Rainwater harvesting solutions

THE CARAT-S TANK SYSTEM



RAINWATER HARVESTING

INFILTRATION

RETENTION CISTERNS

POTABLE WATER TANKS

Carat-S Garden Comfort package

The simple garden solution with submersible pump system



Carat-S Garden Comfort package

- Simple to install and use
- Use a simple hose connection socket and pressure sensitive pump for automatic water activation
- Low visual impact
- Reduces electricity consumption by using a pressure drop activation system, so that electricity is only used when required
- Integrated filter technology (100% water yield)

Scope of supply

1. Carat-S underground tank
2. Mini telescopic dome shaft for pedestrian loading with an adjustable PE lid 750mm - 950mm (29.5” - 37.4”)
3. Filter package 2, consisting of:
   - Internal Universal Filter 3
   - Inflow stilling system for controlling the water inflow
   - Overflow siphon and rodent guard function
   - Spannfix pipe connection sleeve
4. Garden Comfort pump package consists of:
   - Integra INOX Submersible and suction pump, with protection against dry running and automatic start/stop function
   - Floating water extraction unit
   - Water hose connection box
   - 10m of pressure hose (32.8ft)

Capacity/litres	US gallons
2,700	700
3,750	1,000
4,800	1,250
6,500	1,700
8,500[1)]	2,240
10,000[1)]	2,640
13,000[2)]	3,400

[1)]Carat XL underground tank

[2)]Set consisting of two Carat-S underground tanks

Vehicle loading version available

Carat-S House Direct-supply package

The simple domestic solution with submersible pump and mains water backup system



Carat-S House Direct-supply package

- Simple & quick to install
- Submersible pump supplies harvested rainwater on demand to WCs, washing machine & external tap
- Mains-on-Tap unit tops up the water level in the Carat-S tank when rainwater levels are low to guarantee continued water supply
- The quiet & conveniently sized Mains-on-Tap unit will fit in a kitchen or utility cupboard for very low visual impact
- Innovative float sensor detection on Mains-on-Tap unit ensures that the underground tank is kept supplied with mains water but only the amount necessary to keep supply to toilets and washing machine, leaving as much volume as possible in the tank to collect rainwater when available

Scope of supply

1. Underground tank (choice of tanks available, sizes vary according to property type)
2. Telescopic lid (choice of telescopic lid available, depending on tank location)
3. Filter (Optimax-Pro filter supplied in accordance with type of tank)
4. Submersible pump with floating water intake
5. Mains-on-Tap unit
6. Float sensor (connected from mains water backup unit to the underground tank)
7. 100mm diameter duct pipe to contain; float sensor cable, power cable for pump, also bringing mains water to underground tank as and when required
8. 100mm diameter drainage pipe connected from downpipes to the inlet at the top of the tank (all downpipes brought into one pipe for connection to the filter)
9. 100mm diameter pipe for overflow from the tank to mains drainage network or soakaway

Carat-S House ECO-Plus package

The ideal system for use in the home and garden



Carat-S House ECO-Plus package

- Self-cleaning integrated filter technology
- Mains water intake controlled by floating switch as required
- Easy to assemble due to modular components
- Just one cover visible at the surface

Scope of supply

① Carat-S underground tank

② Maxi telescopic dome shaft for pedestrian loading with an adjustable PE lid 750mm - 1050mm (29.5” - 41.3”)

③ Filter package 3, consisting of:
- Internal Optimax-Pro filter (self-cleaning)
- Inflow stilling system for controlling the water inflow
- Overflow siphon and rodent guard function
- Spannfix pipe connection sleeve

④ ECO-Plus technical package consisting of:
- Mains water feeding console 15/4
- Floating extraction unit
- Wall duct DN 100
- Labelling set
- Suction pipe 25m Black & Green labelled RAINWATER

Capacity/litres	US gallons
2,700	700
3,750	1,000
4,800	1,250
6,500	1,700
8,500[1)]	2,240
10,000[1)]	2,640
13,000[2)]	3,400

[1)]Carat XL underground tank

[2)]Set consisting of two Carat-S underground tanks

Vehicle loading version available

Carat-S House Indirect-supply package

The reliable domestic solution with submersible pump and header tank system



Carat-S House Indirect-supply package

- Simple & quick to install
- Submersible pump supplies harvested rainwater on demand to the header tank where it is then gravity-fed to the WCs & washing machine
- The header tank controls the operation of the system and the supply of harvested rainwater and backup mains water to the WCs
- Dual valve system within the header tank prioritises rainwater supply over mains water, maximising the use of all available rainwater to save on mains water consumption
- Mains water switchover point is at a lower level in the header tank when rainwater is not available from the underground Carat-S tank
- Mains water backup supply is not reliant on power supply or pump pressure and therefore guarantees supply of water to WCs at all times

Scope of supply

① Underground tank (choice of tanks available, sizes vary according to property type)

② Telescopic lid (choice of telescopic lid available, depending on tank location)

③ Filter (Optimax-Pro filter supplied in accordance with type of tank)

④ Submersible pump with floating water intake

⑤ Header tank package

⑥ 100mm diameter duct pipe to contain; float sensor cable, power cable for pump

⑦ 100mm diameter drainage pipe connected from downpipes to the inlet at the top of the tank (all downpipes brought into one pipe for connection to the filter)

⑧ 100mm diameter pipe for overflow from the tank to mains drainage network or soakaway

Benefits of the Carat-S system

The only rainwater underground tank of it's kind!

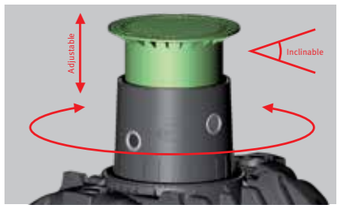
Unique manufacturing process

The GRAF Carat-S underground tank is unlike any other underground tank in the world. It is the largest tank of its kind to be manufactured by injection compression moulding. This technique provides the tank with unbeatable stability and ensures that each component is produced with the highest of accuracy.

Unlike other underground tanks, the wall thickness is equal in all areas of the tank. The production tolerances are kept to a minimum, resulting in a product of the highest quality, which is strong, accurate, reliable and extremely user friendly.

To manufacture the Carat-S range, one of the worlds largest injection moulding systems had to be developed.





The tank that turns it head for you

The GRAF Carat-S underground tank has a rotating tank dome. The tank dome can be aligned with the connections independently of the tank - this makes installation much easier! All installation pipes are connected using the five standard lip seals. The Carat-S telescopic dome shaft connects the system to the ground surface. The height of the tank can be smoothly adjusted to suit the local conditions and it can be tilted by 5°. The whole system is flush with ground level.



Flush with ground level

The Carat-S underground tank has numerous seals to efficiently stop dirt getting into the tank. This means that groundwater cannot get into the tank and, thus, dirt particles cannot contaminate the rainwater. The seals are in the intersection between the tank and the tank dome and between the tank dome and the telescopic dome shaft. All supply pipes connected to the tank dome are also sealed with five lip seals as standard.



Ribbed tank base

The tank base of the Carat-S underground tank is extremely stable thanks to the numerous ribs. These enable the Carat-S to be installed in groundwater up to the middle of the tank. Furthermore, the stable base means the tank is very robust for transportation to site. The tank base has already proven its excellent rigidity in numerous computer simulations during the development process. Please follow our installation instructions for this purpose (can also be downloaded at www.grafuk.co.uk).







An overview of advantages

- Tank consisting of two half-shells
- 5-9 tanks per pallet
- This allows up to 8 times more tank volume to be shipped thanks to this unique product design
- High stability
- Groundwater stable
- Suitable for vehicle loading
- Gravel backfill only (no concrete required)



Technical data

Dimensions/weight	2,700 litres 700 US gallons	3,750 litres 1,000 US gallons	4,800 litres 1,250 US gallons	6,500 litres 1,700 US gallons	7,500 litres 2,000 US gallons	9,600 litres 2,500 US gallons	13,000 litres 3,400 US gallons
Order no	372024	372025	372026	372027			
Length	2,080mm (81.9")	2,280mm (89.8")	2,280 (89.8")	2,390mm (94.1")			
Width	1,565mm (61.6")	1,755mm (69.1")	1,985mm (78.2")	2,190mm (86.2")			
Height	1,400mm (55.12")	1,590mm (62.6")	1,820mm (71.65")	2,100mm (82.68")			
Height of tank dome	610mm (24.0")						
Internal Ø tank dome	650 - 800mm (25.6" - 31.5")						
Weight	120kg (265lbs)	150kg (331lbs)	185kg (408lbs)	220kg (485lbs)			
Load							
Max. axle load	Suitable for vehicle loading						
Earth covering	800-1200mm (31.5"-47.2")						
Groundwater							
Groundwater-stable	Up to the middle of the tank						
Earth covering	800mm-1000mm (31.5"-39.4")						
Accessories							
Extension filter	Order no. 371005						
Drill DN100	Order no. 332001						
Special seal 100	Order no. 332033						
Special seal 150	Order no. 332035						



For dimensions, refer to 3,750l tank

For dimensions, refer to 4,800l tank

For dimensions, refer to 6,500l tank

Filter can be placed in the first tank to clean the water between tanks.



Rainwater harvesting solutions ▸ Benefits of the Carat-S system

Installation of rainwater harvesting systems

GRAF UK provide a full installation service for anything from one-off single systems up to multiple systems for housing developments. We also provide a commissioning service and ongoing maintenance packages for individual clients or housing associations.

Complete installations include the following stages:





① Excavation of tank area & pipework trenches

② Tank assembly, installation & set up with tank dome & lid

③ Installation of filter unit within the top of the tank and connection to drainage pipes

④ Installation of the duct pipe from the tank to the property

⑤ Feed pipework through the duct, including pressure pipe, float sensor cable, power cable for the pump and pipes for mains water back to the tank

⑥ Install the chosen pump package (either Garden Comfort, Eco-Plus, Direct-supply or Indirect-supply packages)

⑦ Make mains water connection to the chosen pump package, except Garden Comfort package

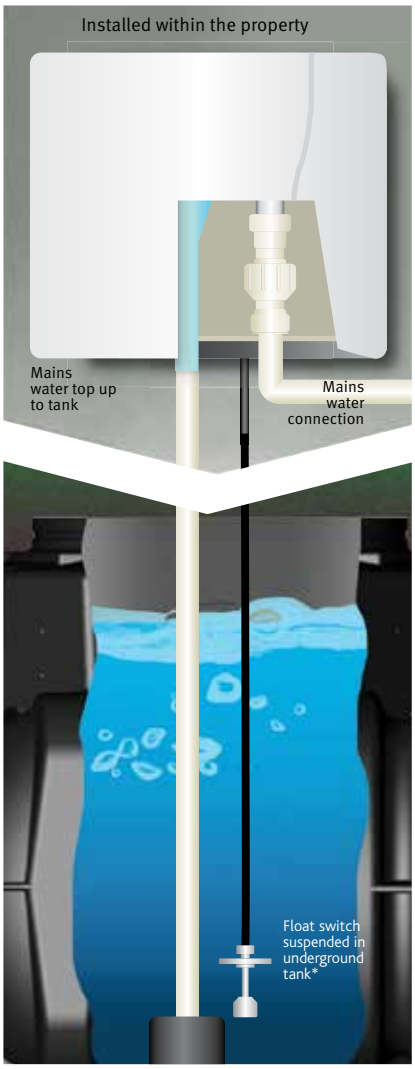
⑧ Commission the whole system once the power and water supply have been connected and turned on

GRAF UK can provide a full installation package or any individual parts of the overall installation. For example, installation of the internal parts only followed by commissioning of the whole system.

All GRAF UK installations are provided with a minimum of 1 year contractor's warranty.

GRAF UK site staff are 100% CSCS qualified.

Mains-on-Tap unit



* For more detailed information please see installation instructions

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