be a minimum of 100mm wider on all sides than the tank.



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.

5. INSTALLATION AND ASSEMBLY – BACKFILLING

5.B Graf Platin – Backfill

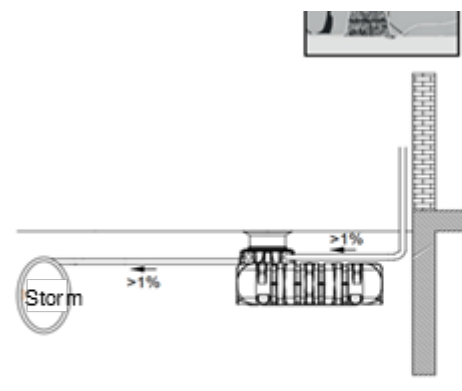
- 1) Once the compacted base is installed, gently lower the tank into the excavation.



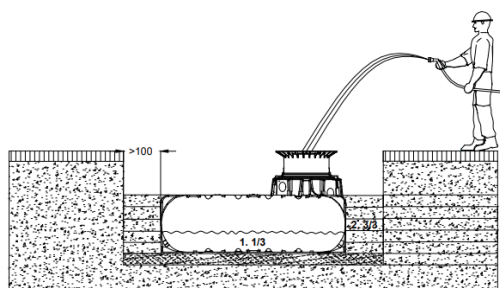
- 2) Install the desired pipe connections where required

All feed and overflow pipes must be installed with at least 1% gradient in the direction of flow.

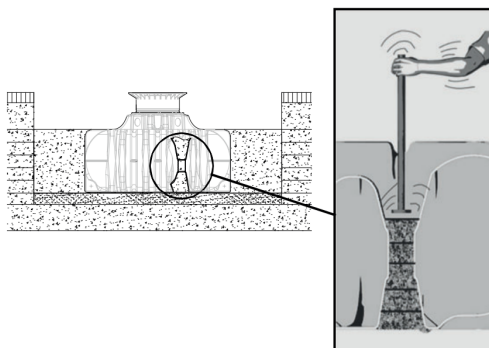
Ensure that the outlet connections are to the correct type of chamber. I.e. Stormwater – stormwater outlet. NOT stormwater to sewage.



- 1) Fill the tank 1/3 with water



- 2) Place the backfill around the tank in layers – maximum 300mm thick and manually compact with tamper. Ensure that the columns of soil between the grooves of the tank are compacted in layers



6. ASSEMBLY OF THE TELESCOPIC DOME AND SHAFT

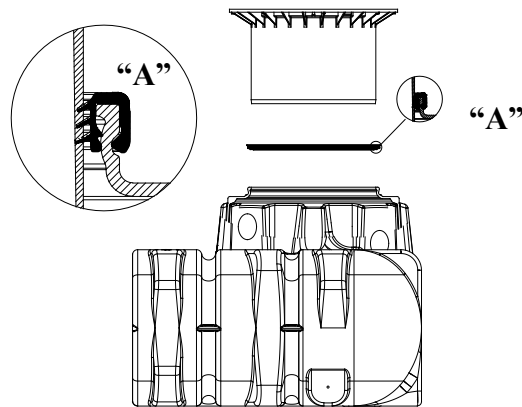
6.1 Assembling the telescopic dome shaft

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 tank dome seal (profile seal - material EPDM) is inserted into the tank dome's sealing

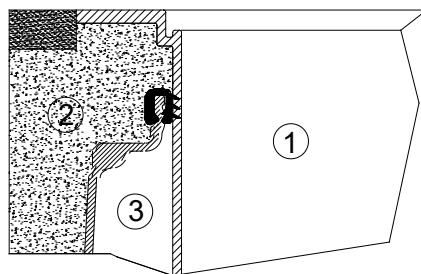
groove and is coated generously with the soft soap supplied (do not use mineral oil-based lubricants, as these attacks the seal).

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 (8-16mm aggregate) 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.

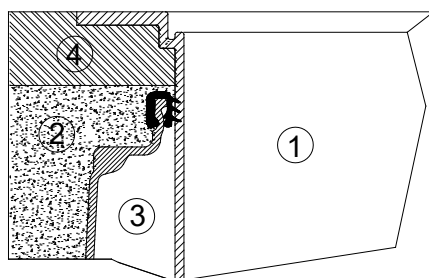


6.3 Telescopic dome shaft on which passenger cars may drive:

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

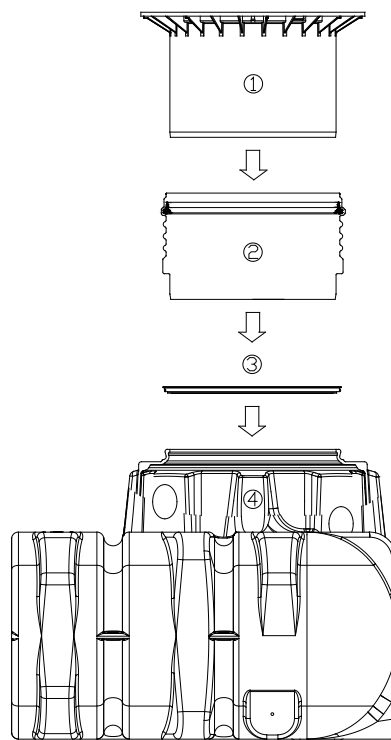
For larger coverage heights an extension riser is needed. Insert the extension riser into the tank dome, (soft soap is needed) then into the highest groove of the extension riser inserted the profile seal and soap generously. Afterwards push the telescopic dome shaft into the extension riser and adjust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

1 x Extension Riser = max. earth-cover 955 mm (with standard lid and shaft) respectively 1055 mm (with vehicle lid and shaft)

2 x Extension Risers = max. earth-cover 1200 mm (with standard lid and shaft)

Only suitable for car with a reinforced concrete slab installed – see section 5.

- ① Telescopic dome shaft (can be inclined by 5°)
- ② Extension riser
- ③ Tank to Dome Seal (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.

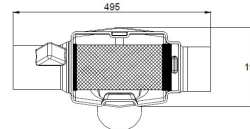
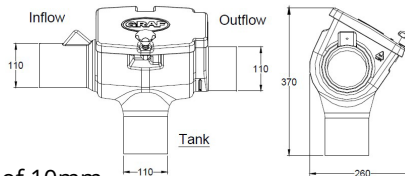
9. MINIMAX PRO FILTER PACKAGE INSTALLATION

9.1 Minimax Pro Internal Filter Consists Of: (Supplied)

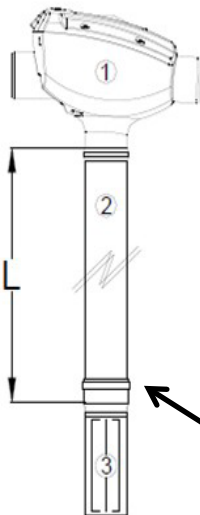
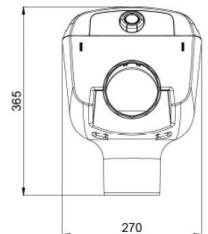
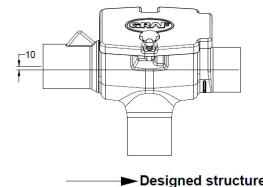
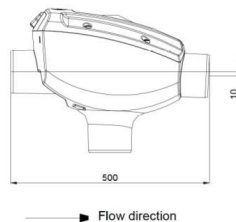
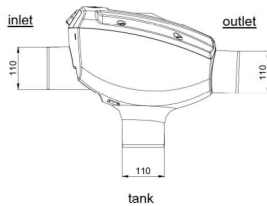
- Filter Body, Filter Basket
- Two Spannfix Collars
- Emergency Overflow Siphon & Rodent Guard
- Settled Inlet Connection
- 1 x 150mm Rubber Ring Grey Pipe Adaptor (for outlet)
- 1 x 250mm Rubber Ring Grey Pipe Adaptor (for inlet)

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



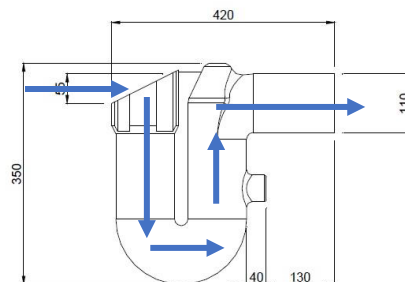
Pipe length (L) with bush:

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

(all dimensions = +/- 3'
Pipe dimensions = +/- 1C

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 PRO FILTER PACKAGE INSTALLATION

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 250 mm adaptor on the inlet and the 150 mm adaptor on the outlet. These adaptors "butt" up against the filter body and are joined by the Graf Spannfix collars (supplied).

Please note: collar strap joins must be at the top and accessible. They provide a simple disconnection of the filter body without the need for tools.

To position the Minimax Filter correctly, push the 150 mm rubber ring adaptor on the outlet fully in. By doing this you will be positioning the inlet stilling system so it sits 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 after installation. It must also be checked after any major rainfall event and/or after long dry spells.

The complete system is to be inspected at least every 3 months for cleanliness and stability. To ensure the expected water yield, it is important to inspect and clean the filter sieve at regular intervals.

The optional Spray Cleaner, when connected, provides additional insurance against filter blockage. It can be plumbed to the tank rainwater pump line and operated manually via an external ball valve or automatically via a timer and solenoid valve.

When servicing the integrated filter, it is also required that the overflow siphon is checked and cleaned.

Correct Installation of the GRAF Minimax Filter Package in a Retention System



10. PICTORIAL INSTALLATION OF THE GRAF PLATIN TANKS FOR STORMWATER



1. Dig excavation and provide 100-150mm of 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. Manually tamp the backfill in layers. Back fill must be compactable porous with a maximum size of 8-16mm – see page 3



5. Connect plumbing, 1/3 fill tank with water and then back fill. Refer 5.3

10. PICTORIAL INSTALLATION OF THE



6. Insert U shaped doubled sided tank to dome shaft seal. Refer to 6.1



7. Connect the detention/retention fitting through the red seal inside the tank. The plumber to supply and fit PVC outside of the tank.



8. Connect Minimax Pro Filter Package in retention system and install pump and changeover device (Rain to Main). Refer 9.1-9.7



9. Lube up rubber seal with liquid soap provided before inserting shaft and lid.



10. Install GRAF telescopic shaft and lid (manhole) to tank.



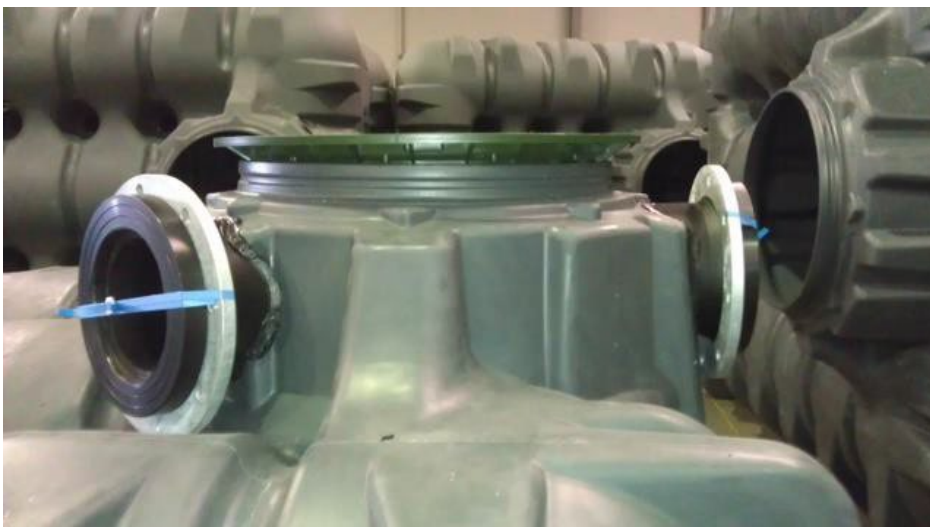
11. Complete Landscaping.

11. INSTALLER SUPPORT SERVICE

Contact GRAF Australia for bespoke designs, support, drawings and manuals.

12. CUSTOM MADE TO SUIT CLIENT'S NEEDS

Connection options are available in 150mm, 225mm & 300mm



Example of - Graf Platin with 225mm Welded in Flanges

13. STORM WATER – ORIFICE FORMULA & FLOW CALCULATIONS

Orifice Formula

Calculating the orifice formula is normally done by local councils and/or engineers. The calculations are done to ensure that the volume of water, coupled with the head of the water in the tank, is matched with the orifice size to ensure the storm water entering back into the storm water system will be below its capacity limits.

$$V = 0.6 \times A \times \sqrt{(2 \times 9.81 \times D)}$$

V = Volume flow rate

0.6 = Discharge coefficient for thin wall orifice

A = Surface area of the orifice

(πR^2 – π being 3.1415 and R being 50% of the diameter of the orifice in metres)

9.81 = gravity acceleration

D = Depth of water above the discharge hole in m

Orifice size		Area of orifice - πR^2	Depth of Orifice from top level (in metres)		
		EG: $3.1415 \times (0.0125 \times 0.0125)$ = 0.00049	0.3	0.5	1
			Flow Rate in Litres per second		
	15	0.00018	0.26	0.33	0.47
	*25	*0.00049	0.71	0.92	1.30
	30	0.00071	1.03	1.33	1.88
	35	0.00096	1.40	1.81	2.56
	40	0.00126	1.83	2.36	3.34
	45	0.00159	2.32	2.99	4.23
	50	0.00196	2.86	3.69	5.22
	55	0.00238	3.46	4.46	6.31
	60	0.00283	4.12	5.31	7.51
	65	0.00332	4.83	6.24	8.82
	70	0.00385	5.60	7.23	10.23

*Example of Flow Calculations

To calculate the volume flow for a 1m Deep tank through a 25mm Orifice (R = 0.0125m):

$$V = 0.6 \times (3.1415 \times 0.0125^2) \times \sqrt{(2 \times 9.81 \times 1)}$$

$$V = 0.6 \times 0.00049 \times 4.4294$$

$$V = 0.0013 \text{ m}^3/\text{sec}$$

$$V = 1.3 \text{ L/sec}$$



14. STORM WATER – VOLUME MEASUREMENTS



Volumetric measurements - Platin



Water depth (From Tank Bottom)	1,500 L	3,000 L	5,000 L	Water Depth (From Tank Bottom)
0 mm				0 mm
100 mm	165 L	355 L	417 L	100 mm
200 mm	393 L	805 L	946 L	200 mm
300 mm	627 L	1,302 L	1,517 L	300 mm
400 mm	884 L	1,814 L	2,145 L	400 mm
500 mm	1,155 L	2,322 L	2,786 L	500 mm
600 mm	1,367 L	2,763 L	3,413 L	600 mm
700 mm	1,528 L	3,045 L	3,972 L	700 mm
800 mm	1,578 L	3,123 L	4,524 L	800 mm
900 mm	1,628 L	3,188 L	4,850 L	900 mm
1000 mm	1,675 L	3,237 L	4,893 L	1000 mm
1100 mm			4,958 L	1100 mm
1200 mm			5,004 L	1200 mm
1300 mm				1300 mm
1400 mm				1400 mm
1500 mm				1500 mm

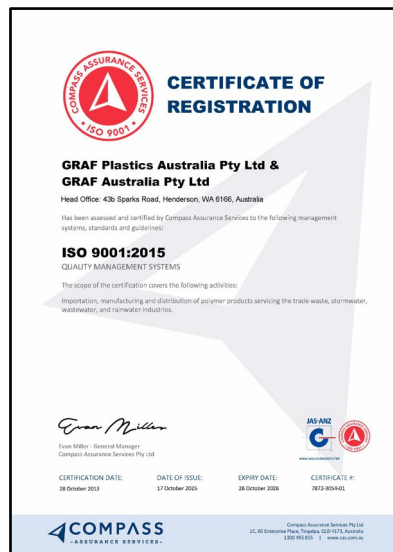
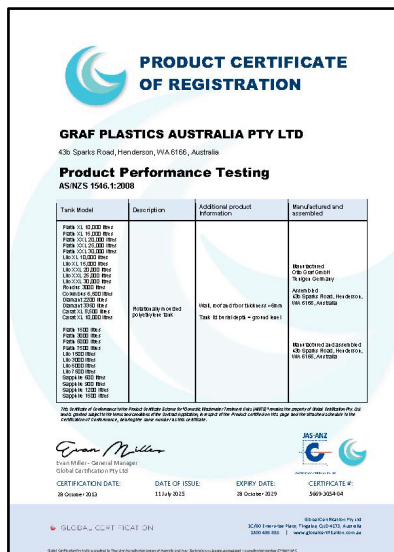
Otto GRAF GmbH, 28.08.2012

Note: To check volume before installation, refer to chart above for the correct orifice height = volume of detention required in the tank.

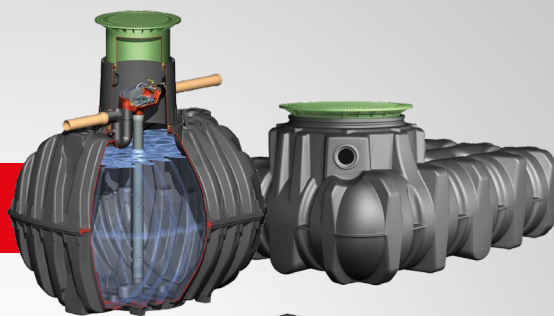
Please note that systems larger than 10,000 litre can be achieved. Graf are able to assist with calculations and drawings. Please contact your local distributor for this and any pumping equipment.

15. PRODUCT CERTIFICATION

Note: Please check the website for the most up-to-date certificates



RAINWATER HARVESTING



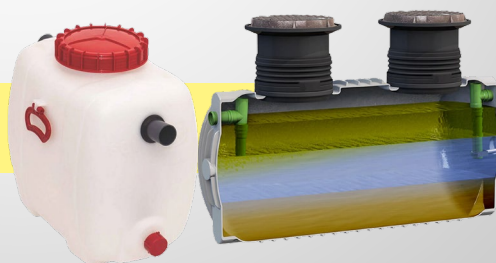
STORMWATER MANAGEMENT



WASTEWATER MANAGEMENT



TRADE WASTE SOLUTIONS



Australasian Head Office:
43B Sparks Road, Henderson
WA 6166

VIC Depot:
1/965 Duncans Road, Werribee
South VIC 3030

SA Depot:
26 Briens Road Northfield SA
5085

QLD Depot:
Unit 1, 10-12 Claude Boyd Parade, Bells
Creek QLD 4551

NSW Depot:
650 Wallgrove Road, Horsley Park NSW
2175



1300 131 971
info@grafaustalia.com.au
grafaustalia.com.au