GRAF

Wastewater Treatment Solutions

QUALITY MADE IN GERMANY

Wastewater Treatment Systems

Septic Tanks

Cesspools

Infiltration

Separators

EN 960523 A43 – 2023

Water is our element

GRAF
for a greener planet

Photo copyright: stock.adobe.com: © malp
Cover: © Анна Севорцова

Solutions to your challenges

GRAF offers an extensive range of products for water resource management. At GRAF, global challenges such as water protection meet the brand quality of "Made In Germany". We provide the solutions for to your challenges.

Global network of sales partners and production facilities!

Sales partners in more than 80 countries help us develop solutions suited to local markets and deliver the customer support needed locally.

The manufacturing process is essential for a top-quality product. GRAF masters the production of plastic products at the highest quality level and with the most modern machines.

Three strong wastewater technology brands

Every GRAF wastewater product benefits from the experience gained from over 800.000 satisfied wastewater customers and the quality of our established brands in wastewater treatment.

GRAF
www.graf.info

KLARO
www.klaro.eu

BIOROCK
www.biorock.com

Plastic – clear benefits over concrete

Concrete tanks are at risk of corrosion through constant contact with wastewater and may require expensive refurbishment. Tanks made of plastic do not react with wastewater and are therefore a durable and reliable solution. Also, because of their low weight, plastic tanks can be installed without heavy equipment. This means that they can be easily transported and installed in locations that are difficult to access.

DEKRA DEKRA
Manufacturing certified according to ISO 9001 and 50001

Fast responses, even when special solutions are needed

Our products are exported around the globe. Intelligent logistics and sufficient stock levels ensure first-class availability of standard solutions, as well as for customised wastewater solutions.

FOR A GREENER PLANET

Find out what GRAF does in the field of recycling and energy-efficient manufacturing

>> page 80

Content

oneSolution

How does SBR technology work?	8
System Comparison	10
one2clean Components and Benefits	12
one2clean domestic wastewater solutions	14
Accessories for one2clean	16
oneAdvanced Components and Benefits	18
oneAdvanced domestic wastewater solutions	20
oneAdvanced commercial wastewater solutions	22
External Cabinets	24
Accessories for oneAdvanced	26
Additional modules	27
oneUp Wastewater Treatment System	29
KLARO Retrofitting systems for concrete tanks	30
KLARO container.one®	31

oneZero

Anaerobix	34
Septic tank	36
Cesspool	38
Powerless wastewater treatment plant	40

oneTank

Carat S Underground Tank	44
The GRAF Modular system	46
Carat XL	52
Carat XXL	53

Infiltration

Infiltration Tunnel	56

oneSepa

System at a glance	60
oneSepa Grease	62
oneSepa Oil	70

Our oneLines structure

Our oneLines portfolio offers wastewater solutions for single & multiple households, holiday lets, hotels, camping sites, offices as well as larger housing developments & commercial developments.

Extensive range of Cesspools, Septic tanks, Anaerobic treatment systems and fully biological SBR treatment solutions will be completed with oneSepa separators.

We focus on wastewater treatment systems utilising GRAF underground tanks with one unified concept.

Special solutions such as retrofitting kits for concrete tanks from 1 – 5.000 inhabitants, container treatment plants and much more will be offered through our competence center at the company KLARO GmbH.

A complete range of compact and non-electric residential wastewater treatment plants will be offered through BIOROCK.

Enter Webcode in search field

WEBCODE G5104

- Installation instructions and technical drawings
- Detailed product information
- Downloads
- Tender files

www.graf.info

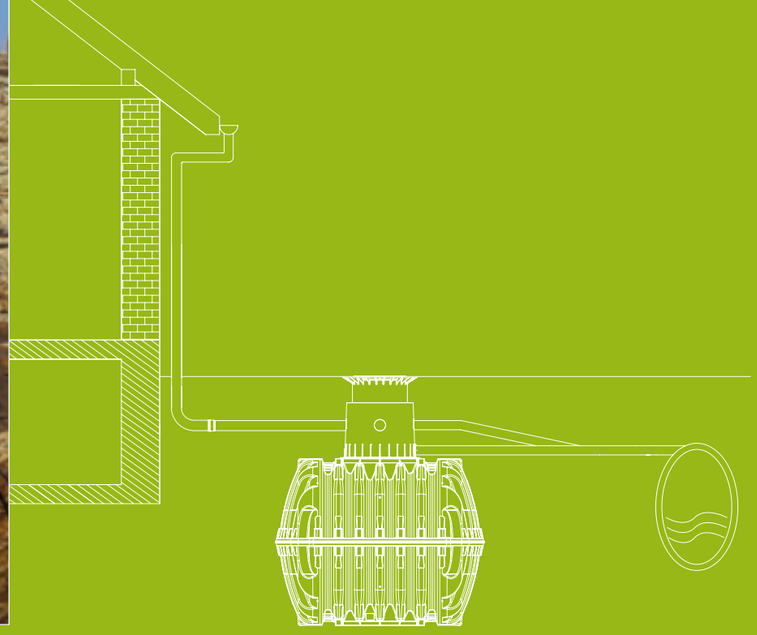
Symbols in the catalogue

- Suitable for pedestrian loading
- Suitable for vehicle loading
- Lorry-bearing

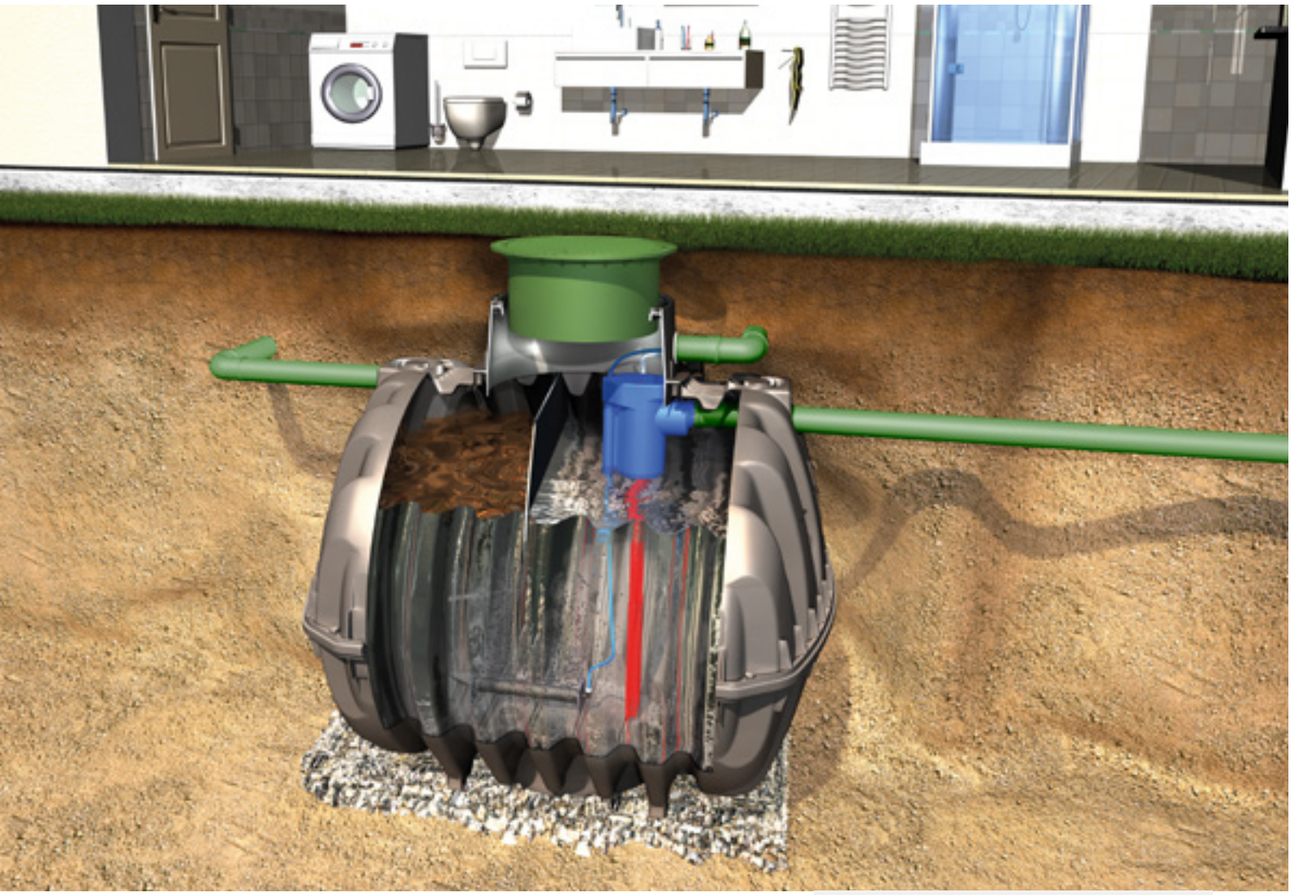
Photo copyright: stockadobe.com/ © michalknitl

oneSolution

> SBR technology Page 8
> System comparison Page 10
> one2clean Page 12
> oneAdvanced Page 18
> oneUp Page 29
> KLARO Retrofitting Page 30
> KLARO container.one® Page 31



How does SBR technology work?



Ordinary treatmenht plants require several chambers or even tanks to purify the water properly. This makes a system complex and big.

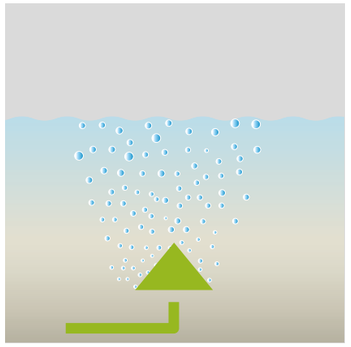
SBR wastewater treatment systems clean incoming wastewater over a number of cycles (in different sequences). Less chambers and tanks are requested.

GRAF products achieve a cleaning performance of up to 99 %. In this respect the GRAF oneSolution systems far surpasses legal minimum requirements.

Why use the SBR system?

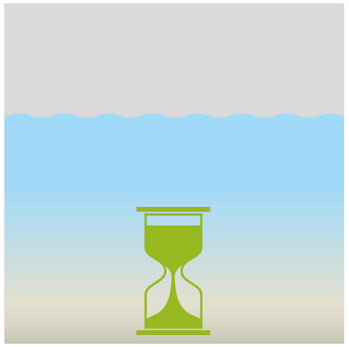
- **Outstanding cleaning performance**
  Even during load fluctuations and underload
- **Excellent value for money**
- **Only a small tank volume required**
- **For holiday houses**
- **Solutions for domestic and commercial projects**
- **Can be adapted to nearly every request thanks to our +modules**

1. Aeration phase



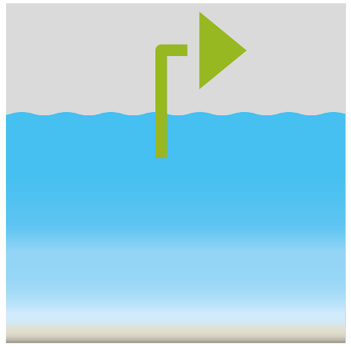
The wastewater arrives directly in the biological zone without the need for pumping processes. Aeration of the entire container leads to immediate wastewater activation. The micro-organisms begin the biological cleaning process without delay.

2. Settling phase



Aeration is interrupted by the control unit, the activated sludge sinks to the bottom. A clear water zone develops in the upper part of the tank.

3. Clear water extraction phase



The treated clear water is extracted from the system and the cleaning process can begin once more.

oneSolution – the clever way to produce clear water

For systems up to 9 PE we are using the One-Technoligy, an advanced SBR-system using just one aerated chamber. Systems from 10 PE benefit from adding a sludge chamber in front of the SBR reactor.

oneSolution is odourless

The entire volume of wastewater is activated with oxygen. oneSolution produces an odourless, clear treated water for extraction to soakaway or waterway.

oneSolution already meets the needs of tomorrow

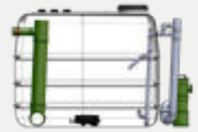
The oneSolution wastewater treatment systems can achieve sustainable discharge values with an efficiency factor of up to 99 %! This offers high investment security – even if legal requirements become stricter.

oneSolution

System Comparison

FIND YOUR WASTEWATER SOLUTION

>> www.graf.info/wastewater-advisor

	TOPSELLER	PREMIUM		FOR ABOVE GROUND
				
System	**one2clean**	**oneAdvanced**		**oneUP**
Example applications	domestic (single houses)	domestic & commercial (single houses, small communities), for projects with higher demands on nutrients removal		domestic & commercial (single houses, small communities)
Page	12	18		29
System conformity	EN 12566-3	EN 12566-3 / ATV A-122		–
Purifying technology	fully biological SBR lifting technology	fully biological SBR lifting technology		fully biological SBR lifting technology
One-tank systems available up to	9 inhabitants | 1,350 l/d	9 inhabitants | 1,350 l/d		6 inhabitants | 900 l/d
Multitank systems available up to	18 inhabitants | 2,700 l/d	1000 inhabitants | 150,000 l/d		–
Maintenance interval	1 – 2 per year	1 – 4 per year		1 – 2 per year
Warranty for tank	10 years	10 years		2 years
Warranty for purifying technology	2 years	2 years		2 years
Control		**3 – 9 PE**	**10 – 50 PE**	
Holiday / economy mode (underload detection)	—	●	●	●
+R Remote transmission controlled by GSM or LAN	—	○	○	○
+P Phosphate removal	—	○	○	○
+C Carbon infeed	—	○	○	○
+H Hygiene package (Disinfection)	—	○	○	○
+D Removal of nitrogen	●	●	○	●
+B Buffer pump for short-term peak loads	—	—	○	—
+O Outlet with clear water pump	—	○	○	○
Control power failure recognition	—	●	●	●
Temperature sensor to protect against overheating	—	●	●	●
Logbook function	●	●	●	●
USB-Slot for display size an logging	—	●	●	●
External control cabinet for installing control unit outdoors	○	○	○	○
Annual power consumption	358 kWh (5 inhabitants | 750 l/d)	289 kWh (5 inhabitants | 750 l/d)		237 kWh (5 inhabitants | 750 l/d)
Parameter cleaning performance				
COD (chemical oxygen demand)	94.2 %	94.2 %	91.9 %	94.2 %
BOD_5 (biochemical oxygen demand)	98.0 %	98.0 %	95.9 %	98.0 %
SS (suspended solids)	96.3 %	96.3 %	94.4 %	96.3 %
NH_4-N	98.3 %	98.3 %	62.0 %	98.3 %
N_{total}	87.0 %	87.0 %	65.6 %	87.0 %
P_{total} (with +P Modul)	–	95.1 %	94.5 %	95.1 %
$eColi_{+H}$ (with +H Modul)	–	99.9 %	99.9 %	99.9 %

● Standard equipment ○ Available as options — not available

Results of practical testing undertaken by the Prüfinstitut für Abwassertechnik (Testing Institute for Wastewater Technology), Aachen

one2clean

3 – 18 PE (450 – 2,700 l/day)

As much technology as necessary, as little technology as possible.

Over the past few years, wastewater treatment systems have experienced impressive technological developments. Today, they are high-tech products equipped with sophisticated controls and various pumps, sensors and valves. Yet this is often to the detriment of the product's reliability. A reliable wastewater disposal system no longer needs to be complicated.
one2clean is an advanced development of the proven SBR wastewater treatment technology, with considerable benefits in terms of operating costs and safety.

Why use the one2clean system?

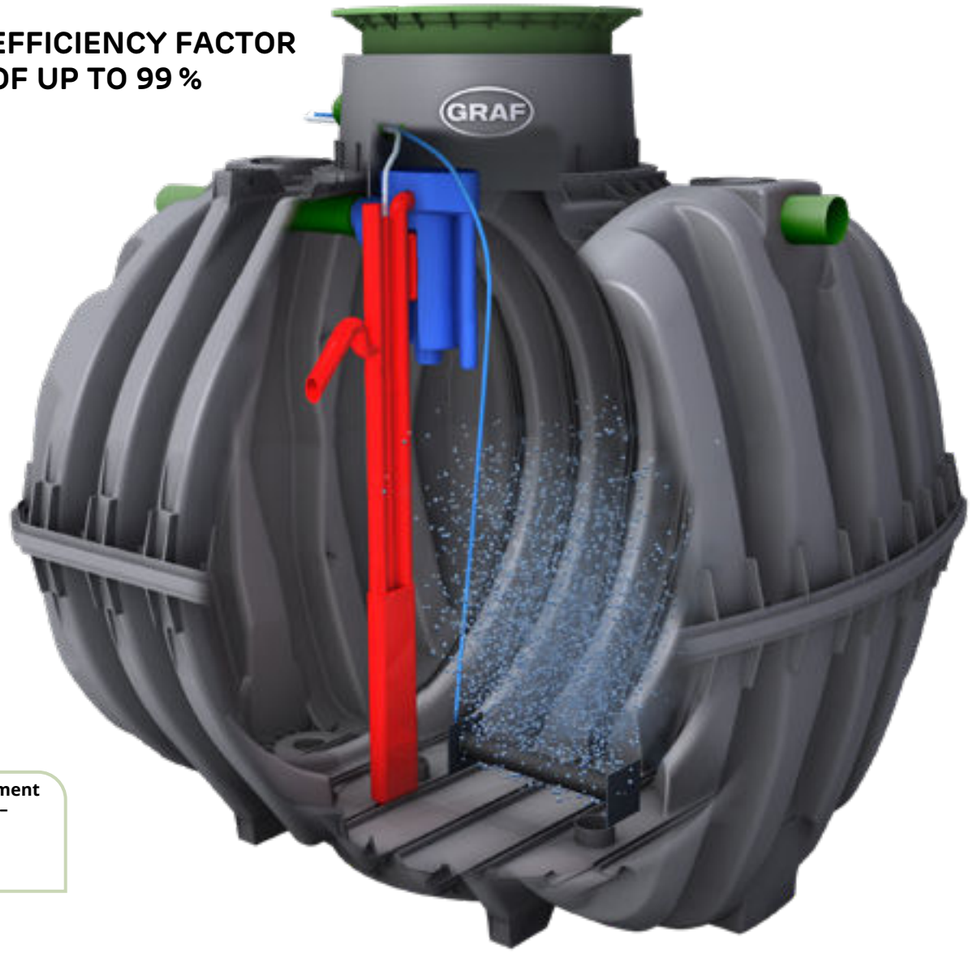
- **Excellent cleaning performance**
  Even during load fluctuations and underload
- **Great value for money**
- **Double sludge storage volume**
- **Low sludge removal**

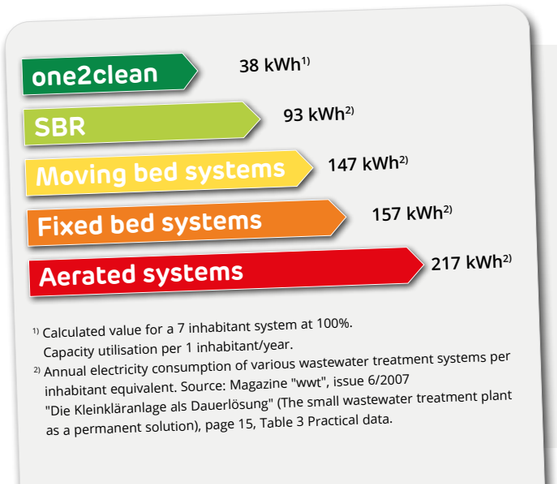
QUALITY MADE IN GERMANY

CE

Wastewater treatment system one2clean – smart and simple!
GRAF TV
www.graf.info/v224

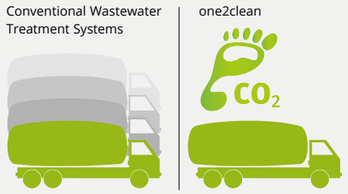
EFFICIENCY FACTOR OF UP TO 99 %





1) Calculated value for a 7 inhabitant system at 100%. Capacity utilisation per 1 inhabitant/year.
2) Annual electricity consumption of various wastewater treatment systems per inhabitant equivalent. Source: Magazine "wwt", issue 6/2007 "Die Kleinkläranlage als Dauerlösung" (The small wastewater treatment plant as a permanent solution), page 15, Table 3 Practical data.

- Incredibly little sewage sludge. Reduces running costs and keeps environment clean
- Flexible selection of the control cabinet's position



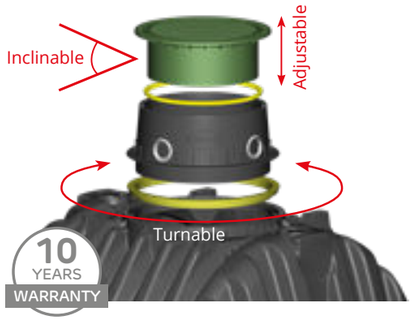
Components and Benefits

Covers

- Suitable for pedestrian or vehicle loading
- Adjustible in height
- Inclinable up to 5°
- Enables flush ground installation
- Nice looking cover
- Allows small corrections of height on-site
- Reduction of installation cost

Wastewater tank

- State-of-the-art manufacturing for maximum stability
- 100 % watertight and corrosionresistant
- Can be mounted in groundwater
- Unique fit accuarcy of the componance
- Self-anchoring saves installation costs
- Up to 12 to loading, enables installation under car park (flexible choice of location)
- Tank made of 100 % recycling material, enviromentally friendly invest



Installation kit

- Only one clear water lifter
- Rugged clear water lifter manufactured in one seamless piece
- Simple maintenance via an integrated, self-cleaning sampling container
- No electrical part in the tank
- Fast installation
- Saves installation costs
- Keeps service costs to a minimum

one2clean control cabinets

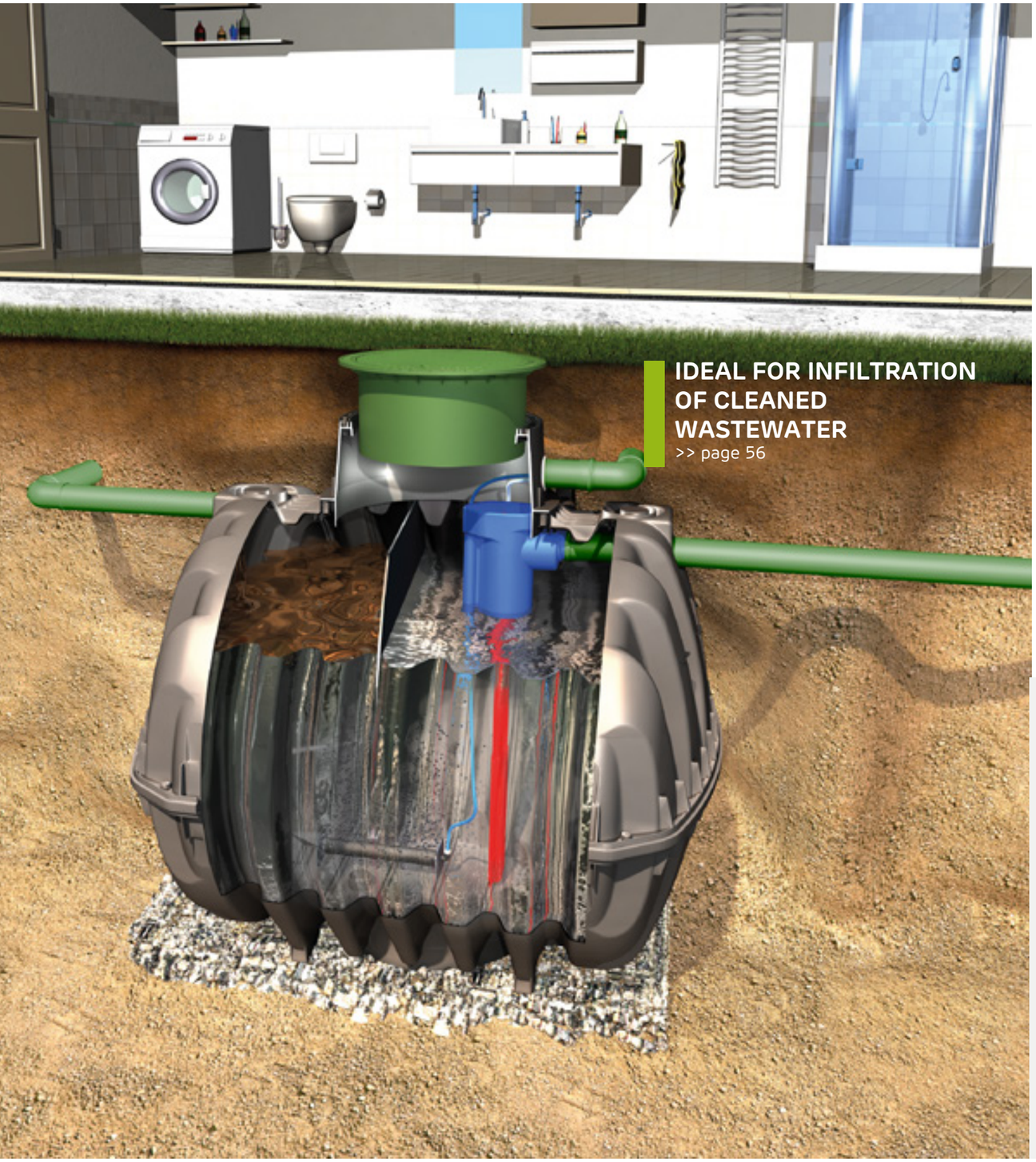
- Simple handling thanks to micro-processor control
- Energy-saving
- Extremely quiet
- Incredible cost saving due to very low power consumption
- System can be easily adjusted if required which will reduce costs for technician

Topseller one2clean

one Tank – The GRAF modular system >> page 46

one2clean domestic wastewater solutions

3 – 18 PE (450 – 2,700 l/day)



One-tank system one2clean

WEBCODE G5104

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Volume [l]	Length* [mm]	Width* [mm]	Height [mm]	Weight [kg]
1 – 3	450	0.18	2,700	2,700	2080	1565	1690	120
4 – 5	750	0.30	3,750	3,750	2280	1755	1880	150
6 – 7	1,050	0.42	4,800	4,800	2280	1985	2110	185
8 – 9	1,350	0.54	6,500	6,500	2390	2190	2390	220

Scope of supply: Carat S underground tank, tank dome, telescopic dome shaft 600, one2clean system pack (>> page 46 – the GRAF modular system).
Please order the air hoses separately (>> page 16).
*Total measurement

Two-tank system one2clean

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Volume [l]	Length* [mm]	Width* [mm]	Height [mm]	Weight [kg]
2 – 7	1,050	0.42	5,400	2 x 2,700	4760	1565	1690	240
8 – 10	1,500	0.60	7,500	2 x 3,750	5160	1755	1880	300
11 – 14	2,100	0.84	9,600	2 x 4,800	5160	1985	2110	370
15 – 18	2,700	1.08	13,000	2 x 6,500	5380	2190	2390	440

Scope of supply: Carat S underground tanks, tank domes, telescopic dome shafts 600, one2clean system pack (>> page 46 – the GRAF modular system).
Please order the air hoses separately (>> page 16).
*Total measurement

Technical data

System	one2clean	
System conformity	EN 12566-3	
Purifying technology	fully biological SBR lifting technology	
One-tank systems available up to	9 inhabitants | 1,350 l/d	
Two-tank systems available up to	18 inhabitants | 2,700 l/d	
Maintenance interval	1 – 2 per year	
Warranty for underground tank	10 years	
Warranty for purifying technology	2 years	
Parameter		
COD (chemical oxygen demand)	94.2 %	43 mg/l
BOD_5 (biochemical oxygen demand)	98.0 %	7 mg/l
SS (suspended solids)	96.3 %	14 mg/l
NH_4-N	98.3 %	0.5 mg/l
N_{total}	87.0 %	7.9 mg/l

Results of practical testing undertaken by the Prüfinstitut für Abwassertechnik (Testing Institute for Wastewater Technology), Aachen

Accessories for one2clean

The image shows the External plastic cabinet S for 3 – 18 inhabitants

External plastic cabinet S

For 3 – 18 inhabitants (up to 2,700 l/d)

Order no. 107990

Benefits

- Flexible application of the proven one2clean control cabinet in a plastic external column
- Weather-resistant plastic
- Edge seal for complete sealing over the ground
- High corrosion protection for the electrical parts
- Good value for money
- Easy assembly
- No foundation necessary

Technical data

For air compressors	XP 60-80, HP 100-200
Upstream fuse	B16A (provided by customer)
Voltage supply	230 V AC ± 20 %, 50 Hz
IP	IP44
Relative air humidity	10 to 95 %
Temperature range	-25°C to +50°C
Total weight	7 kg (15.4 lbs)
Connecting line	via two-pin earthed plug

Odour-tight empty pipe seal DN 110 for systems compatible with SBR-hose packages up to 28 PE

- Ensures no air, humidity or gas escapes from conduit pipe
- No need for PU seals
- Clean and professional solution

Order no. 107887

SBR hose package

For one2clean (one-tank systems)
Includes: 1 x Ø 19 mm and 1 x Ø 13 mm PVC hose; colour-coded

Length: 10 m
Order no. 107686

Length: 20 m
Order no. 107688

Other SBR-hoses on request

Tank dome Micro

- Weight: 7 kg (15,43 lbs)
- Including green lid
- For shallow excavation
- Earth cover only 90 mm

Order no. 371009

Carbonator (Carbon dosage)

Sewage treatment plants require a constant inflow of wastewater into the tank in order for them to work correctly. The seasonal occupation of holiday homes is a challenge for wastewater treatment systems that rely on constant inflow to keep the microorganism population stable. Any destabilisation of the microorganisms within the system incurs extra operating costs.

The Carbonator was especially designed to keep wastewater treatment systems with seasonal inflow stable and working correctly. The additional Carbonator module automatically feeds the systems with nutrients that keep the microorganisms alive when there is no wastewater inflow.

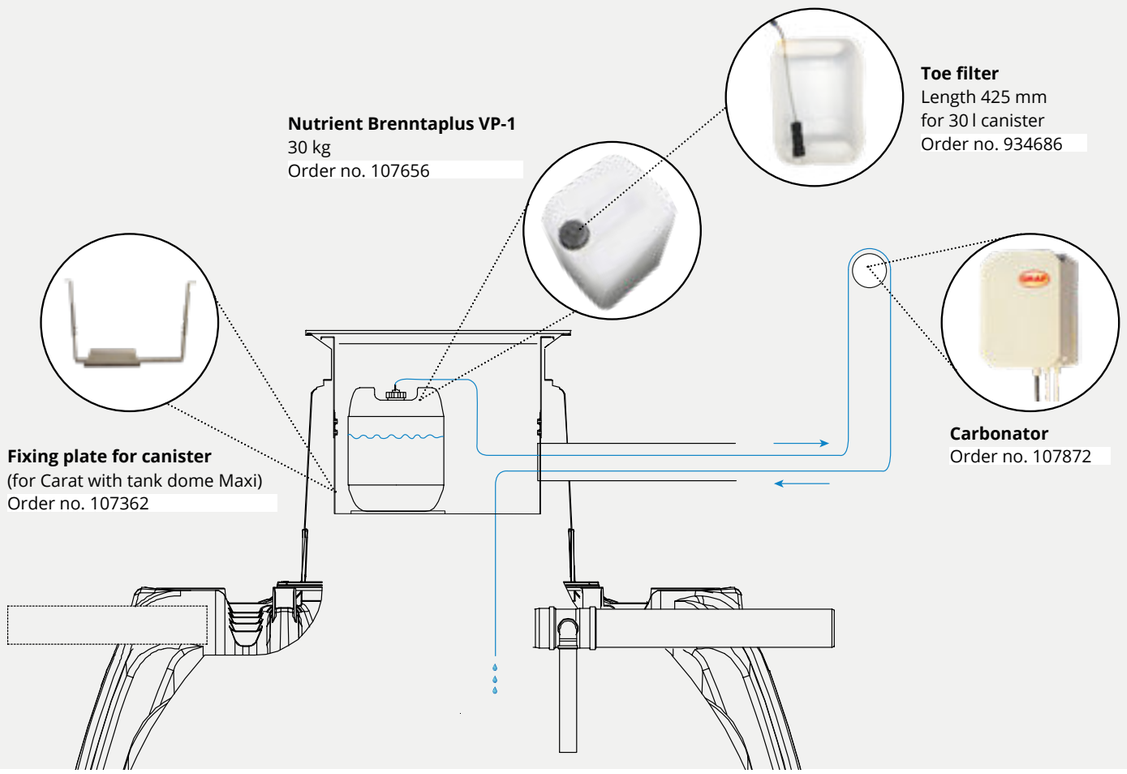
Benefits

- Regardless of system – suitable for other treatment plants (one2clean compatible)
- Individual adjustment of the dosage
- Low power consumption
- Fast installation
- Simple operation

Carbonator

Carbon infeed

Order no. 107872



oneAdvanced

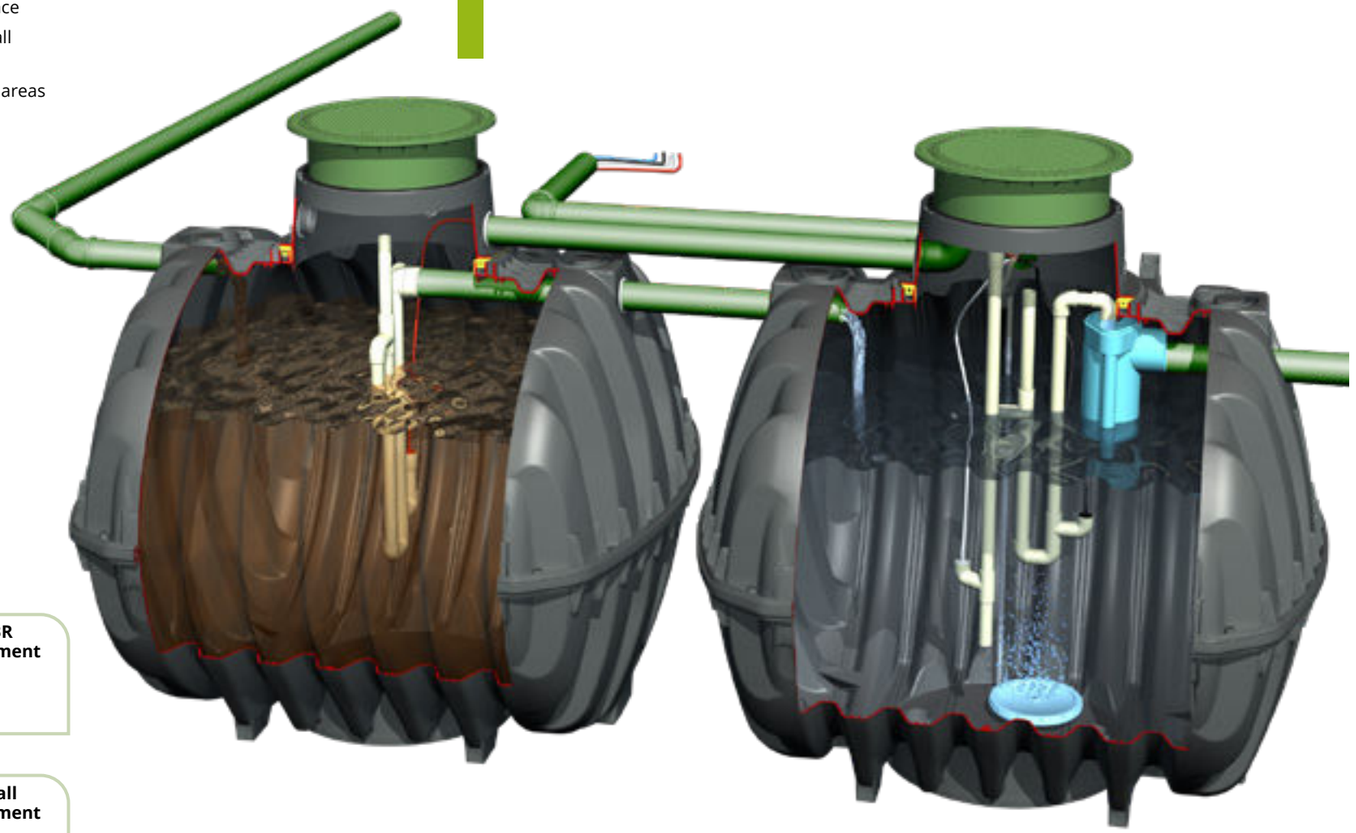
3 – 1000 PE (450 – 150,000 l/day)

Components and Benefits

Why use the oneAdvanced system?

- For highest treatment performance
- For commerical projects and small communities
- Disinfection for water protection areas
- Reuse of water

EFFICIENCY FACTOR OF UP TO 98 %

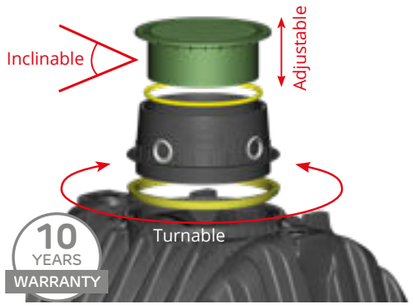


Covers

- Suitable for pedestrian or vehicle loading
- Adjustible in height
- Inclinable up to 5°
- Enables flush ground installation
- Allows small corrections of height on-site
- Reduction of installation cost

Wastewater tank

- State-of-the-art manufacturing for maximum stability
- 100 % watertight and corrosionresistant
- Can be mounted in groundwater
- Unique fit accuarcy of the components
- Self-anchoring saves installation costs
- Up to 12 to loading, enables installation under car park (flexible choice of location)
- Tank made of 100 % recycling material, enviromentally friendly invest



Installation kit

- Simple maintenance set-up kit can be easily installed and removed
- No electrical part in the tank
- Integrated air-lock-barrier prevent untreated water to enter the clearwater airlift
- Higher outflow through the tankdome can be realiced
- Saves installation costs
- Keeps service costs to a minimum
- Easy access for service company

oneAdvanced control cabinets

- Simple handling thanks to micro-processor control
- Energy-saving
- Extremely quiet
- Battery-free power failure detection
- Incredible cost saving due to very low power consumption
- System can be easily adjusted if required which will reduce costs for technician
- Automatic holiday mode
- System adjust itself by changing life situation

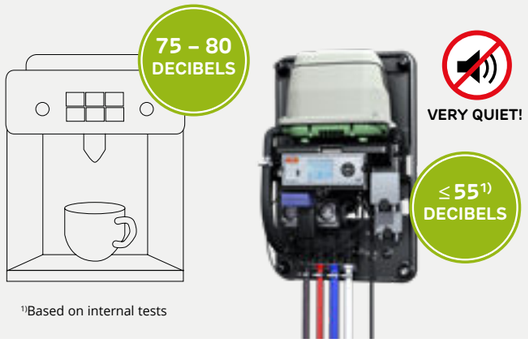
Function of the SBR wastewater treatment system
GRAF TV
www.graf.info/v212

PP-cabinet for small wastewater treatment system
GRAF TV
www.graf.info/v223

oneAdvanced	34 kWh[1)]
SBR	93 kWh[2)]
Moving bed systems	147 kWh[2)]
Fixed bed systems	157 kWh[2)]
Aerated systems	217 kWh[2)]

[1)] Calculated value for a 10 inhabitant system at 100%. Capacity utilisation per 1 inhabitant/year
[2)] Annual electricity consumption of various wastewater treatment systems per inhabitant equivalent. Source: Magazine "wwt", issue 6/2007 "Die Kleinkläranlage als Dauerlösung" (The small wastewater treatment plant as a permanent solution), page 15, Table 3 Practical data.

Silent performance guaranteed



[1)]Based on internal tests

one Tank – The GRAF modular system >> page 46

oneAdvanced domestic wastewater solutions

3 – 90 PE (450 – 13,500 l/day)

WEBCODE G5113

oneAdvanced domestic

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Total volume [l]	Primary treatment [capacity in l]	SBR tank [capacity in l]	Length* [mm]	Width* [mm]	Height [mm]	Weight [kg]
1 – 3	450	0.18	2,700	–	2,700	2080	1565	1690	120
4 – 5	750	0.30	3,750	–	3,750	2280	1755	1880	150
6 – 7	1,050	0.42	4,800	–	4,800	2280	1985	2110	185
8 – 9	1,350	0.54	6,500	–	6,500	2390	2190	2390	220
8 – 10	1,500	0.60	4,800	–	4,800	2280	1985	2110	185
10 – 14	2,100	0.84	6,500	–	6,500	2390	2190	2390	220
12 – 16	2,400	0.96	7,500	1 x 3,750	1 x 3,750	2280	1755	1880	150
16 – 22	3,300	1.32	9,600	1 x 4,800	1 x 4,800	5160	1985	2430	185
20 – 28	4,200	1.68	13,000	1 x 6,500	1 x 6,500	5380	2190	2710	220
25 – 32	4,800	1.92	15,000	2 x 3,750	2 x 3,750	11000	1800	2200	300
32 – 44	6,600	2.64	19,200	2 x 4,800	2 x 4,800	11000	2000	2430	370
42 – 50	7,500	3.00	26,000	2 x 6,500	2 x 6,500	11360	2200	2710	1060
51 – 60	9,000	3.60	26,000	2 x 6,500	2 x 6,500	11360	2200	2710	1060
61 – 90	13,500	5.40	32,500	2 x 6,500	3 x 6,500	8370	5000	2710	1325

Scope of supply: Carat S underground tanks, tank domes, telescopic dome shafts 600, oneAdvanced system pack (>> page 46 – the GRAF modular system). Please order the air hoses separately (>> page 26).
*Total measurement

Accessories

>> page 26

Additional +modules

>> page 27

Technical data

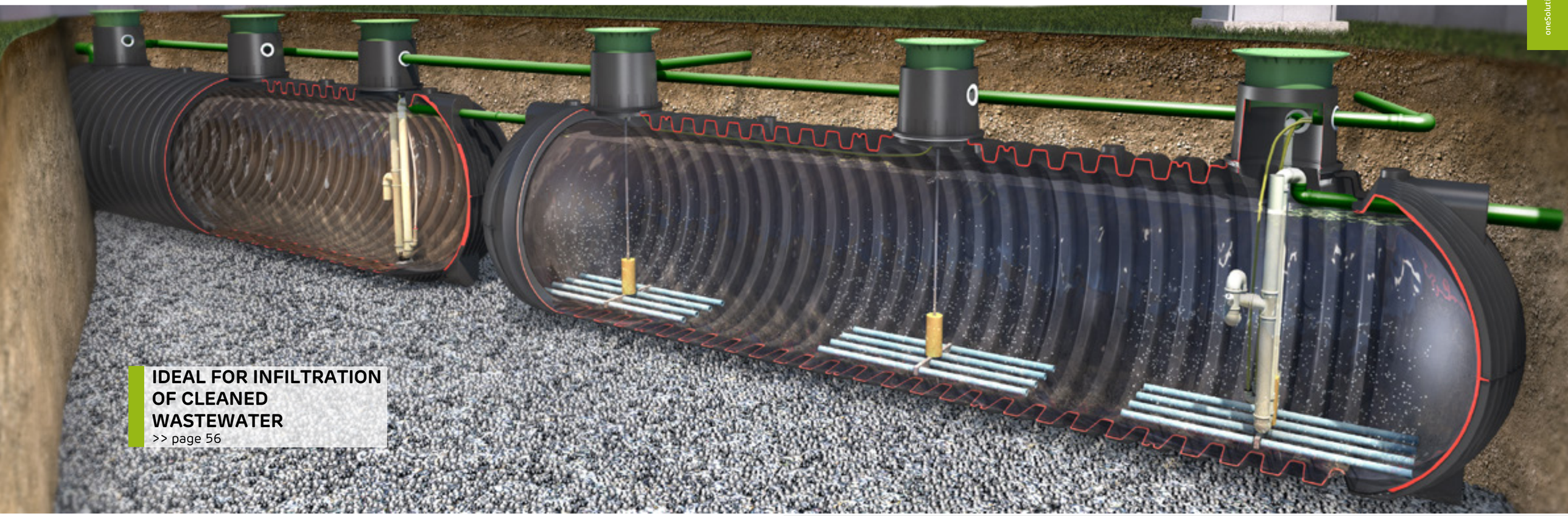
System oneAdvanced	
System conformity	EN 12566-3 / ATV A-122
Purifying technology	fully biological SBR lifting technology
Multitank systems available up to	90 inhabitants | 13,500 l/d
Maintenance interval	1 – 4 per year
Warranty for underground tank	10 years
Warranty for purifying technology	2 years

Parameter	3 – 9 PE		10 – 50 PE	
COD (chemical oxygen demand)	94.2 %	43 mg/l	91.9 %	51 mg/l
BOD_5 (biochemical oxygen demand)	98.0 %	7 mg/l	95.9 %	12 mg/l
SS (suspended solids)	96.3 %	14 mg/l	94.4 %	20 mg/l
NH_4-N	98.3 %	0.5 mg/l	65.6 %	12 mg/l
N_{total}	87.0 %	8 mg/l	62.0 %	21.1 mg/l
P_{total} (with +P Modul)	95.1 %	0.4 mg/l	94.4 %	0.4 mg/l
$eColi_{+H}$ (with +H Modul)	99.9 %	99.9 %	99.9 %	99.9 %

Results of practical testing undertaken by the Prüfinstitut für Abwassertechnik (Testing Institute for Wastewater Technology), Aachen

oneAdvanced commercial wastewater solutions

75 – 1000 PE (11,250 – 150,000 l/day)



IDEAL FOR INFILTRATION OF CLEANED WASTEWATER
>> page 56

oneAdvanced commercial system – fully prefitted in the Carat XXL underground tank

Inhabitants [max.]	Max. daily flow [l/d]	Max. organic load [kg BOD5/d]	Primary treatment [capacity in l]	SBR tank [capacity in l]	Required air hoses [quantity x Ø mm]	Length* [m]	Width* [m]	Order no.
75	11,250	4.50	1 x 16,000	1 x 16,000	3 x 19, 1 x 25	9.90	2.50	106125
100	15,000	6.00	1 x 22,000	1 x 22,000	5 x 19	12.90	2.50	106404
125	18,750	7.50	1 x 26,000	1 x 26,000	5 x 25	16.20	2.50	106126
150	22,500	9.00	1 x 32,000	1 x 32,000	6 x 25	17.70	2.50	106106
175	26,250	10.50	1 x 38,000	1 x 38,000	6 x 25	21.60	2.50	105220
200	30,000	12.00	2 x 22,000	2 x 22,000	10 x 25	26.40	2.50	106970
220	33,000	13,20	1 x 44,000	1 x 44,000	9 x 25	23.50	2.50	105221
250	37,500	15.00	1 x 52,000	2 x 32,000	12 x 25	13.30	8.70	106049
275	41,250	16.50	1 x 32,000 1 x 16,000	2 x 26,000	10 x 25	30.50	2.50	105222
300	45,000	18.00	1 x 52,000	2 x 32,000	12 x 25	13.30	8.70	106050
350	52,500	21.00	3 x 22,000	2 x 38,000	12 x 25	19.90	5.60	106492
400	60,000	24.00	2 x 26,000	2 x 44,000	18 x 25	21.40	5.60	105266
500	75,000	30.00	3 x 22,000	2 x 26,000	24 x 25	27.50	5.60	105224
600	90,000	36.00	3 x 26,000	4 x 32,000	24 x 25	16.20	11.80	105225
700	105,000	42.00	1 x 42,000 2 x 32,000	4 x 38,000	24 x 25	27.50	5.60	105226
800	120,000	48.00	1 x 38,000 3 x 22,000	6 x 28,000	30 x 25	26.20	8.70	105227
900	135,000	54.00	1 x 54,000 3 x 22,000	6 x 34,000	36 x 25	29.10	8.70	105228
1000	150,000	60.00	1 x 54,000 3 x 22,000	6 x 38,000	36 x 25	30.50	8.70	105229

Scope of supply: Carat XXL underground tank, tank domes maxi, telescopic dome shafts 600, factory pre-fitted technology and control cabinet for internal fitting.
The air hoses from the underground tanks to the control panel are not included.
*Total measurements

WEBCODE G5114

Technical data

System	oneAdvanced
System conformity	ATV A-122 > 50 PE
Purifying technology	fully biological SBR lifting technology
Multi-tank systems available up to	1000 inhabitants | 150,000 l/d
Maintenance interval	3 – 4 per year
Warranty for underground tank	10 years
Warranty for purifying technology	2 years

Accessories

>> page 26

Additional +modules

>> page 27

External Cabinets

For oneAdvanced

External plastic cabinet M

- Easy access for the maintenance fitter
- Function checking is simple as the control unit is located immediately next to the system
- Ideal solution for large distances from the house (> 20 m)
- Flexible use of the proven GRAF Internal PP control cabinet in the external plastic cabinet M (size 3 – 18 inhabitants)
- Lockable housing in sturdy, weather-resistant plastic
- Integrated double power socket for easy maintenance
- No foundation necessary

External plastic cabinet L

- Easy access for the maintenance fitter
- Maintenance engineer
- Function checking is simple as the control unit is located immediately next to the system
- Lockable housing (simultaneous locking) in sturdy, weather-resistant plastic
- Hose connections colour-coded
- No foundation necessary

External steel cabinet XL*

- Particularly robust design of powder coated steel sheet (1.5 mm / 0.005")
- Spray proof (IP 44)
- Lockable housing
- Hose connections colour-coded

External steel cabinet XXL*

- Particularly robust design of powder coated steel sheet (1.5 mm / 0.005")
- Spray proof (IP 44)
- Lockable housing
- Hose connections colour-coded

Technical data

Inhabitants	For 3 – 28 inhabitants (up to 4,200 l/d)	For 32 – 44 inhabitants (up to 6,600 l/d)	For 60 – 150 inhabitants (up to 9,000 l/d)	For 200 – 1,000 inhabitants (up to 150,000 l/d)
For air compressors	LA 80, XP 80, HP 100 – 200	HP 100 – 200, DT 4.10, 4.16	DT 4.40, KDT 3.60, KDT 3.80	KDT 3.100, 3.140
Upstream fuse	B16A (provided by customer)	B16A (provided by customer)	B16A (provided by customer)	B16A (provided by customer)
Voltage supply	230 V AC ± 20 %, 50 Hz	230 V AC ± 20 %, 50 Hz	380 VAC, 3~, 50 Hz	380 VAC, 3~, 50 Hz
IP	IP44	IP 44	IP 44	IP 44
Relative air humidity	10 to 95 %	10 to 95 %	10 to 95 %	10 to 95 %
Temperature range	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C
Total weight	10 kg (22 lbs)	22 kg	140 kg	210 kg
Connecting line	via two-pin earthed plug	via two-pin earthed plug	via four-pin earthed plug	via four-pin earthed plug
Air compressor	230 V	230 V	380 V	380 V
Stepped motors	24 V	24 V	24 V	24 V
External surfaces	Plastic	Plastic	Steel sheet 1.5 mm, powder coated	Steel sheet 1.5 mm, powder coated
Lock	Cam lock	Espagnolette lock (simultaneous locking), pivoted lever, lock incl profile half cylinder	Espagnolette lock (simultaneous locking), pivoted lever lock incl profile half cylinder	Espagnolette lock (simultaneous locking), pivoted lever lock incl profile half cylinder
Dimensions (W x H x D)	450 x 1420 x 400 mm	480 x 1750 x 340 mm	1140 x 1080 x 720 mm	2000 x 1100 x 900 mm
Order No.	106589	On request	On request	On request

* Solid foundation must be provided on-site.

Accessories

Cooling ventilation fan for External Plastic cabinet M
Order no. 105954

Warning lamp for external plastic cabinet M
Order no. 105955

Warning light
LED warning light pre-assambled on an External cabinet L, XL, XXL
Order no. 105956

Filling granulate for External plastic cabinet L
Prevents soil moisture from rising into the cabinet. 1 bag required; 50 l bag
Order no. 107607

Accessories for oneAdvanced

Odour-tight empty pipe seal DN 110 for systems compatible with SBR-hose packages up to 28 PE — 107887

- Ensures no air, humidity or gas escapes from conduit pipe
- No need for PU seals
- Clean and professional solution

SBR hose package
For 3 – 9 PE (one-tank systems)
Includes: 1 x Ø 19 mm and 1 x Ø 13 mm PVC hose; colour-coded

Length: 10 m	107686
Length: 20 m	107688
Other SBR-hoses	on request

SBR hose package
For 10 – 28 PE
Includes: 1 x Ø 19 mm and 3 x Ø 13 mm PVC hose; colour-coded

Length: 10 m	107190
Length: 20 m	107192
Other SBR-hoses	on request

Extention 300 mm
to achieve earth covering of upt to 1,5 m — 371003

Accessories for +C +P

Fixing plate for canister
Convenient positioning of the precipitant canister inside the tank dome (maxi tank dome requiered) — On request

Sampling point, internal
For two- and multitank systems 16 – 60 PE — 107170

Sampling point External DN 400 / For systems
For two- and multitank systems 16 – 1000 PE

pedestrian	107321
vehicle load	107561

Additional modules

+module	Order no.
+D **Denitrification module** The +D module for denitrification (removal of nitrogen) results in the clarified water quality satisfying very strict requirements. The GRAF systems thereby attain a Ntotal value (total parameters of inorganic nitrogen compounds) of less than 25 mg/l.	On request
+P **Phosphate removal module** Phosphate in water results in a massive build-up of algae. The GRAF +P module ensures the safe removal of phosphate and therefore great water quality.	105958*
+C **Carbon infeed module** **Solution for weekend homes** The addition of carbon as a nutrient allows the purification process to continue and prevents the biology from dying off.	105946*
+O **Pump-operated outlet module** Lifts the clear water when the outlet pipe is lower than the water course.	On request
+B **Module buffer pump for short-term peak loads** Only suitable for oneAdvanced ≥ 10 PE	107406
+R **Remote transmission modules** Remote monitoring allows error messages to be transmitted to mobile phones and operating data to be queried by text message. Convenient remote wastewater treatment system controled by mobile network or LAN is also possible. • Greater efficiency • Greater operating reliability • Optimised service intervals • Greater customer benefit thanks to monitoring service • Low-cost remote diagnosis in the event of a fault without the service fitter having to come on site	On request
+H **Hygiene module – Disinfection** Disinfection using the +H module (by chlor or UV) satisfies even the most stringent of purity requirements for a GRAF wastewater treatment system. It reliably kills off germs and microorganisms. The clarified water therefore complies with the EU Bathing Water Directive. • Easy to operate • Maintenance-friendly thanks to easy-to-remove module • Fitted in downstream shaft • Controllable chlorine dosing for chlor module	On request
Sand filtration In case of strict effluent quality requirements or high influent load variations, the GRAF sand filtration module is recommended to enhance and stabilize the purification performance of your sewage treatment system. The self cleaning dual media filtration system reduces suspended solids, COD and BOD of the secondary clarified effluent and may also serve to prevent debris in downstream installed storage or collection tanks for the re-use of wastewater. • Patented, simple and valve-free setup with automatic gravitationally driven backwash for minimal maintenance requirements • Certified performance according to EN 12566-7 • Prefabricated plug and play system guarantees minimal work for piping and installation onsite • Robust UV- and waterproof housing with lock for outside installation	106389

* For systems up to 50 PE

Additional modules

Re-use of wastewater bluecycle (Chlorination & Sand Filter)

+H

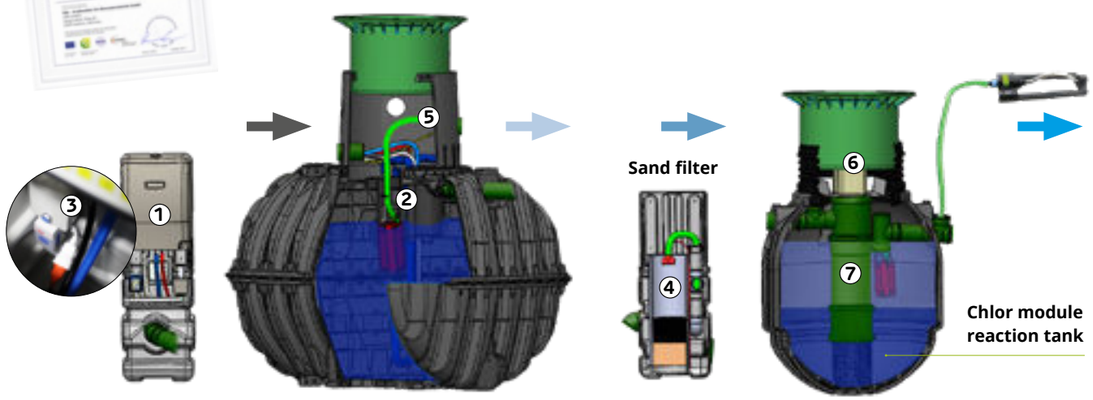
Avoid the wastage of precious fresh water resources through the re-use of highly treated wastewater for outdoor purposes like gardening. We recommend you combine the benefits of GRAF sand filtration and GRAF chlorination subsequent to your GRAF biological sewage treatment plant for the safe re-use and storage of your treated wastewater.

Benefits

- Chlorination with well available liquid sodium hypochlorite solution
- Prevention of pathogen regrowth and fouling in water hoses and irrigation systems through the long-term effect of chlorine
- Certified performance according to EN 12566-7
- Controllable chlorine dosing
- Safe and simple handling of the disinfection chemical

Re-use for:

- Harvesting lawn and flowers
- Harvesting fruit and vegetable garden
- Clean your car
- General cleaning



Bluecycle components:

① External plastic cabinet M With auxiliary control and dosing pump for chlorine module
② Oxylift clearwater pump
③ Dosing pump with auxiliry control for Chlorine
④ Sand filter
⑤ 5 m Clearwater hose 1 ¼''
⑥ Tray for Chlorine canister
⑦ Reaction tank for tertiary treatment

WEBCODE G5123

bluecycle – re-use your treated water

Up to 24 PE
Order no. 106390

Up to 32 PE
Order no. 106574

Performance Results bluecycle	
eColi	99.9 %
Total coliforms	99.9 %

Results of practical testing undertaken by the Prüfinstitut für Abwassertechnik (Testing Institute for Wastewater Technology), Aachen

oneUp Wastewater Treatment System

The special solution for above ground installation

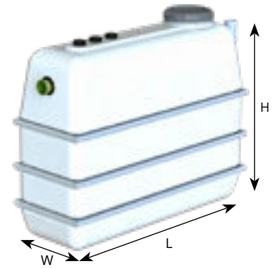
The special solution for above ground installation

Fully biological wastewater treatment system for treating all domestic sewage with welltried SBR technology. Different tank sizes and system variants possible depending on requirements.

- Sewage treatment tank made from HDPE
- Above-ground installation
- Can be used in very confined spaces
- For low volume of sewage
- Cost-effective

Application areas

- Alternative if underground installation not possible
- Small businesses
- Retrofitting of existing above-ground systems
- For temporary use
- Test sewage treatment system



WEBCODE G5120

oneUp
Small single-tank compact system

PE	Qd [l/d]	Bd [g/d]	L [mm]	W [mm]	H [mm]	Tank [l]	Order no.
3	450	180	2070	720	1740	2.000	160470
6	900	360	2430	995	2000	4.000	160471

KLARO Retrofitting systems for concrete tanks

5 – 5000 PE (750 – 750,000 l/day)

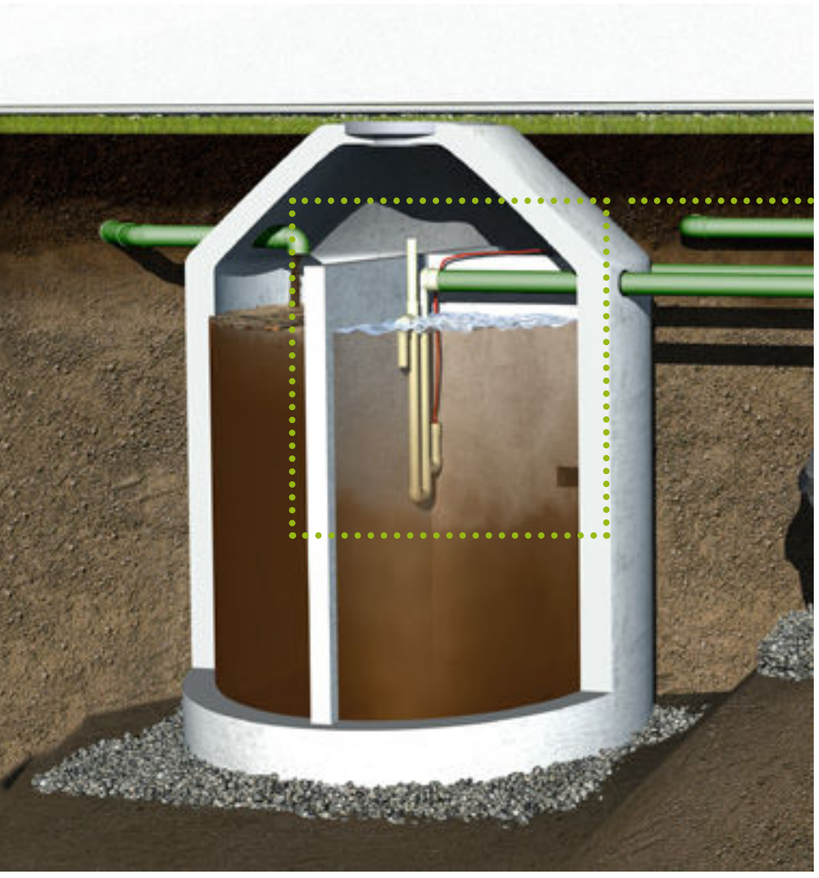


Image shows System pack for retrofitting > 28 inhabitants)

Example: Installation in an existing plant room

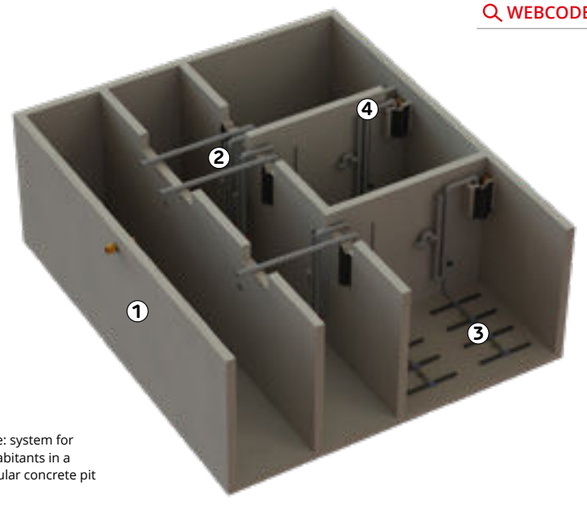
To plan your system, we need the following information:

- What type of project? (Domestic, hotel, commercial etc.)
- How many people will use the system and what is the water consumption per head?
- What legal requirements apply to wastewater at the location?
- Local power grid

System components

① Technical calculation for pit size
② Air lifts
③ Aerator unit
④ Outflow with sampling point

WEBCODE G5206



Example: system for 411 inhabitants in a rectangular concrete pit

KLARO container.one®

Containerized wastewater treatment plant

The intelligent mobile wastewater solution

KLARO container.one® is the mobile wastewater treatment plant in the standard 20 feet or 40 feet container. The plant was designed to be easily assembled and disa sembled (plug-and-play principle). This makes the container plant particularly suitable for temporary use. It can be used in a wide variety of areas, such as traveling construction sites, worker camps, quarries or production sites with many workers. It is also suitable for remote locations such as research, tourist or military camps. Due to the installation in the container, the technology is optimally protected against all weather conditions and additionally easy to transport.

KLARO container.one® is a fully biological wastewater treatment plant that operates according to the proven KLARO One process (fully aerated SBR plant).

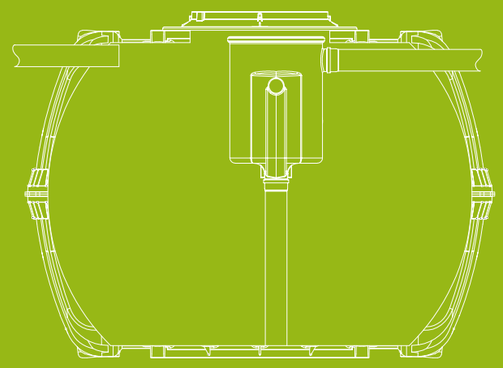
- Easy to transport (standard 20 ft container)
- Prefabricated and expandable construction
- Quick assembly and disassembly (plug-and-play)
- Low power consumption (13 kWh/d – 20 ft container)
- Designed for 15 m³ (20 ft container) per day resp. 34,5 m³ (40 ft)
- Modularly expandable for larger wastewater volumes

WEBCODE G5116

Photo copyright: stock.adobe.com: Signature pictures

oneZero

> Anaerobix Page 34
> Septic tank Page 36
> Cesspools Page 38
> Powerless wastewater treatment plant Page 40



Anaerobix

GRAF Wastewater Treatment System with Biological Filter

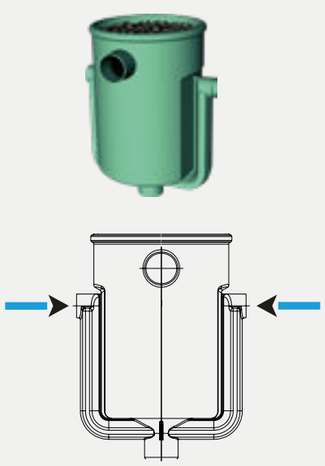
Simple and low-cost

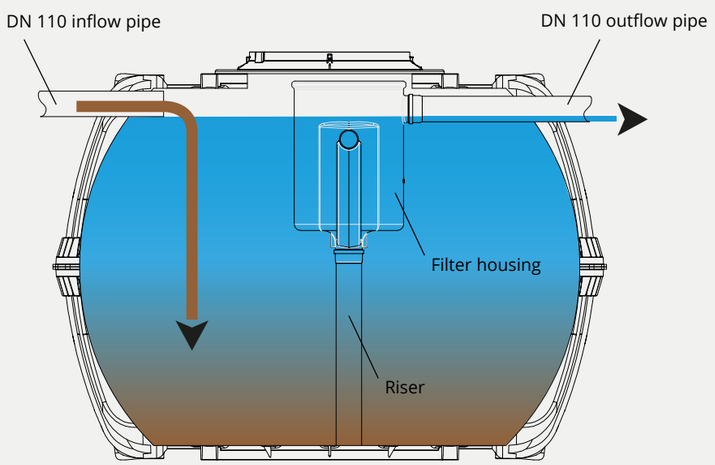
Anaerobix is the low-cost anaerobic filter system for GRAf wastewater tanks. Filled with the carrier material supplied, it increases the cleaning performance of a wastewater tank several times over. The large surface of the recyclable plastic carrier material (141 m^2/m^3) allows the biofilm responsible for the cleaning process to cover a large area.

The benefits of the Anaerobix system at a glance

- Very good cleaning performance: efficiency over 90 %, PIA-tested (Testing Institute for Waste Water Technology)
- No power consumed, no electrical or mechanical components (e.g. pumps or float switch) in tank
- Largely maintenance-free
- Installation in proven GRAF tanks
- Easy to install with standard DN 110 pipes
- Very good value for money

PIA, independent testing institute in Aachen





Anaerobix single-tank system

WEBCODE G5503

Inhabitants [max.]	Max. daily flow [l / day]	Tank	Anaerobix Typ [l]
1 - 5	300	Herkules 1,600 l	integrated
1 – 2	150 – 300	Saphir 600 l	30
2 – 3	150 – 450	Saphir 900 l	30
2 – 3	300 – 450	Cesspool 1,000 l	30
2 – 3	300 – 600	Saphir 1,200 l	30
3 – 4	450 – 750	FLAT 1,500 l	30
4 – 5	450 – 750	Cristall 1,600 l	40
5 – 8	750 – 1,200	Cristall 2,650 l	40
8 – 9	750 – 1,350	Carat S 2,700 l*	60
10 – 12	1,050 – 1,800	Carat S 3,750 l*	60
12 – 16	1,350 – 2,400	Carat S 4,800 l*	60
16 – 21	1,950 – 3,150	Carat S 6,500 l*	60

Scope of supply: GRAF wastewater tank (tank dome and telescopic dome shaft 600), Anaerobix filter. >> page 46 – The GRAF modular system

Anaerobix XL

WEBCODE G5505

Inhabitants [max.]	Max. daily flow [l/d]	Tank [l]	Required vol. for pretreatment septic tank [l]	Carrier material [m3]	Qty. of bags [0,05 m3 / bag]	Order no.
22 – 33	4,950	Underground tank 1,000 l	10,000	0,75	15	107696
33 – 53	7,950	Cristall 1,600 l	16,000	1,5	30	107697
53 – 88	13,200	Cristall 2,650 l	32,000	2,4	48	107698

Scope of supply: Pre treatment septic tank as required + Anaerobix underground tank and cover

Anaerobix XXL

WEBCODE G5506

Inhabitants [max.]	Max. daily flow [l/d]	Tank [l]	Required vol. for pretreatment septic tank [l]	Carrier material [m3]	Qty. of bags [0,05 m3 / bag]	Order no.
200	30,000	Carat S 1 x 6,500 l	60,000	6	100	on request
400	60,000	Carat S 2 x 6,500 l	120,000	12	200	on request
600	90,000	Carat S 3 x 6,500 l	180,000	18	300	on request
800	120,000	Carat S 4 x 6,500 l	240,000	24	400	on request

Scope of supply: Carat S underground tanks, tank domes telescopic dome shafts, accessory set for pre treatment septic tanks, accessory set for Anaerobix filter XXL and carrier material.

one Tank – The GRAF modular system >> page 46

Technical data

System Anaerobix	Herkules	30 l | 40 l | 60 l	XL/XXL
Purifying technology	Anaerobic system	Anaerobic system	Anaerobic system
Systems available up to	300 l/d	3,150 l/d	up to 150,000 l/d
Maintenance interval	1 – 2 per year	1 – 2 per year	1 – 4 per year
Warranty for underground tank	10 years	–	–

Limit values	Herkules	30 l | 40 l | 60 l	XL/XXL
BOD_5 (biochemical oxygen demand)	56,6 %	75 %	–
SS (suspended solids)	81 %	90 %	82 %

Septic Tank

Who needs septic tanks?

Septic tanks are still the most common treatment systems being used for private houses worldwide.

Floating and removable material is extracted from domestic wastewater in mechanical wastewater tanks. This is purely mechanical cleaning.

GRAF offers a versitile range of septic tank solutions. GRAF tanks can be upgraded to fully-biological treatment plants or rainwater harvesting systems.

Benefits

- Stability tested according to European standard (DIN EN 12566-3)
- Fast tank fitting with profile seal and fast connectors
- Tanks can be used for rainwater harvesting systems after thorough cleaning
- Low weight: can also be installed in difficult local conditions without a crane
- Low maintenance: maintenance or cleaning work can be performed through the shafts
- Tanks can be used as rainwater harvesting systems after thorough cleaning

Presenting the Carat septic tank

GRAF TV
www.graf.info/v213

12566-1*
Hydraulic efficiency **99.9 %**

*Refer to the installation instructions for CE-compliant Septic tanks

Accessories

Inspection end DN 200
For Carat S 4,800 l and 6,500 l
Order no. 340527

Deaeration end
DN 110
Order no. 369017

10 YEARS WARRANTY

QUALITY MADE IN GERMANY

CE

WEBCODE G5508

Septic

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Order no.
2,000	1715	1240	1380	75	105150
3,000	2450	1215	1450	100	105152
4,000	3250	1240	1380	135	105153
5,000	4007	1240	1380	165	105154

10 YEARS WARRANTY

QUALITY MADE IN GERMANY

Herkules

WEBCODE G5406

For overground and underground installation

Total volume [l]	Volume [l]	Chambers	Height [mm]	Ø max. [mm]	Weight [kg]	Order no.
1,600	1,600	as desired	1600	1350	60	320001

10 YEARS WARRANTY

QUALITY MADE IN GERMANY

CE

Carat S

WEBCODE G5504

Three chambers / Two chambers / One chamber

Inhabitants [max]	Total volume [l]	Capacity [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]
5	2,700	2,700	2080	1565	2010	145
7	3,750	3,750	2280	1755	2200	175
9	4,800	4,800	2280	1985	2430	220
13	6,500	6,500	2390	2190	2710	260

Scope of supply: Carat S underground tank with baffle. Also available without baffle as a one-chamber wastewater tank.
(>> page 48 – suitable covers >> page 50 – different baffle position)

one Tank – The GRAF modular system >> page 46

Cesspools

Who needs wastewater cesspools?

Our wastewater cesspools are the ideal solution for all properties without a sewer connection and with little or irregular waste water volume. For example:

- Allotments or weekend houses
- Residential houses as a temporary solution until a sewer connection can be made

Benefits

- Can be installed in groundwater
- Shallow installation
- Easy installation due to low net weight (Platin)
- Easy installation due to low net weight
- The tank can also be used as a rainwater collection tank after cleaning
- Self-anchoring (only Carat S)

FIND YOUR CESSPOOL SOLUTION

>> www.graf.info/cesspool-advisor

Accessories

Overflow guard
Emits visual and audio alarm, battery-operated (9 V).
Order no. 351017

Odour filter for ventilation shaft
Reliably filters out unpleasant odours.
Order no. 104018

Special seal DN 110 (not for XL/XXL)
For connections
Order no. 332033

Drill DN 110
With view shaft
Order no. 202003

10 YEARS WARRANTY · QUALITY MADE IN GERMANY · CE

Herkules

WEBCODE G5406

For overground and underground installation

Total volume [l]	Volume [l]	Chambers	Height [mm]	Ø max. [mm]	Weight [kg]	Order no.
1,600	1,600	as desired	1600	1350	60	320001

10 YEARS WARRANTY · QUALITY MADE IN GERMANY · CE

Platin

WEBCODE G5411

Volume [l]	Width B [mm]	Length L [mm]	Height H [mm]	Height H_{tot} [mm]	Height of dome shaft ht [mm]	Internal Ø of dome shaf t [mm]	Weight [kg]
1,500	1250	2100	700	1015	315	650	82
3,000	2100	2450	735	1050	315	650	180
5,000	2300	2890	950	1315	315	650	250
7,500	2250	3600	1250	1565	315	650	380

10 YEARS WARRANTY · QUALITY MADE IN GERMANY · CE

WEBCODE G5408

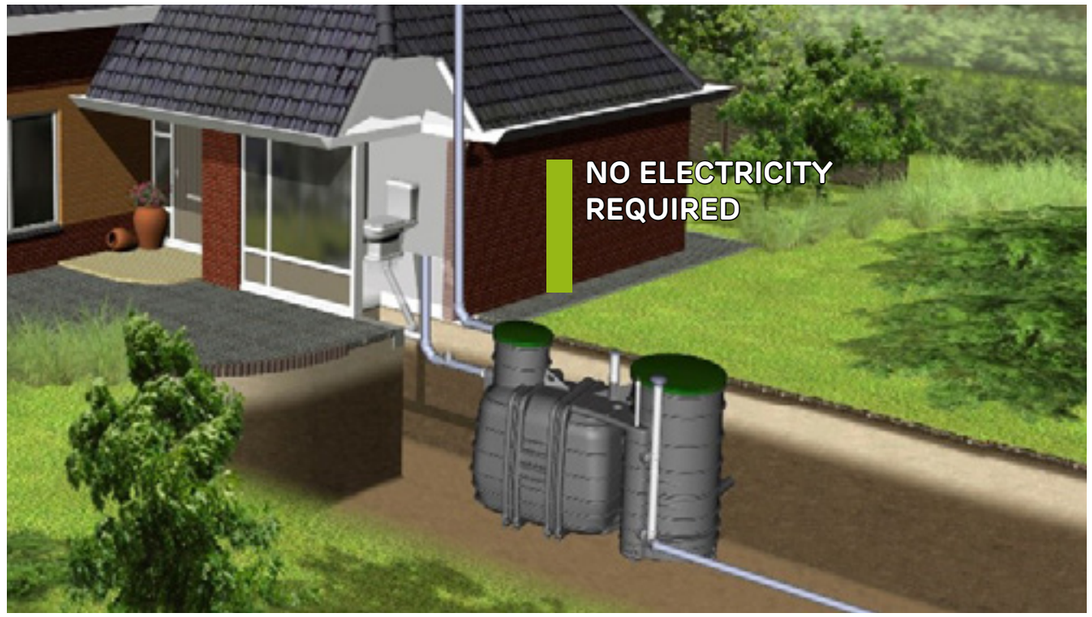
Carat S

Tank	Volume [l]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]
Carat S	2,700 – 6,500	2080 – 2390	1565 – 2190	2710	120 –220
Carat XL	8,500 – 13,000	3500 – 4000	2040 – 2420	3075	380 – 600
Carat XXL	16,000 – 122,000	4660 – 28600	2500 – 2500	2550	805 – 4870

one Tank – The GRAF modular system >> page 46

Biorock compact sewage systems

Monoblock V3 “All in one” Wastewater Treatment Solution



Who needs the Monoblock?

The systems do not require electricity, pumps or booster pumps for treatment, ensuring a quiet system with no risk of breakdown. With a capacity of 4 to 6 P.E., the Monoblock V3 all-in-one wastewater treatment systems are ideal for treating domestic wastewater. They are supplied complete and ready to install, for an easy and quick installation. The Monoblock V3 are part of the compact filter family: their footprint is very small compared to traditional systems.

Benefits

- A Compact, Robust and Innovative System
- Ideal for all types of houses and grounds
- Low running costs
- Easy to install
- Simplified maintenance

THE UNIQUE BIOROCK MEDIA

Our exclusive media is degradation resistant, stable and sustainable – keeping the purification system working effectively over the long-term. You will find it exclusively in Biorock systems.

Functioning of the Monoblock

1.

Primary Tank

The primary tank clarifies the raw sewage of fats, oils, greases and organic solids. The sewage water then passes through an effluent filter, before discharging into the Biorock reactor.

2.

Bioreactor Process

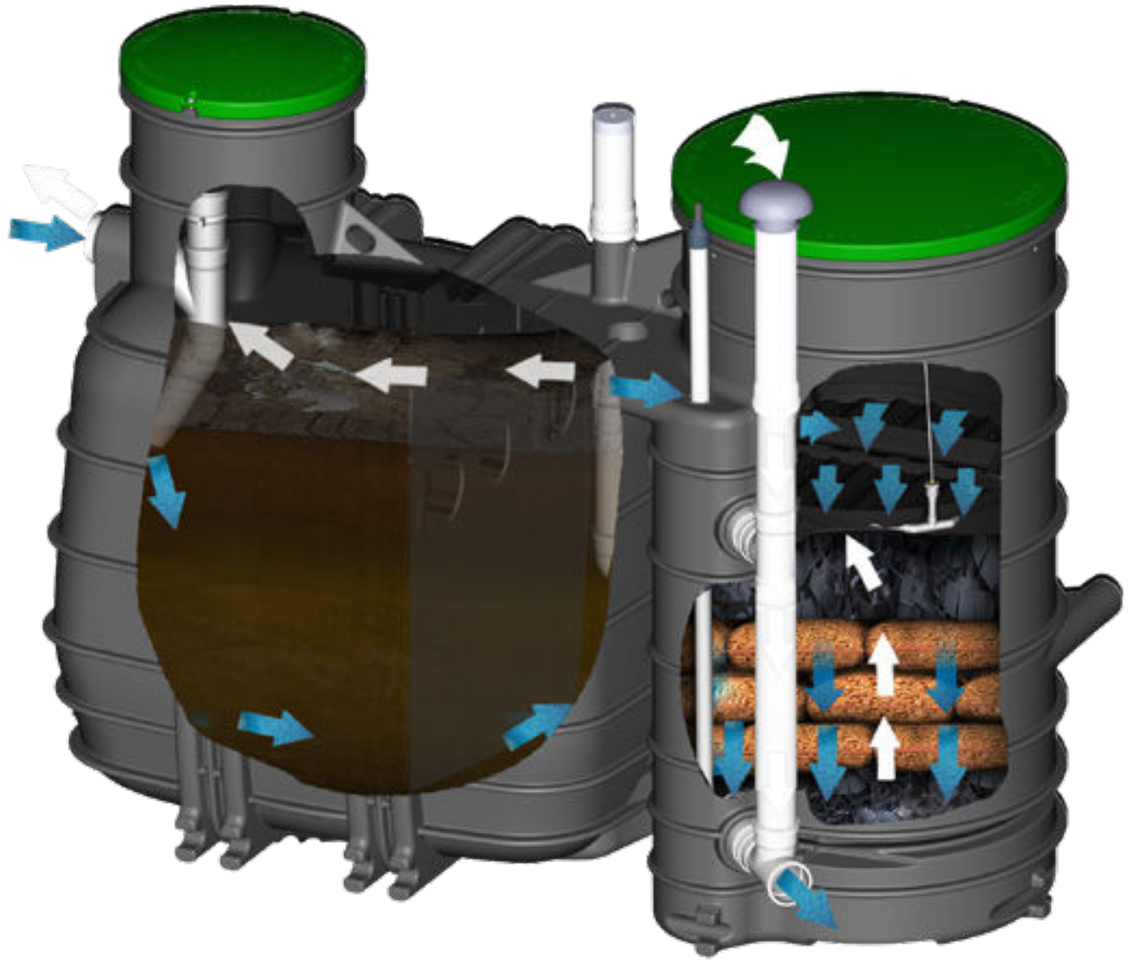
Our Bioreactor further purifies the pretreated wastewater using a biological process.

To naturally treat the wastewater, our systems use our unique Biorock Media, an exclusive and very efficient carrier material for bacteria.

3.

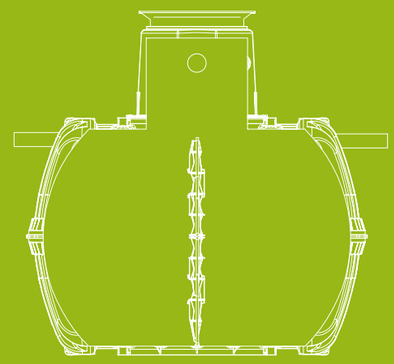
Discharge

Depending on the ground type, effluent will be discharged by gravity, or by a pump.



oneTank

> Carat S Underground Tank Page 44
> The GRAF Modular System Page 46
> Carat XL Page 52
> Carat XXL Page 53



Carat S Underground Tank

Benefits

- Unrivalled fitting accuracy
- Ribbed tank base
- Groundwater-stable thanks to its extremely stable construction
- Very high stability thanks to modern production methods
- Made of 100 % recycling material
- Easy to transport, 5 – 9 tanks per pallet
- Up to 36 complete wastewater systems or 45 wastewater tanks per lorry

Carat S: Reduce freight costs by up to 80 %

GRAF TV
www.graf.info/v208

10 YEARS WARRANTY

QUALITY MADE IN GERMANY

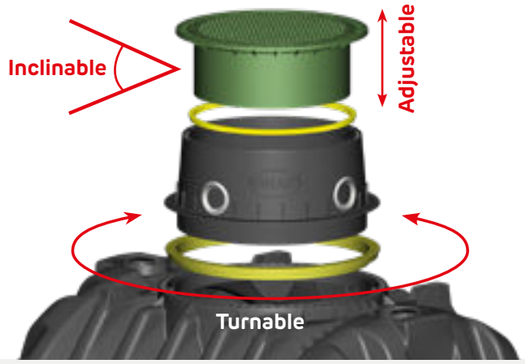
CE

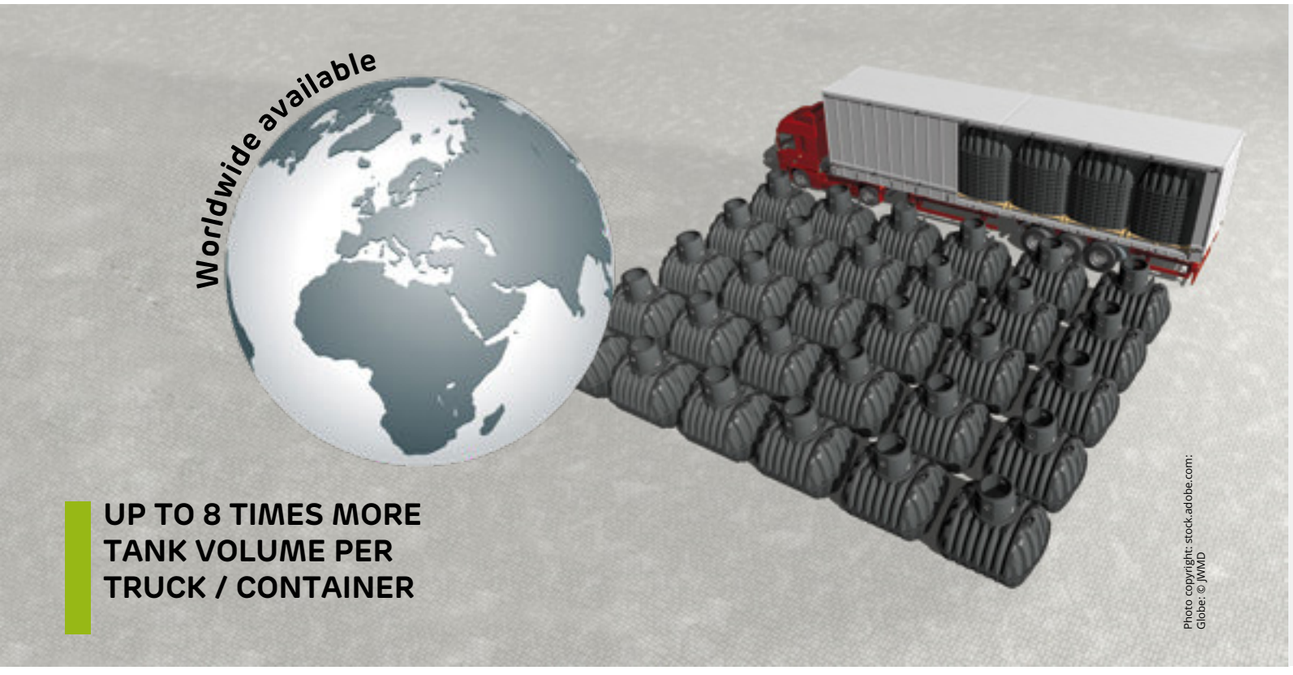
green planet collection
100 % RECYCLED

Flush with ground level

- Unique fit accuracy of the components
- Suitable for vehicle loading (when combined with the cast iron telescopic tank dome)
- Numerous seals to effectively stop dirt getting into the tank
- The height of the telescopic tank dome can be smoothly adjusted
- The telescopic tank dome can additionally be inclined by 5° to suit the local conditions
- Impact-resistant

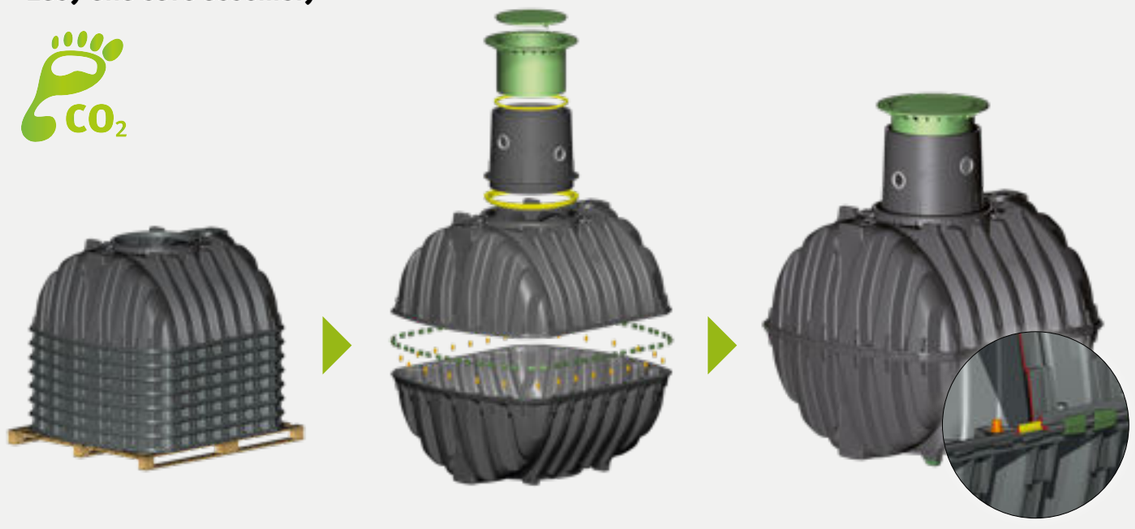
Telescopic dome shaft 600 car suitable for vehicles





Easy and safe assembly

CO_2



oneTank

The GRAF Modular System

Choose your system from four different modulars

Tank page 47

Carat S 2,700 – 6,500 litres

Tank cover page 48

Telescopic dome shaft 600 Mini and 600 Maxi

Telescopic dome shaft 600 car

Telescopic dome shaft 600 cast iron

Telescopic dome shaft 600 universal

Extension

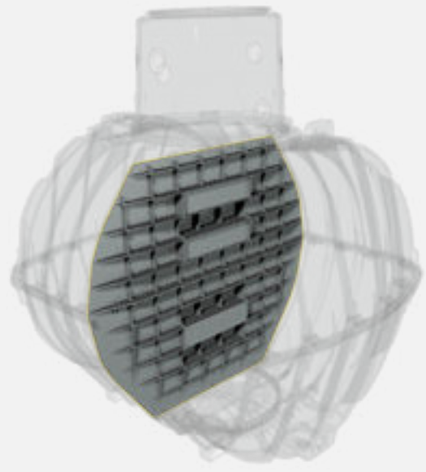
Tank dome Mini for Carat S

Tank dome Micro for Carat S

Tank dome Maxi for Carat S

Baffles page 50

Baffles – Carat S 2,700 – 6,500 litres



System packs page 51

one2clean

Anaerobix

oneAdvanced
3 – 9 PE

oneAdvanced
10 – 1,000 PE

Carat S Underground Tank

Choose your tank size

Carat S underground tank
Suitable for vehicle loading

Size 2,700 – 6,500 litres. Designed to be used in conjunction with the vehicle loading telescopic tank dome. The access dome is designed in accordance with DIN testing.

CORROSION-FREE THANKS TO PLASTIC LID

10 YEARS WARRANTY

CE

ACCESS DOME DIN

green planet collection
100 % RECYCLED

Illustration shows 4,800 litre tank with telescopic dome shaft 600 for pedestrian loading

oneTank

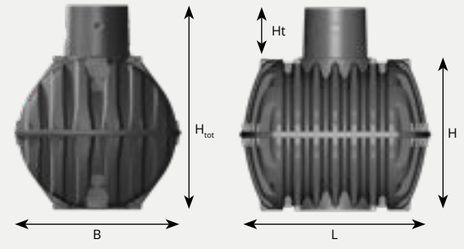
Dimensions

WEBCODE G5305

Volume [l]	Width B [mm]	Length L [mm]	Height H [mm]	Height H_{tot} [mm]	Height of tank dome Ht [mm]	Inner Ø of tank dome [mm]	Weight [kg]	Order no.
2,700 (700 US gal.)	1565 (61.6")	2080 (81.9")	1400 (55.1")	2010 (79.1")	610 (24.0")	650 – 800 (25.6 – 31.5")	120 (265 lbs)	372024
3,750 (1,000 US gal.)	1755 (69.1")	2280 (89.8")	1590 (62.6")	2200 (86.6")	610 (24.0")	650 – 800 (25.6 – 31.5")	150 (331 lbs)	372025
4,800 (1,250 US gal.)	1985 (78.2")	2280 (89.8")	1820 (71.6")	2430 (95.7")	610 (24.0")	650 – 800 (25.6 – 31.5")	185 (408 lbs)	372026
6,500 (1,700 US gal.)	2190 (86.2")	2390 (94.1")	2100 (82.7")	2710 (106.7")	610 (24.0")	650 – 800 (25.6 – 31.5")	220 (485 lbs)	372027

Technical data

Max. earth covering (without groundwater vehicle loading)	1500 mm (59.1")
Max. vehicle weight	12 to (26456 lbs)
Earth covering required for vehicle loading	800 – 1500 mm (31.5 – 59.1")
Groundwater stability	Up to tank equator
Earth covering required for groundwater stability	800 – 1500 mm (31.5 – 59.1")
Connection	DN 110 / DN 160 / DN 200 on top



Tank cover

Carat S Underground Tank

Choose your tank domes and covers

Tank dome Micro

- Weight: 7 kg (15,43 lbs)
- Including green lid
- For shallow excavation
- Earth cover only 90 mm

Order no. 371009

Tank dome Mini

- Weight: 11 kg (24 lbs)
- For especially flat installation
- Incl. 3 edge seals
- For one-Tank and Two Tank systems

Order no. 371041

Tank dome Maxi

- Weight: 15 kg (33 lbs)
- For large earth coverings (loading capacity)
- Incl. 5 edge seals
- For multi tank systems ≥ 4 tanks

Order no. 371040

Extension

- Weight: 6 kg (13 lbs)
- The earth covering can be raised 300 mm using the extension

Order no. 371003

Telescopic dome shaft 600 Mini

- With PP lid
- Suitable for pedestrian loading
- Weight: 9 kg (19 lbs)
- Adjustable earth covering across upper tank surface

plus 140 – 340 mm (5.51 – 13.4") earth covering

Order no. 371010

Telescopic dome shaft 600 Maxi

- With PP lid
- Suitable for pedestrian loading
- Weight: 15 kg (33 lbs)
- Adjustable earth covering across upper tank surface

plus 140 – 440 mm (5.51 – 17.3") earth covering

Order no. 371011

Telescopic dome shaft 600 cast iron

- Suitable for vehicle loading – with childproof cast iron cover up to 3.5 t (7716 lbs)
- Weight: 55 kg (121 lbs)
- Adjustable earth covering across upper tank surface

plus 140 – 440 mm (5.51 – 17.3") earth covering

Order no. 371020

Telescopic dome shaft 600 universal

- Suitable for vehicle/ lorry-bearing
- Weight: 11 kg (24 lbs)
- Cover to be provided on site
- Adjustable earth covering across upper tank surface
- For commercially available concrete rings/covers (to be provided on site)

plus 140 – 440 mm (5.51 – 17.3") earth covering

Order no. 371021

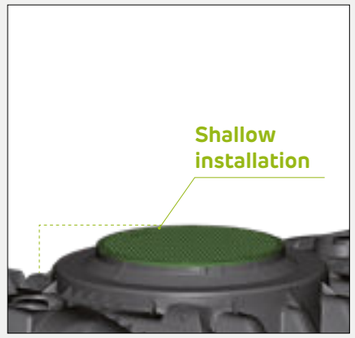
Inspired by nature

Telescopic dome shaft 600 car

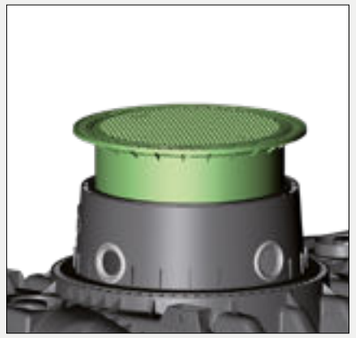
- Suitable for vehicle loading – with childproof plastic lid cover up to 3.5 t (7716 lbs)
- Weight: 22,5 kg (50 lbs)
- Adjustable earth covering across upper tank surface
- Perfect fitting accuracy
- Corrosion free, childproof plastic cover

plus 140 mm – 440 mm (5.51 – 17.3") earth covering

Order no. 371052

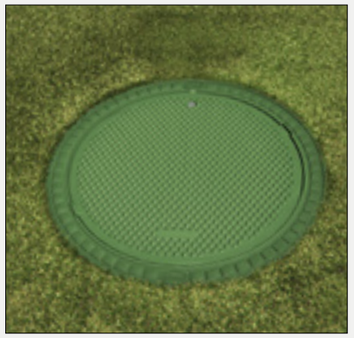


Tank dome Micro



Tank dome Mini

Tank dome Maxi



Telescopic dome shaft 600 Mini suitable for pedestrian loading

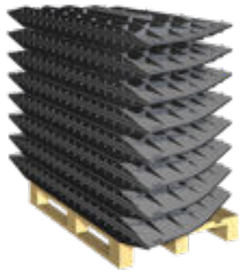
Telescopic dome shaft 600 cast iron suitable for vehicles

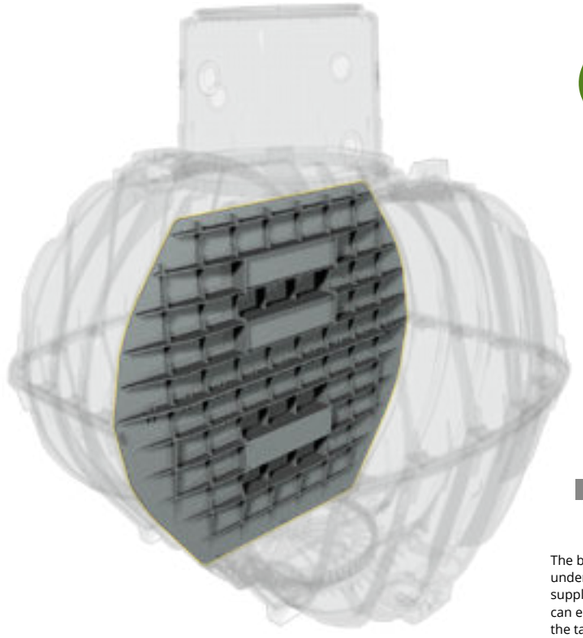
Telescopic dome shaft 600 car suitable for vehicles

Carat S Underground Tank

Choose your baffle position

The baffle separates the Carat S underground tank into two or three chambers as desired. It consists of two halves and is simple to insert when assembling the second tank half of the Carat S. A profile seal provides reliable and permanent separation of the chambers. The Carat S underground tank with baffle is ready for use as a multi-chamber tank. This can then be expanded by means of a system pack to create a wastewater treatment system (>> page 51). The system pack is simply fitted to the baffle and the control unit is installed in the house – and the wastewater treatment system is ready to go.



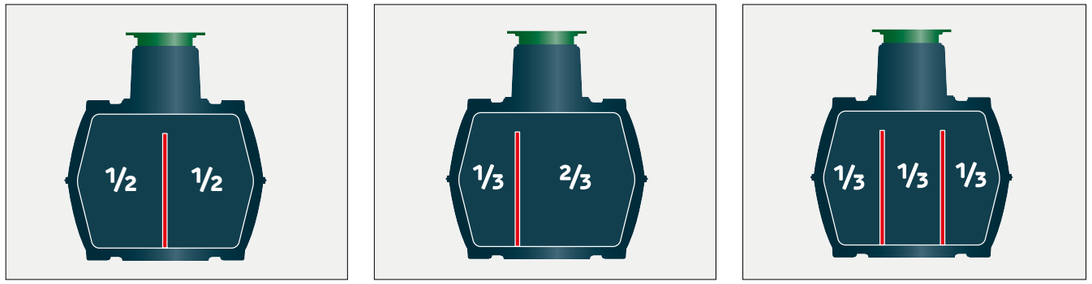


green planet collection
100 % RECYCLED

EUROPEAN 1897814 PATENT

The baffles of the Carat S underground tank are supplied on pallets and can easily be inserted in the tanks as needed.

Flexible baffle positions



Examples of different baffle positions.

Baffle for Carat S tank

Volume [l]	pcs/pal	Positions	Weight [kg]	Order no.
2,700 (700 US gal.)	9	1/2	20 (44 lbs)	375067
2,700 (700 US gal.)	9	1/3	20 (44 lbs)	375077
3,750 (1,000 US gal.)	7	1/2	25 (55 lbs)	375025
3,750 (1,000 US gal.)	7	1/3	25 (55 lbs)	375080
4,800 (1,250 US gal.)	5	several positions	35 (77 lbs)	375026
6,500 (1,700 US gal.)	5	several positions	45 (99 lbs)	375027

Carat S Underground Tank

Choose your system pack

System pack one2clean

The system pack one2clean (>> page 12) works according to the SBR air lift pump process. This requires a wastewater tank with a scum baffle.

Scope of supply: control cabinet with air compressor for internal mounting, one2clean system pack comprising air lift pumps and tube diffuser. Air hose not included.

Inhabitants [max.]	Tank volume [l]	one2clean [Order no.]
One tank system		
3	2,700	106850
5	3,750	106851
7	4,800	106852
9	6,500	106853
Two tank system		
7	2 x 2,700	106854
10	2 x 3,750	106855
14	2 x 4,800	106856
18	2 x 6,500	106857

System pack oneAdvanced

The system pack oneAdvanced (>> page 18) works according to the SBR air lift pump process. This requires a wastewater tank with two chambers.

Scope of supply: control cabinet with air compressor for internal mounting, oneAdvanced system pack comprising air lift pumps and disk diffuser. Air hose not included.

Inhabitants [max.]	Tank volume [l]	System packs [Order no.]
3	2,700	106417
5	3,750	106418
7	4,800	106419
9	6,500	106420
10	4,800	106572
14	6,500	106841
16	2 x 3,750	106847
22	2 x 4,800	106931
28	2 x 6,500	106943
32	4 x 3,750	106949
44	4 x 4,800	106952
50	4 x 6,500	106955
60	4 x 6,500	372710
90	5 x 6,500	372711

Anaerobix

The filter system Anaerobix (>> page 34) is an anaerobic filter system (filled with carrier material) for GRAF wastewater tanks. It increases the cleaning performance of a wastewater tank several times over.

Inhabitants [max.]	Volume [l]	Anaerobix 60 l [Order no.]
8 – 9	Carat S 2,700 l	107600
10 – 12	Carat S 3,750 l	107600
12 – 16	Carat S 4,800 l	107600
16 – 21	Carat S 6,500 l	107600

Further sizes on request

Accessories

SBR hose package for 3 – 9 PE
Includes: 1 x Ø 19 mm and 1 x Ø 13 mm PVC hose; colour-coded

10 m	Order no. 107686
20 m	Order no. 107688

SBR hose package for 10 – 28 PE (oneAdvanced)
Includes: 1 x Ø 19 mm; 3 x Ø 13 mm, PVC hose; colour-coded

10 m	Order no. 107190
20 m	Order no. 107192

Carat XL Underground Tank

up to 13,000 litres

Benefits

- Suitable for loading up to 12 t
- Can be mounted in groundwater
- Lower weight than concrete and steel
- Various connection surfaces DN 110 / 160 / 200

WEBCODE G5303

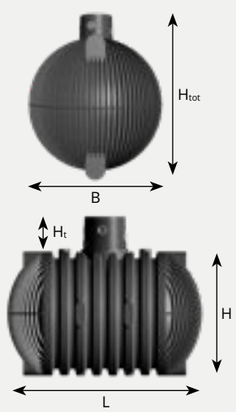
Illustration shows 10,000 litre tank with telescopic dome shaft 600 with cast iron lid, suitable for vehicle loading.

Dimensions

Volume [l]	Width B [mm]	Length L [mm]	Height H [mm]	Height H_{tot} [mm]	Height of dome shaft Ht [mm]	Internal Ø of dome shaft [mm]	Weight [kg]
8,500	2040	3500	2085	2695	610	650	380
10,000	2240	3520	2285	2895	610	650	455
13,000	2420	4000	2470	3080	610	650	600

Technical data

Max. earth covering (without groundwater vehicle loading)	2000 mm (6' 6.7")
Max. axle load	3.5 to (7716 lbs) with 2.2 to cast iron cover, 12 t0 (26456 lbs) with telescopic dome shaft 600 lorry
Max. total weight	12 to (26456 lbs)
Earth covering required for vehicle loading	800 mm – 2000 mm (31.5" – 6' 6.7")
Groundwater stability	up to middle of tank
Earth covering required for groundwater stability	800 mm – 1800 mm (31.5" – 5' 10.9")
Connection	5 x DN 160 (6") + 2 x DN 200 (8") (on top)



Carat XXL Underground Tank

up to 122,000 litres

Benefits

- Suitable for loading up to 40 t
- Can be mounted in groundwater
- Lower weight than concrete and steel
- Various connection surfaces DN 110 / 160 / 200
- Available with DN 315 connection as an option
- Available with a second tank dome as an option

WEBCODE G5304

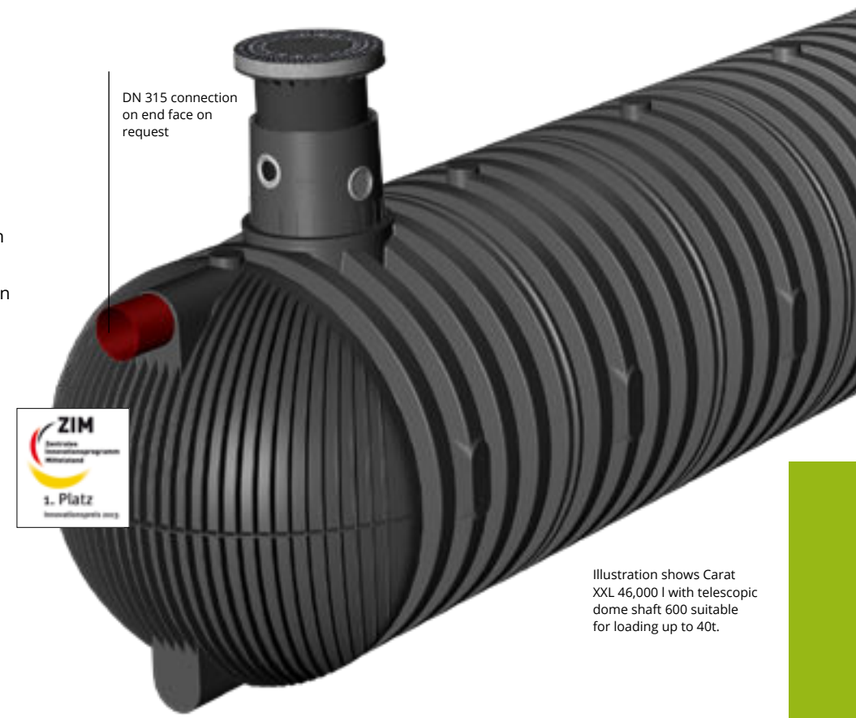


Illustration shows Carat XXL 46,000 l with telescopic dome shaft 600 suitable for loading up to 40t.

Dimensions

Volume [l]	Width W [mm]	Length L [mm]	Height H [mm]	Height H_{tot} [mm]	Height of dome shaft Ht [mm]	Internal Ø of dome shaft [mm]	Weight [kg]
16,000	2500	4590	2550	3160	610	650	770
22,000*	2500	6230	2550	3160	610	650	1025
26,000*	2500	7200	2550	3160	610	650	1125
32,000*	2500	8440	2550	3160	610	650	1405
36,000*	2500	9410	2550	3160	610	650	1500
42,000*	2500	10680	2550	3160	610	650	1795
46,000*	2500	11650	2550	3160	610	650	1890
52,000*	2500	12920	2550	3160	610	650	2185
56,000*	2500	13890	2550	3160	610	650	2280
62,000*	2500	15160	2550	3160	610	650	2580
66,000*	2500	16130	2550	3160	610	650	2670
72,000*	2500	17400	2550	3160	610	650	2965
76,000*	2500	18370	2550	3160	610	650	3060

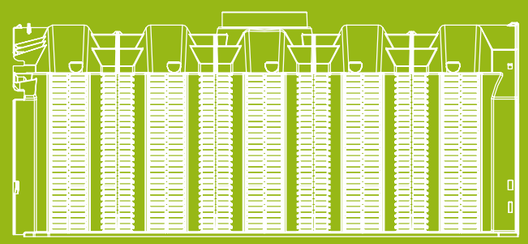
*with a second tank dome

Covers

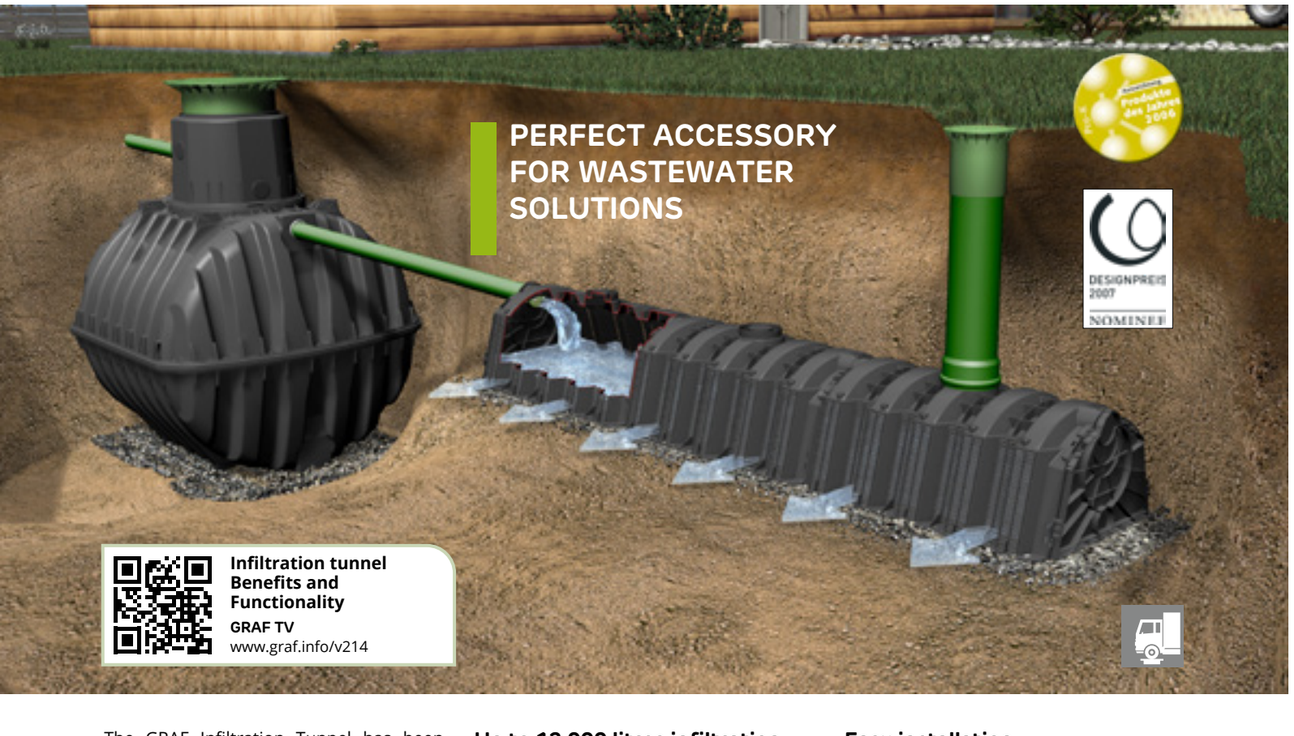
>> page 48

Infiltration

> Infiltration Tunnel Page 56



Infiltration Tunnel



The GRAF Infiltration Tunnel has been mainly designed for the use in private and rural areas. The system, which consists of one or more tunnel modules and two end plates, can be extended as desired. The tunnel is laid in one or more lines of the same level. As the weight of one module is only 11 kg, the handling of the Infiltration Tunnel is excellent. The surface above the tunnels is suitable for vehicle loading, offering varied possibilities for use.

Up to 12,000 litres infiltration volume per pallet

Thanks to its special design, the GRAF Infiltration Tunnel can be stacked easily. Consequently, the shipment of up to 40 Infiltration Tunnels on one pallet saves considerable transport and storage costs.

Vehicle loading

For versatility, the surface above the infiltration tunnels can withstand a continuous load of up to 100 kN/m² and is therefore also suitable for vehicle loading.

Easy installation

The GRAF Infiltration Tunnels are laid in lines and can be flexibly adapted to specific conditions and to the individual storage volume requested. The installation of the modules is easy, quick and variable. Installation is possible without heavy equipment, as one Infiltration Tunnel weighs just 11 kg. The tunnel modules are simply joined together in a line and two end plates are fitted per line.

INFILTRATION TUNNEL, REPLACES 36 M DRAINAGE PIPE

Flexible connection options
DN 110/200 (4"/8")

Flexible connection options
DN 110/160/200/300
(4"/6"/8"/12")

The special construction of the GRAF Infiltration Tunnel guarantees lasting, high infiltration performance.

green planet collection
100 % RECYCLED

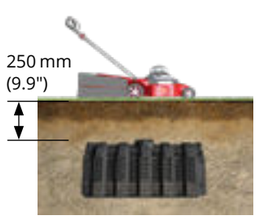
WEBCODE G5901

Infiltration Tunnel lorry

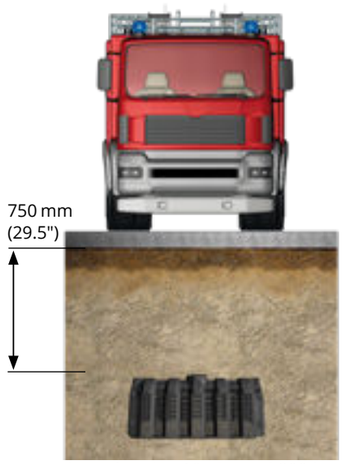
Volume	Length	Width	Height	Weight	Colour	Order no.
130 l (34 US gal.)	1190 mm (3'10")	490 mm (19.3")	320 mm (12.6")	5 kg (9,9 lbs)	black	410200
300 l (79 US gal.)	1160 mm (45.7")	800 mm (31.5")	510 mm (20")	11 kg (24.4 lbs)	black	230010

End plates (Set of 2 units) for Infiltration Tunnel / Twin

Volume	Length	Width	Height	Weight	Colour	Order no.
130 l (34 US gal.)	415 mm (1' 4.4")	205 mm (8.1")	295 mm (11.6")	1,8 kg (4,0 lbs)	black	410203
300 l (79 US gal.)	674 mm (2' 2.5 ")	64 mm (2.5 ")	480 mm (1.9 ")	3,2 kg (7 lbs)	black	231004



Pedestrian Tunnel 130 l



Lorry-bearing 60 t Tunnel 300 l

Accessories

GRAF-Tex geotextile
For an Infiltration Tunnel size of 2.50 x 2.50 m (8' 2.4" x 8' 2.4")
Order no. 231006

Roll width 5 m (16' 4.8")
Order no. 231002

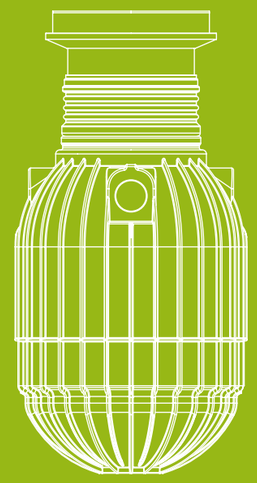
Deaeration end
DN 110 (4")
Order no. 369017

Inspection end
DN 200 (8")
Order no. 340527

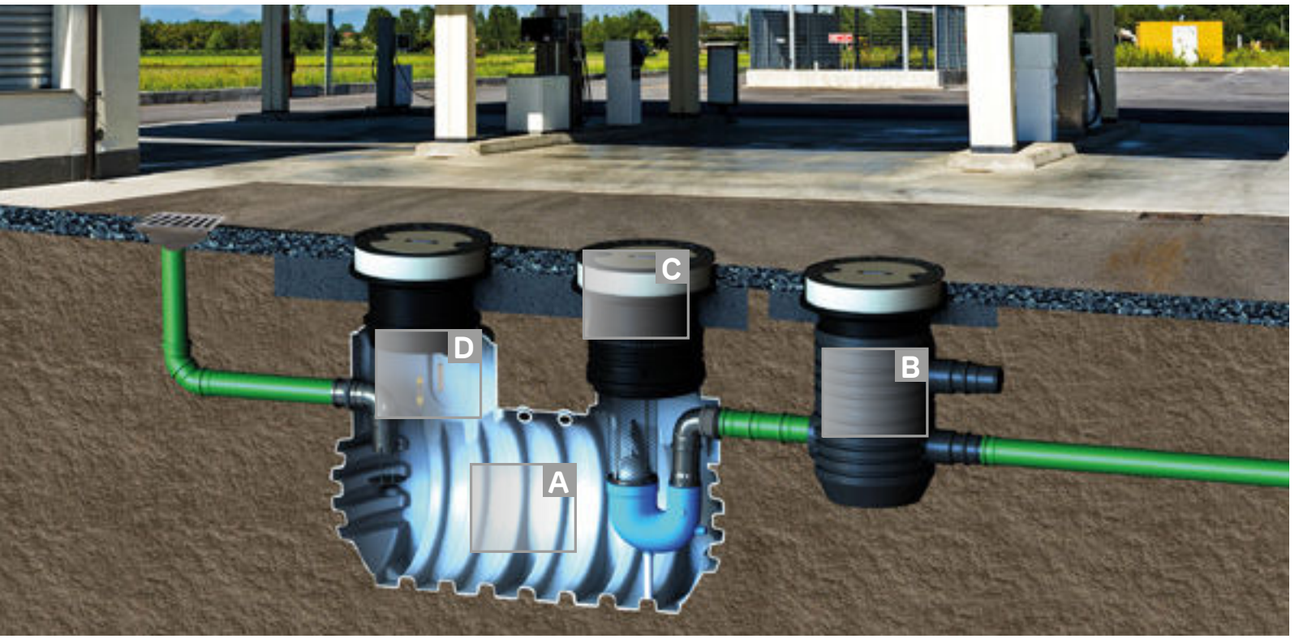
oneSepa

> System at a glance Page 60
> oneSepa Grease Page 62
> oneSepa Oil Page 70

Photo copyright: stock.adobe.com: © Milles Studio



Separators
System at a glance



oneSepa separator systems

One of the biggest dangers for water is pollution from mineral liquids (such as petrol, oil, grease, ...). Just a single drop of petrol is enough to pollute 1 m³ of pure water.

To prevent environmental damage caused by the uncontrolled discharge of oil contaminated surface water runoff, effective and safe methods of separation technology must be used everywhere where light liquids come into contact with water.

With the light fluid separator oneSepa Oil – as well as the grease separator oneSepa Grease – GRAF offers sophisticated separation systems.

Where to use which separator?

oneSepa Grease is the perfect add on for GRAF treatment plants. When a kitchen (restaurant) is connected to a fully biological treatment, a grease separator should be installed in front of the system.

oneSepa Oil is the ideal solution for Stormwater water management systems. If rainwater from gas stations, car washes or car parks feeds into a drainage or attenuation system (e.g. GRAF EcoBloc), a Light fluid separator is recommended.

Plastic – clear benefits over concrete

Because of their low weight, separtors made of plastic can be installed without heavy equipment. This allows easy transport and installation even in places that are difficult to access.

Ready for connection

All the components of GRAF separators are pre-fitted ready for connection, allowing time to be saved during on-site installation.

Maximum water pollution control

Pure, clean water is one of the essential things in life, yet it's exposed to a large number of pollutants. One of the greatest hazards is contamination with light mineral liquids. A single drop of petrol is enough to contaminate one cubic metre of water.

GRAF separators offer maximum safety and protect the environment. The focus is of course in compliance with stipulated limit values.

Tested safety – with approval

GRAF separators are made of particularly robust and tough plastic. The fact that it is sealed up to the ground surface is a major advantage of plastic as a material.

No need to refurbish

Since they come into constant contact with highly aggressive wastewaters, concrete separators are at risk of corrosion and may require expensive refurbishment. Plastic separators, on the other hand, have smooth inner surfaces that will not corrode.

Separators A

oneSepa Grease Saphir
NS 1 – NS 4
>> page 64

oneSepa Grease Diamant
NS 4 – NS 15
>> page 66

oneSepa Oil Class I+II Saphir
NS 3 – NS 6
>> page 72

Bypass for oneSepa Oil Saphir
>> page 72

oneSepa Oil Class I+II Diamant
NS 6 – NS 15
>> page 74

External sampling shaft B

External sampling shaft
DN160 Order no. 107975
DN200 Order no. 107982
>> page 69

External sampling shaft
DN160 Order no. 107975
DN200 Order no. 107982
>> page 77

Covers and Telescopic dome shaft C

Concrete cover Grease separators
Class B Order no. 107910
Class D Order no. 107911
>> page 68

Concrete cover sampling shaft
Class B Order no. 107983
Class D Order no. 107984
>> page 68

Telescopic dome shaft for grease separator and sampling shaft
Order no. 107974
>> page 68

Concrete cover Light fluid separators
Class B Order no. 107967
Class D Order no. 107968
>> page 76

Concrete cover sampling shaft
Class B Order no. 107983
Class D Order no. 107984
>> page 76

Telescopic dome shaft for light fluid separator and sampling shaft
Order no. 107974
>> page 76

Accessories D

Warning sensors for oneSepa Grease
>> page 69

Warning system GA-1:
Grease film thickness
Order no. 106513

Warning system GA-2:
Grease film thickness and fluid level
Order no. 106514

Warning sensors for oneSepa Oil
>> page 77

Type 1: Oil film thickness alarm
Order no. 107964

Type 2: Build-up alarm
Order no. 107965

Typ 3: Oil film thickness and build-up alarm
Order no. 107966

System overview oneSepa Grease

Areas of application

Grease separators are needed wherever water is contaminated with fats and oils of natural origin. This concerns for example the following operations:

- Kitchen facilities and industrial kitchens (restaurants, hotels, etc.)
- Food distribution points with return dishes
- Meat and sausage processing plants (e.g. slaughterhouses, butcheries)
- Oil processing plants (e.g. oil mills)
- Plants for the production of ready meals

Sizing

Separator systems are classified by NS (nominal size). The choice of nominal size for the separator is specified in Part 2 of EN 1825. Furthermore, the requirements of the respective competent authority must be observed. A free calculation service for sizing according to EN 1825 is available on request.

Functional principle

A grease separator system works according to the physical principle of gravity. This means that heavy components in the wastewater, such as sludge, can settle at the bottom of the tank. In contrast, light components such as fats and oils rise to the surface of the water.

Two tank domes

From size NS4, GRAF grease separators have two tank domes. Inlet and outlet are therefore easily accessible for easier inspection.

Flexible tank dome:

- Sealed up to the ground surface
- Easy adjustment to the ground surface thanks to telescopic/tiltable dome shaft
- Compatible with standard concrete rings and covers

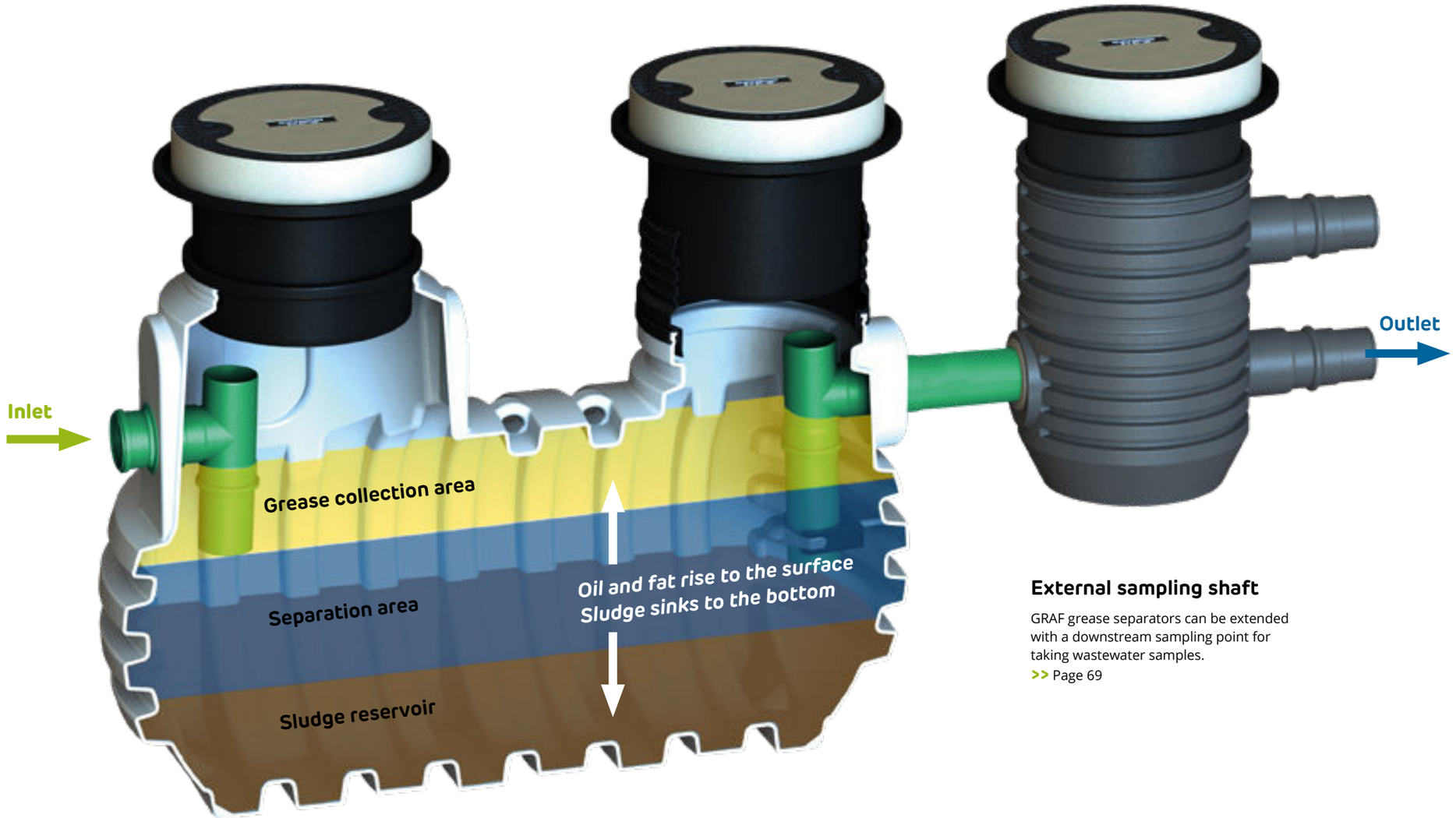
HGV trafficable

In conjunction with HGV trafficable Class D cover
>> Page 68

Video grease separator

GRAF TV
www.graf.info/v218

- ✓ **Low weight – can be installed without heavy equipment**
- ✓ **Easy transport and installation even in places that are difficult to access**
- ✓ **No need to refurbish– smooth and corrosion-free inner surfaces thanks to their high-quality plastic tank**
- ✓ **Ready for connection – delivered pre-fitted**
- ✓ **Time-saving for installation on site**



Grease collection area
Separation area
Sludge reservoir

External sampling shaft

GRAF grease separators can be extended with a downstream sampling point for taking wastewater samples.
>> Page 69

oneSepa grease as an add on for

one Solution >> page 10

oneSepa Grease Saphir

NS 1 – 4

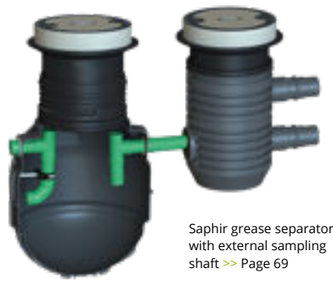
Scope of supply

① Saphir tank
② Pre-assembled components of grease separator

Not included in the scope of supply:

③ Telescopic dome shaft separator
>> Page 68
④ Concrete cover for grease separator
>> Page 68

CE
EN 1825



Saphir grease separator with external sampling shaft >> Page 69

oneSepa Grease Saphir

WEBCODE G5605

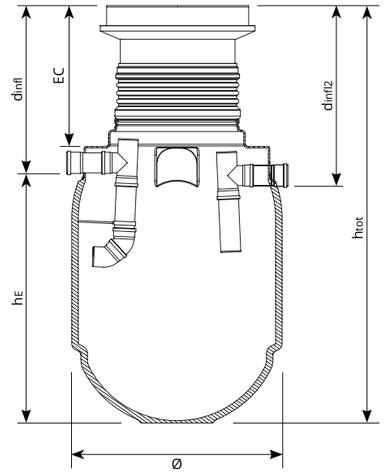
NS [l/s]	Connection [DN]	Grease [litres]	Sludge [litres]	Total [litres]	Order no. 1)
1 – 200	110	200	200	500	108000
2 – 200	110	200	200	500	108001
2 – 200	110	300	200	730	108002
2 – 400	110	200	400	730	108003
2 – 500	110	300	500	1.025	108004
4 – 500	110	300	500	1.025	108005

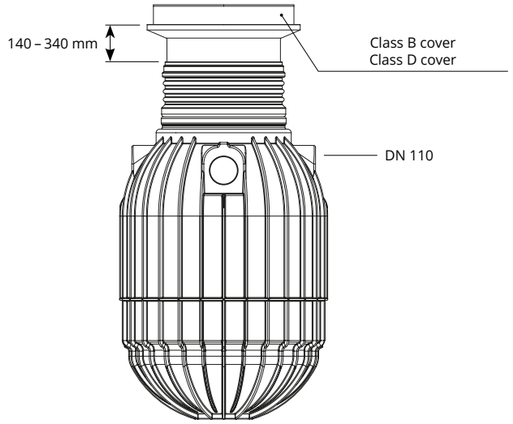
Effectiveness tested by TÜV Rheinland according to EN 1825. 1) Telescopic dome shaft and cover not included

Technical data

Max. earth covering:	1200 mm
Max. axle load:	10 t (in conjunction with a load distribution plate)
Max. vehicle weight:	60 t (in conjunction with a load distribution plate)
Required earth covering for trafficability:	700 – 1200 mm above tank shoulder
Groundwater stability:	500 l, 730 l immersion depth max. 430 mm, 1,025 l immersion depth max. 550 mm
Required earth covering with groundwater installation:	700 – 1200 mm above tank shoulder
Connection:	DN 110

Installation dimensions





Class B cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	dinfl2 [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
1 – 200	110	835	800 – 980	870 – 1050	1620 – 1800	700 – 1200	1125	41
2 – 200	110	835	800 – 980	870 – 1050	1620 – 1800	700 – 1200	1125	41
2 – 200	110	1050	860 – 1040	930 – 1110	1900 – 2080	700 – 1200	1155	70
2 – 400	110	1050	860 – 1040	930 – 1110	1900 – 2080	700 – 1200	1155	70
2 – 500	110	1375	870 – 1070	940 – 1140	2220 – 2400	700 – 1200	1155	100
4 – 500	110	1375	870 – 1070	940 – 1140	2220 – 2400	700 – 1200	1155	100

Class D cover

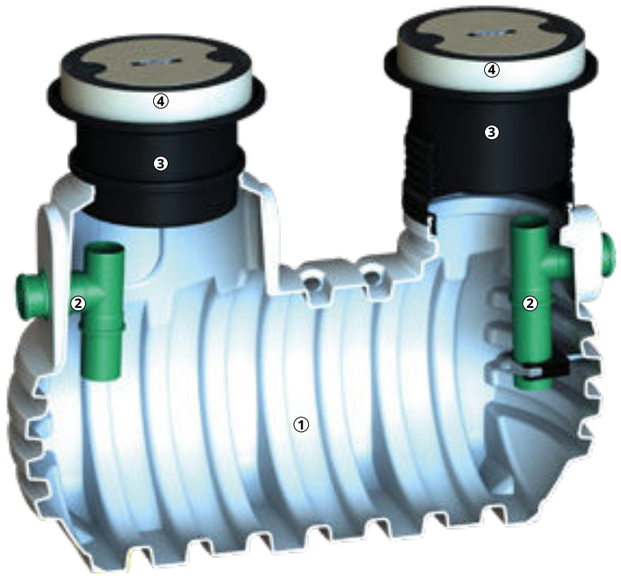
NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	dinfl2 [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
1 – 200	110	835	830 – 1010	900 – 1080	1650 – 1830	700 – 1200	1125	41
2 – 200	110	835	830 – 1010	900 – 1080	1650 – 1830	700 – 1200	1125	41
2 – 200	110	1050	890 – 1070	960 – 1040	1930 – 2110	700 – 1200	1155	70
2 – 400	110	1050	890 – 1070	960 – 1040	1930 – 2110	700 – 1200	1155	70
2 – 500	110	1375	910 – 1090	980 – 1160	2260 – 2440	700 – 1200	1155	100
4 – 500	110	1375	910 – 1090	980 – 1160	2260 – 2440	700 – 1200	1155	100

Accessories

>> page 68

oneSepa Grease Diamant

NS 4 – 15



CE

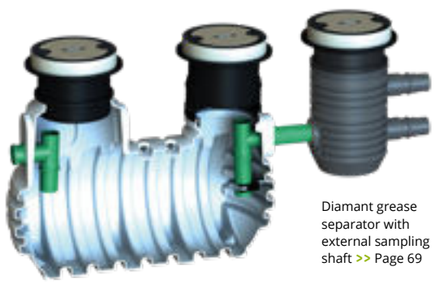
EN 1825

Scope of supply

① Diamant tank incl. 1 extension piece as a tank dome
② Pre-assembled components of grease separator

Not included in the scope of supply:

③ Telescopic dome shaft separator
>> Page 68
④ Concrete cover for grease separator
>> Page 68



Diamant grease separator with external sampling shaft >> Page 69

WEBCODE G5606

oneSepa Grease Diamant

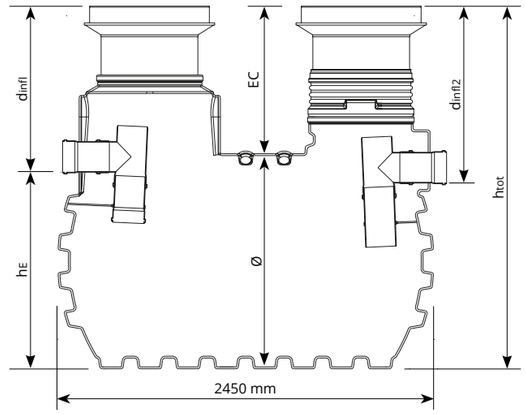
NS [l/s]	Connection [DN]	Grease [litres]	Sludge [litres]	Total [litres]	Order no.[1)]
4 – 700	160	350	700	2.070	108006
7 – 700	160	350	700	2.070	108007
10 – 1500	200	600	1.500	3.160	108008
15 – 1500	200	600	1.500	3.160	108009

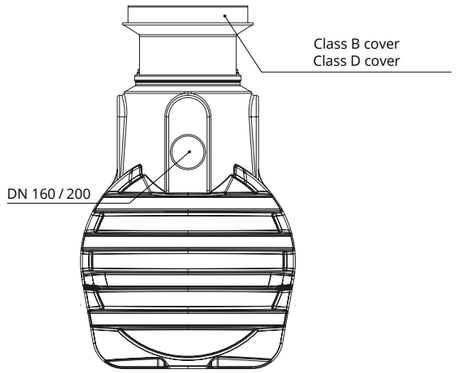
Effectiveness tested by TÜV Rheinland according to EN 1825. [1)] Telescopic dome shaft and cover not included

Technical data

Max. earth covering:	910 mm
Max. axle load:	10 t (in conjunction with a load distribution plate)
Max. vehicle weight:	60 t (in conjunction with a load distribution plate)
Required earth covering for trafficability:	700 – 910 mm above tank shoulder
Groundwater stability:	Type 2 2,070 l immersion depth max. 575 mm Type 3 3,160 l immersion depth max. 700 mm
Required earth covering with groundwater installation:	700 – 910 mm above tank shoulder
Connection:	DN 160 / DN 200

Installation dimensions





Class B cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	dinfl2 [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
4 – 700	160	1080	880 – 1060	950 – 1130	1960 – 2240	700 – 910	1150	165
7 – 700	160	1080	880 – 1060	950 – 1130	1960 – 2240	700 – 910	1150	165
10 – 1500	200	1280	930 – 1110	1000 – 1180	2210 – 2390	700 – 910	1400	250
15 – 1500	200	1280	930 – 1110	1000 – 1180	2210 – 2390	700 – 910	1400	250

Class D cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	dinfl2 [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
4 – 700	160	1080	920 – 1100	990 – 1170	2000 – 2180	700 – 910	1150	165
7 – 700	160	1080	920 – 1100	990 – 1170	2000 – 2180	700 – 910	1150	165
10 – 1500	200	1280	970 – 1150	1040 – 1220	2250 – 2430	700 – 910	1400	250
15 – 1500	200	1280	970 – 1150	1040 – 1220	2250 – 2430	700 – 910	1400	250

Accessories

>> page 68

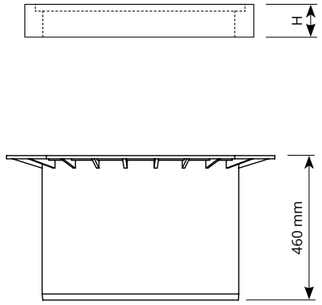
Accessories for oneSepa Grease

Covers

Concrete covers for grease separators; concrete/cast; screwed; with inscription "Separator/Separador/Séparateur/Separatorer"

Cover	ø [mm]	Height H [mm]	Effective height [mm]	Weight [kg]	Order no.
Extention Length 400 mm	600	400	300	6	371039
Extention Length 1100 mm	600	1210	1000	22	371061
① Telescopic dome shaft, separators	855	460	340	11	107974
② Class B concrete cover for grease separators	780	135	115*	120	107910
② Class D concrete cover for grease separators	780	160	140*	180	107911
② Class B concrete cover for sampling shaft	730	125	105*	97	107983
② Class D concrete cover for sampling shaft	730	165	145*	174	107984
Lifting key for covers					934790

*Height less 20 mm, which the concrete cover protrudes into the telescopic dome shaft



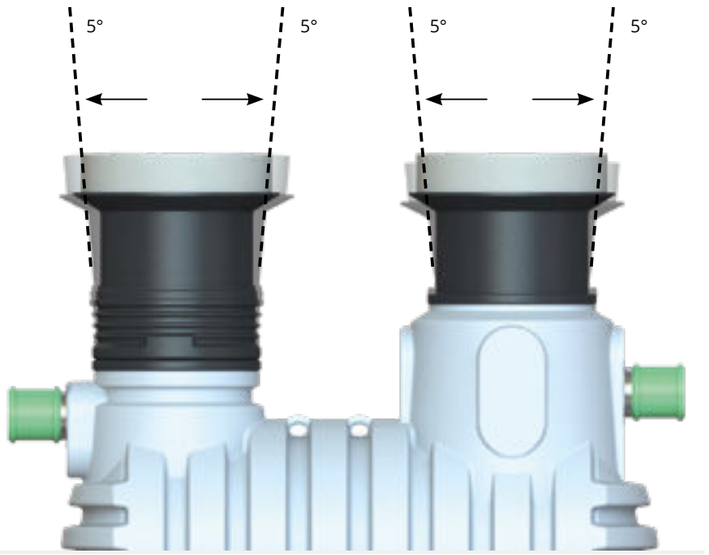
Dome structure

- Including NBR lip seals for smooth Connection
- Sealed up to the ground surface
- Easy adjustment to the ground surface thanks to telescopic/tilting dome shaft
- Can be driven over by cars or trucks – for standard concrete rings/covers
- Infinitely adjustable earth covering across upper tank surface, tilts 5° (ideal for asphalt surfaces)

Height adjustable and tiltable

The dome structures can be adjusted in height and inclination (up to 5%), allowing greater flexibility during installation.

Please note: A load-distributing reinforced concrete slab is required to permanently ensure trafficability for cars and trucks. Further information can be found in our installation instructions.



External sampling shaft

The separator systems can be extended with an external sampling point. The sampling shaft is connected downstream from the separator tank. In addition to taking wastewater samples in accordance with the regulations, it is also used to check and maintain the system.

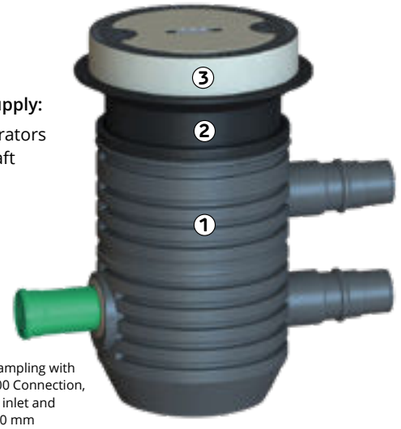
Connection [DN]	Ø [mm]	Order no.
160	600	107975
200	600	107982

Scope of supply

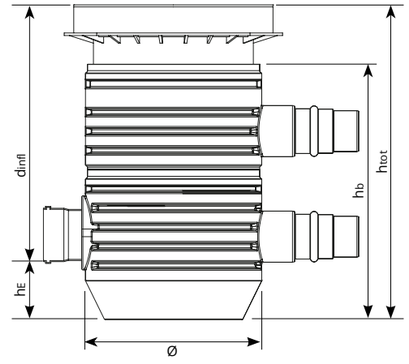
① sampling shaft

Not included in the scope of supply:

② Telescopic dome shaft, separators
③ Concrete cover sampling shaft



External sampling with DN 160/200 Connection, difference inlet and outlet of 30 mm



Installation dimensions

Class B cover

hE [mm]	hb [mm]	dinfl [mm]	h_{tot} [mm]	Weight [kg]
285	1000	975 – 1155	1260 – 1440	19
260	1000	1000 – 1180	1260 – 1440	19

Class D cover

hE [mm]	hb [mm]	dinfl [mm]	h_{tot} [mm]	Weight [kg]
285	1000	1015 – 1195	1300 – 1480	21
260	1000	1040 – 1220	1300 – 1480	21

Warning system GA-1
Grease film thickness, incl. 10 m cable (other cable lengths on request)

Order no. 106513

Wall duct
with NBR seal, for separator

Order no. 106515

Warning system GA-2
Visual and acoustic warning when the grease film thickness is reached or is overflowing, incl. 5 m cable (other cable lengths on request)

Order no. 106514

System overview oneSepa Oil

Procedure and structure

Areas of application

A light fluid separator is needed wherever water is contaminated with petrol, mineral oils or greases. This concerns for example the following operations:

- Petrol stations
- Car washes
- Garages
- Large/public parking areas (if required by the authorities)

Sizing

Separator systems are classified by NS (nominal size). The choice of nominal size for the separator is specified in Part 2 of EN 825. Furthermore, the requirements of the respective competent authority must be observed. A free calculation service for sizing according to EN 825 is available on request.

SEPARATION EFFICIENCY*

Class I ≤ 5 mg/l residual oil
Class II ≤ 100 mg/l residual oil

*under test conditions

- **Low weight – can be installed without heavy equipment**
- **Easy transport and installation even in places that are difficult to access**
- **No need to refurbish– smooth and corrosion-free inner surfaces thanks to their high-quality plastic tank**
- **Ready for connection – delivered pre-fitted**
- **Time-saving for installation on site**

Video light fluid separator

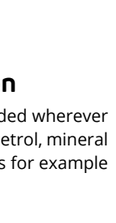
GRAF TV
www.graf.info/v219

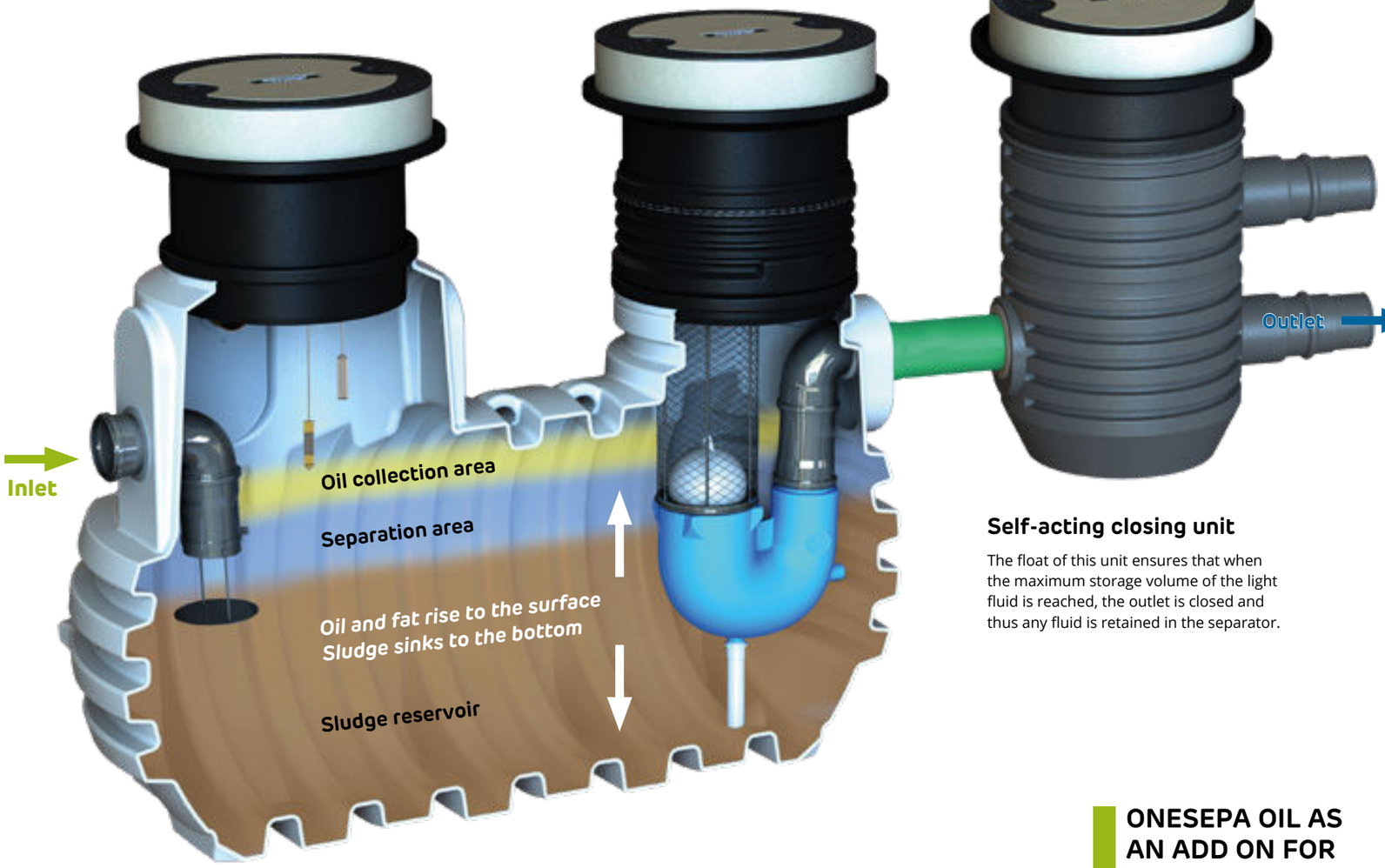
Functional principle

A light fluid separator system works according to the physical principle of gravity. This means that heavy components in the wastewater, such as sludge and sand, can settle in the optionalsludgetrapand/orinthesludgetrap integrated in the separator. In contrast, light components such as fats and oils rise to the surface of the water. An optional coalescence unit improves the separation efficiency of a light fluid separator.

Optional coalescence unit

- No wear and tear
- Easy to clean
- Low weight





Class II and Class I

The **class II** system is the basic version of the light fluid separators. Due to the amount of oil they store, the separators are designed so that they can also be used at petrol stations with high-performance fuel pumps.

The **Class I** separator is a coalescence separator. It features an additional coalescence unit that enables a much higher degree of separation.

Self-acting closing unit

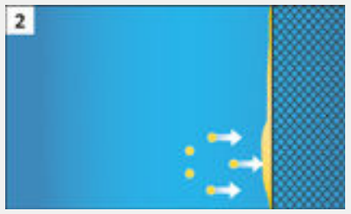
The float of this unit ensures that when the maximum storage volume of the light fluid is reached, the outlet is closed and thus any fluid is retained in the separator.

ONESEPA OIL AS AN ADD ON FOR

>> www.graf.info/stormwater-management

What does a coalescence unit do?

In addition to large oil droplets that can be easily separated, very small oil droplets also occur in a light fluid separator. Large oil droplets have a high difference in density to water, these rise. Small oil droplets have a small difference in density to water, these remain under the water surface.



To allow these small oil droplets to rise, the class 1 light fluid separator features a coalescence unit where the small oil droplets can collect.

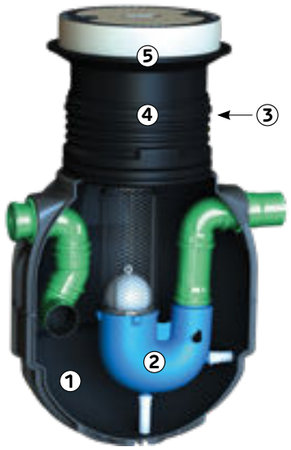
If enough small oil droplets have collected on the coalescence unit, large oil drops will be formed there. These rise and can be separated.

Petrol, oils

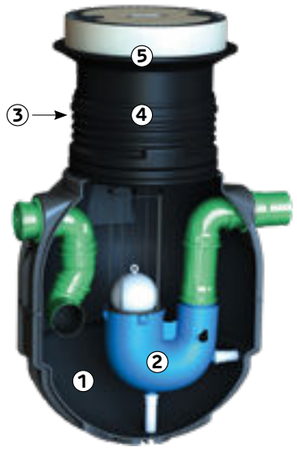
oneSepa Oil Saphir

NS 3 – 6

Class I coalescence separator



Class II fuel separator



CE
EN 858-2

Scope of supply

① Saphir tank
② Pre-assembled components of light fluid separator

Not included in the scope of supply:

③ Extension piece as tank dome >> Page 76
④ Telescopic dome shaft separator >> Page 76
⑤ Concrete cover for light fluid separator >> Page 76
⑥ Bypass up to 30 l/s

WEBCODE G5607

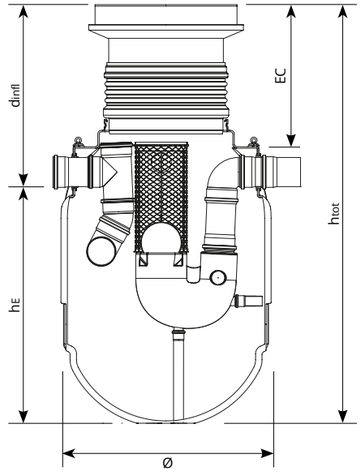
oneSepa Oil Saphir

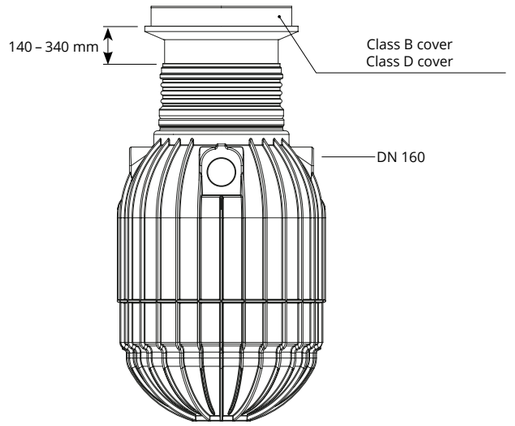
NS [l/s]	Connection [DN]	Light fluid [litres]	Sludge [litres]	Total [litres]	Order no. Class II	Order no. Class I
3	160	300	300	770	108100	108101
3	160	500	400	1.100	108102	108103
3	160	300	600	1.080	108104	108105
6	160	300	600	1.080	108106	108107

Technical data

Max. earth covering:	1200 mm
Max. axle load:	10 t (in conjunction with a load distribution plate)
Max. vehicle weight:	60 t (in conjunction with a load distribution plate)
Required earth covering for trafficability:	700 – 1200 mm above tank shoulder
Groundwater stability:	700 l immersion depth max. 430 mm, 1,080 l, 1,100 l immersion depth max. 550 mm
Required earth covering with groundwater installation:	700 – 1200 mm above tank shoulder
Connection:	DN 160

Installation dimensions





Class B cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
3	160	1000	905 – 1105	1905 – 2105	700 – 1200	1155	80
3	160	1320	910 – 1110	2230 – 2430	700 – 1200	1155	110
6	160	1000	905 – 1105	1905 – 2105	700 – 1200	1155	80
6	160	1320	910 – 1110	2230 – 2430	700 – 1200	1155	110

Class D cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
3	160	1000	930 – 1130	1930 – 2130	700 – 1200	1155	80
3	160	1320	935 – 1135	2255 – 2455	700 – 1200	1155	110
6	160	1000	930 – 1130	1930 – 2130	700 – 1200	1155	80
6	160	1320	935 – 1135	2255 – 2455	700 – 1200	1155	110

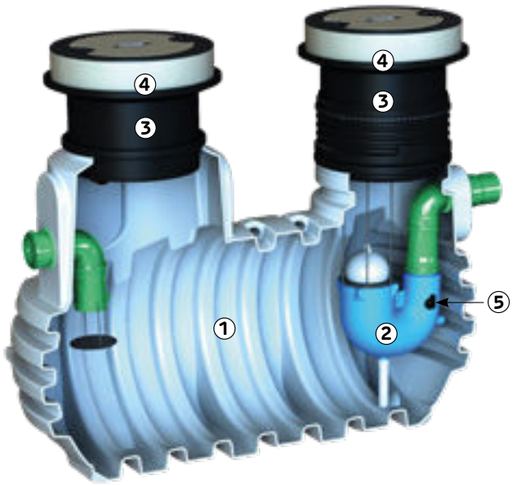
Accessories

>> page 76

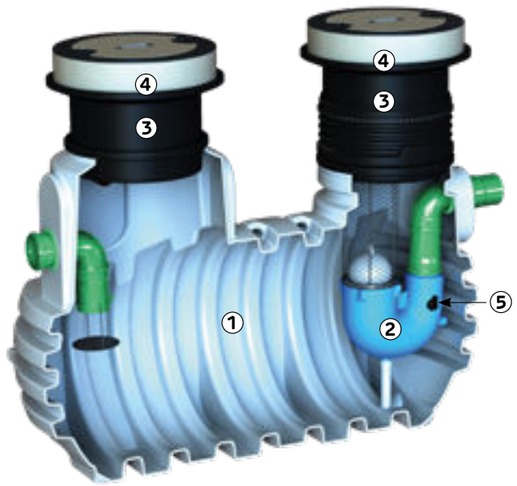
oneSepa Oil Diamant

NS 6 – 15

Class II fuel separator



Class I coalescence separator



Scope of supply

① Diamant tank incl. 1 extension piece as tank dome
② Pre-assembled components of light fluid separator

Not included in the scope of supply:

③ Telescopic dome shaft separator >> Page 76
④ Concrete cover for light fluid separator >> Page 76
⑤ Internal sampling connection point >> see below

CE
EN 858-2

WEBCODE G5608

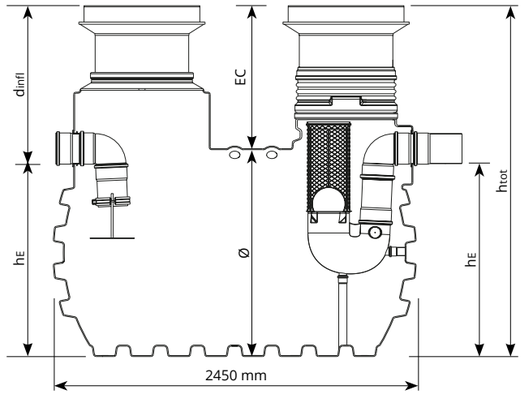
oneSepa Oil Diamant

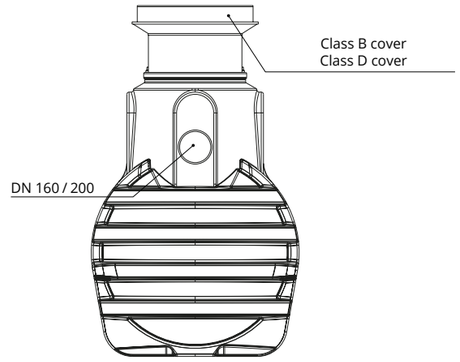
NS [l/s]	Connection [DN]	Light fluid [litres]	Sludge [litres]	Total [litres]	Order no. Class II	Order no. Class I
6	160	500	1.300	2.210	108108	108109
10	160	500	1.300	2.210	108110	108111
10	200	660	2.000	3.330	108112	108113
15	200	660	2.000	3.330	108114	108115

Technical data

Max. earth covering:	910 mm
Max. axle load:	10 t (in conjunction with a load distribution plate)
Max. vehicle weight:	60 t (in conjunction with a load distribution plate)
Required earth covering for trafficability:	700 – 910 mm above tank shoulder
Groundwater stability:	2,210 l immersion depth max. 575 mm 3,330 l immersion depth max. 700 mm
Required earth covering with groundwater installation:	700 – 910 mm above tank shoulder
Connection:	DN 160 / DN 200

Installation dimensions





Class B cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
6	160	1090	790 – 1080	1880 – 2170	700 – 910	1150	165
10	160	1090	790 – 1080	1880 – 2170	700 – 910	1150	165
10	200	1280	855 – 1145	2135 – 2425	700 – 910	1400	250
15	200	1280	855 – 1145	2135 – 2425	700 – 910	1400	250

Class D cover

NS [l/s]	Connection [DN]	hE [mm]	dinfl [mm]	htot [mm]	EC [mm]	Ø [mm]	Weight [kg]
6	160	1090	815 – 1105	1905 – 2195	700 – 910	1150	165
10	160	1090	815 – 1105	1905 – 2195	700 – 910	1150	165
10	200	1280	880 – 1170	2160 – 2450	700 – 910	1400	250
15	200	1280	880 – 1170	2160 – 2450	700 – 910	1400	250

Accessories

>> page 76

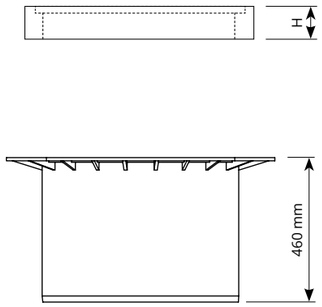
Accessories for oneSepa Oil

Covers

Concrete covers for light fluid separators; concrete/cast; screwed; with inscription "Separator/Separador/Séparateur/Separatorer"

Cover	ø [mm]	Height H [mm]	Effective height [mm]	Weight [kg]	Order no.
Extention Length 400 mm	600	400	300	6	371039
Extention Length 1100 mm	600	1210	1000	22	371061
① Telescopic dome shaft, separators	855	460	340	11	107974
② Class B concrete cover for oneSepa Oil	780	135	115*	120	107967
② Class D concrete cover for oneSepa Oil	780	160	140*	180	107968
② Class B concrete cover for sampling shaft	730	125	105*	97	107983
② Class D concrete cover for sampling shaft	730	165	145*	174	107984
Lifting key for covers					934790

*Height less 20 mm, which the concrete cover protrudes into the telescopic dome shaft



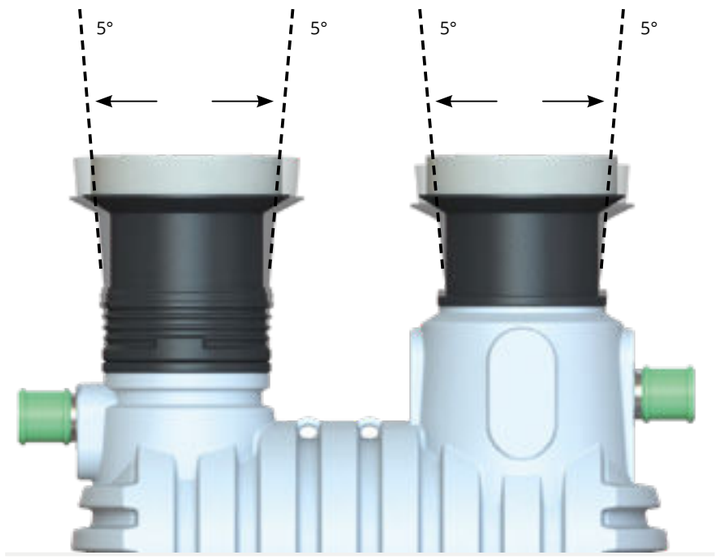
Dome structure

- Including NBR lip seals for smooth Connection
- Sealed up to the ground surface
- Easy adjustment to the ground surface thanks to telescopic/tilting dome shaft
- Can be driven over by cars or trucks – for standard concrete rings/covers
- Infinitely adjustable earth covering across upper tank surface, tilts 5° (ideal for asphalt surfaces)

Height adjustable and tiltable

The dome structures can be adjusted in height and inclination (up to 5%), allowing greater flexibility during installation.

Please note: A load-distributing reinforced concrete slab is required to permanently ensure trafficability for cars and trucks. Further information can be found in our installation instructions.



External sampling shaft

The separator systems can be extended with an external sampling point. The sampling shaft is connected downstream from the separator tank. In addition to taking wastewater samples in accordance with the regulations, it is also used to check and maintain the system.

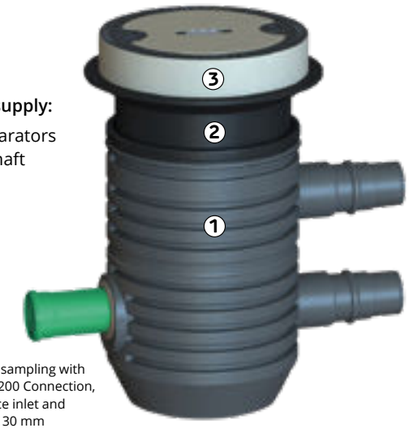
Connection [DN]	Ø [mm]	Order no.
160	600	107975
200	600	107982

Scope of supply

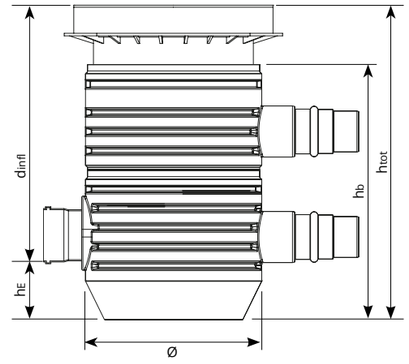
① sampling shaft

Not included in the scope of supply:

② Telescopic dome shaft, separators
③ Concrete cover sampling shaft



External sampling with DN 160/200 Connection, difference inlet and outlet of 30 mm



Installation dimensions

Class B cover

hE [mm]	hb [mm]	dinfl [mm]	h_{tot} [mm]	Weight [kg]
285	1000	975 – 1155	1260 – 1440	19
260	1000	1000 – 1180	1260 – 1440	19

Class D cover

hE [mm]	hb [mm]	dinfl [mm]	h_{tot} [mm]	Weight [kg]
285	1000	1015 – 1195	1300 – 1480	21
260	1000	1040 – 1220	1300 – 1480	21

Maintenance kit
The maintenance kit for separator systems contains everything you need to carry out the monthly self-checks.
Order no. 106619

Warning system connection set
Incl. wall duct, seal, drill hole on the tank on the desired side
Order no. 106869

Wall duct
with NBR seal, for separator
Order no. 106515

Incl. 10 m cable

Warning sensors
Type 1: Oil film thickness alarm
Order no. 107964
Type 2: Build-up alarm
Order no. 107965
Type 3: Oil film thickness and build-up alarm
Order no. 107966

Optional sludge trap oneSepa Oil

All separator systems can be extended with an upstream sludge trap. An additional sludge trap serves to retain coarse floating matter and dirt, which settle on the bottom of the sludge trap as sediment. Subsequently, the now pre-treated wastewater is discharged into the separator. Additional sludge traps are useful and necessary if there is an increased amount of dirt in the oily wastewater, e.g. washing areas for construction site vehicles, construction machinery, agricultural machinery, truck wash stands and automatic vehicle washing systems, e.g. gantry car washes or car wash tunnels.

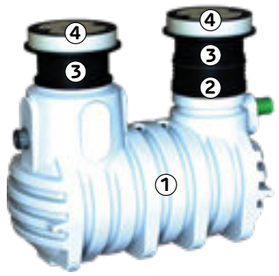
Scope of supply

① Saphir or Diamant tank with pre-assembled components, sludge trap

Picture shows Saphir tank incl. extension piece as tank dome

Not included in the scope of supply:

② Extension piece as tank dome
③ Telescopic dome shaft, separators
④ Concrete cover for light fluid separators

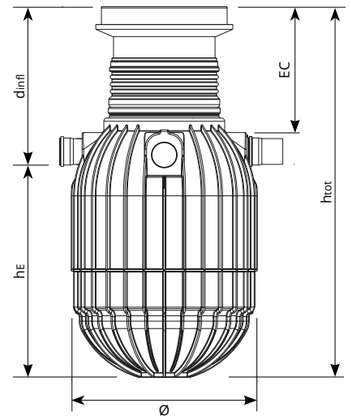


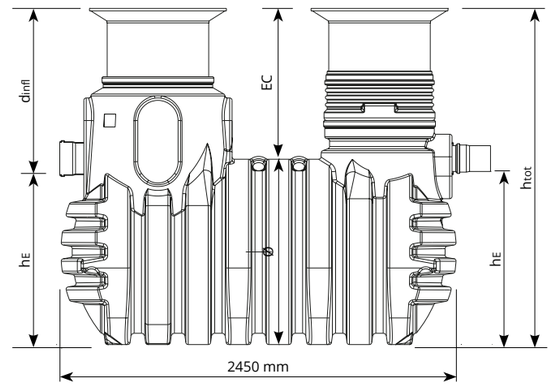
Picture shows Diamant tank incl. 1 extension piece as tank dome

Saphir/Diamant sludge trap

Volume [litres]	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Order no. [DN 160 connection]	Order no. [DN 200 connection]
1.000	1160	1160	1670	110	107969	–
2.100	2450	1150	1660	165	107970	107992
3.200	2450	1400	1900	240	107971	107993
4.600	2450	1700	2200	370	107972	107994

Installation dimensions





Class B cover

Volume [litres]	Connection [DN]	h_E [mm]	ø [mm]	Weight [kg]	d_{infl} [mm]	h_{tot} [mm]	EC [mm]
1.000	160	1325	1155	110	905 – 1105	2230 – 2430	700 – 1200
2.100	160	1110	1150	165	800 – 1060	1880 – 2170	700 – 910
3.200	160	1360	1400	240	800 – 1060	2160 – 2420	700 – 910
4.600	160	1650	1700	370	800 – 1060	2455 – 2715	700 – 910
2.100	200	1090	1150	165	820 – 1080	1880 – 2170	700 – 910
3.200	200	1340	1400	240	820 – 1080	2160 – 2420	700 – 910
4.600	200	1630	1700	370	820 – 1080	2455 – 2715	700 – 910

Class D cover

Volume [litres]	Connection [DN]	h_E [mm]	ø [mm]	Weight [kg]	d_{infl} [mm]	h_{tot} [mm]	EC [mm]
1.000	160	1325	1155	110	930 – 1130	2255 – 2455	700 – 1200
2.100	160	1110	1150	165	825 – 1085	1905 – 2195	700 – 910
3.200	160	1360	1400	240	825 – 1085	2185 – 2445	700 – 910
4.600	160	1650	1700	370	825 – 1085	2480 – 2740	700 – 910
2.100	200	1090	1150	165	845 – 1105	1905 – 2195	700 – 910
3.200	200	1340	1400	240	845 – 1105	2185 – 2445	700 – 910
4.600	200	1630	1700	370	845 – 1105	2480 – 2740	700 – 910

Accessories

>> page 76

for a greener planet

Climate change. Our world is currently facing huge challenges. In these times, we need role models. Inspirers who not only preach sustainability, but also put it into practice. Just as we at GRAF are already making an important contribution. After all, it's not just our solutions for rainwater management and other water-related applications that are sustainable through and through. The recycling plastic from which we manufacture our products is also sustainable.

For example, we turn short-lived food packaging into an EcoBloc infiltration module that lasts for generations. This is how we can make our cities a little safer against increasing heavy rainfall events. Or rainwater tanks that allow us to water our gardens with a clear conscience, even during hot spells. Quite incidentally recycling saves us about 100,000 tonnes of CO_2 every year – as much as more than 60,000 cars emit.

By the way: we recycle our products ourselves. Our raw materials competence centre makes us unique. It is our heart, which not only contains all our innovative power, but also our lifeblood. For a better world for all of us – for a greener planet.

Photo copyright: stock.adobe.com;
© contrastwerkstatt

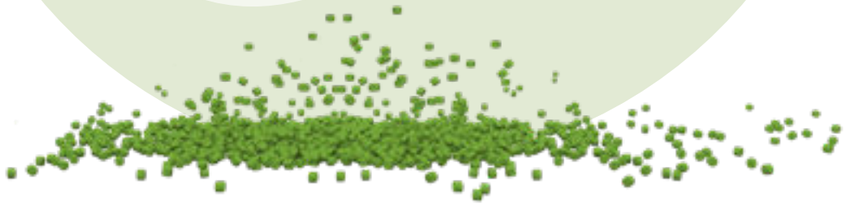
The GRAF recycling cycle

The beginning

Short-lived Packaging
and plastic waste

Pioneering recycling process

at GRAF raw materials competence centre



Raw material made by GRAF

Recyclate at quality level
of primary plastic

100 % GRAF

Durable, sustainable
environmental products

This is us

The whole world is talking about sustainability. For us, it has long been a natural part of our DNA. We recognized the potential of rainwater early on: „Rainwater is free“ was one of our first campaigns back in the 1970s. Rain barrels were produced in our family business as early as 1974. The first underground tanks for rainwater harvesting followed just four years later. GRAF rain barrels have been made from recycled material since 1980. By the way, rainwater is still free of charge. But in times of climate change, drought and heavy rain, sustainable water management is much more than that: it is a valuable contribution to our future.

For this we stand

- **75 %** share of recycling material
- Environmental products for **SUSTAINABLE** water management
- **100.000 TONNES CO_2** savings every year as much as more than 60,000 cars emit
- **LONG SERVICE LIFE** and spare parts supply
- Recycling material **FREE FROM POLLUTANTS**
- **80 %** share of renewable energies in production
- Products **FULLY RECYCLABLE**
- State-of-the-art production facilities for **LOW ENERGY CONSUMPTION**

For further information see:
www.graf.info/sustainability

learn more

GRAF

for a greener planet

Stormwater Management

Further details on infiltration, retention, and rainwater treatment can be found in our "Stormwater Management" range catalogue.

Please note:
Information on all products and systems in this brochure is subject to changes and errors.

Pictures and photographs are approximate only.

The applicable technical documentation for the products shall control, which we will be happy to send you on request.

All offers, deliveries and services are subject to our general terms and conditions, which we will also be happy to send you.

GRAF worldwide please visit
www.graf.info

RAINWATER HARVESTING

STORMWATER MANAGEMENT

WASTEWATER TREATMENT SOLUTIONS

SEPARATORS

GARANTIA GARDEN PRODUCTS & MULTI-PURPOSE CONTAINERS

Otto Graf GmbH
Kunststofferzeugnisse
Carl-Zeiss-Straße 2 – 6
DE-79331 Teningen

Tel.: +49 7641 589-0
Fax: +49 7641 589-50
export@graf.info

© Otto Graf GmbH/Art.-Nr. 960523/EN