Stormwater Management

QUALITY
MADE IN
GERMANY

Infiltration

Attenuation

Filter and shaft systems

Rainwater Treatment

EN 960288 V46

Water is our element

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 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.

Durable products, reliable investment

Right from the product development stage, GRAF attaches great importance to durable design.

Titel Photo: © FCerez via Getty Images

Seamless quality assurance

Our products portray an image of superlative production quality and reliability. Each part is then given a serial number. The production process for each and every tank is documented throughout. All production parameters, such as weight or material batch, are recorded for quality assurance.

Our goal: your satisfaction. Hundreds of thousands of satisfied customers already benefit from the advantages of GRAF rainwater harvesting systems.

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 rainwater solutions.

FOR A GREENER PLANET

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

>> page 68/69

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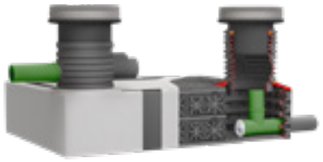
Attenuation



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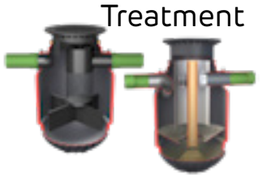
Rainwater Treatment



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WEBCODE G4107

- Installation instructions
- Detailed product information
- Downloads
- Tender offer

www.graf.info

Symbols in the catalogue

- Suitable for pedestrian loading
- Stackable
- Suitable for vehicle loading
- Inspectable
- Lorry-bearing
- High pressure flushable

Advice, planning and products from one source

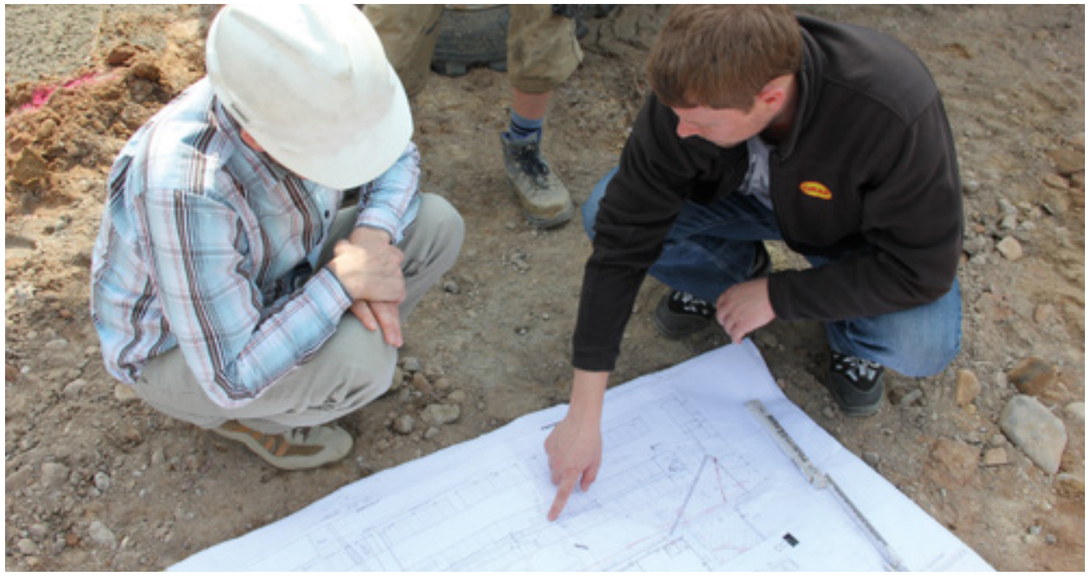
What we offer:

- **Sizing for infiltration / retention systems**
- **Dimensioning according to national standards and guidelines**
- **Assistance with drainage planning proposals**
- **Assistance and evaluation of site conditions**
- **Individual shop drawings for your project.**
- **BIM / REVIT data for our products**
- **Local partners for direct contacts**
- **Product experts to support your individual projects**

For sizing forms visit
>> www.graf.info

On-site support:

If you are planning an infiltration system and need on-site assistance or one-to-one advice from our technical team, then we can help. We work with you to develop customised systems to clean, store, infiltrate, attenuate or harvest rainwater.



Exports to over 80 countries

GRAF products are exported to more than 80 countries around the world. The GRAF Group has its own national companies in strategically important markets. We already generate most of our revenue outside of Germany – with this figure set to rise in the future. The share of our company's exports in relation to our total products has almost doubled in the past five years.

Sophisticated logistics with short reaction and delivery times play a crucial role in ensuring our high standards. With consistently high delivery performance of 99%, we ensure short-term availability at all times, even for seasonal items. Our products are expertly designed to save space during transport and on-site, reducing transportation costs significantly. By maximizing volume efficiency and stackability, we streamline your supply chain, offering you greater value and operational efficiency. Rely on our solutions for superior logistical benefits.

"The GRAF logistics department boasts consistently high delivery performance of 99%"

GRAF – Setting standards in quality

Otto Graf GmbH has been supplying high-quality plastic products to its customers for 50 years. In 1974, GRAF developed its first pioneering range of rainwater harvesting products. Today we are market leader in numerous countries for Rainwater Harvesting Systems.

Ecological products from the technology leader

GRAF uses state-of-the-art production facilities. This is the only way to guarantee superlative quality at attractive prices. GRAF broke new ground by using injection compression moulding to make the Carat underground tank. To manufacture this tank, the company developed and constructed the world's largest injection moulding machine.

Durable and 100% recyclable

Right from the stage of developing its products, GRAF attaches great importance to sustainable product design. Long product life ensures that fewer resources are used and the environmental impact is minimised. All products manufactured by GRAF are 100% recyclable.

Some products are also made from recycled materials – yet another boost to the environmental credentials of the GRAF product range. This means that not only do GRAF products protect the environment during use, but their manufacturing process is also ecologically sound.

GRAF Australia

GRAF UK

GRAF Poland

GRAF France

Infiltration

> EcoBloc Inspect flex — Page 10
> EcoBloc maxx / core — Page 16
> Rain Bloc compact 300 — Page 24
> Infiltration Tunnel / twin — Page 26
> XFlow 50-L / XFlow 50-S — Page 32

EcoBloc Inspect flex

Easy to install

The EcoBloc Inspect flex stands out for its lightweight construction, ease of handling, and minimal accessory requirements, making setup a breeze. Thanks to its self-centering design, vertical connectors are no longer necessary, further simplifying installation.

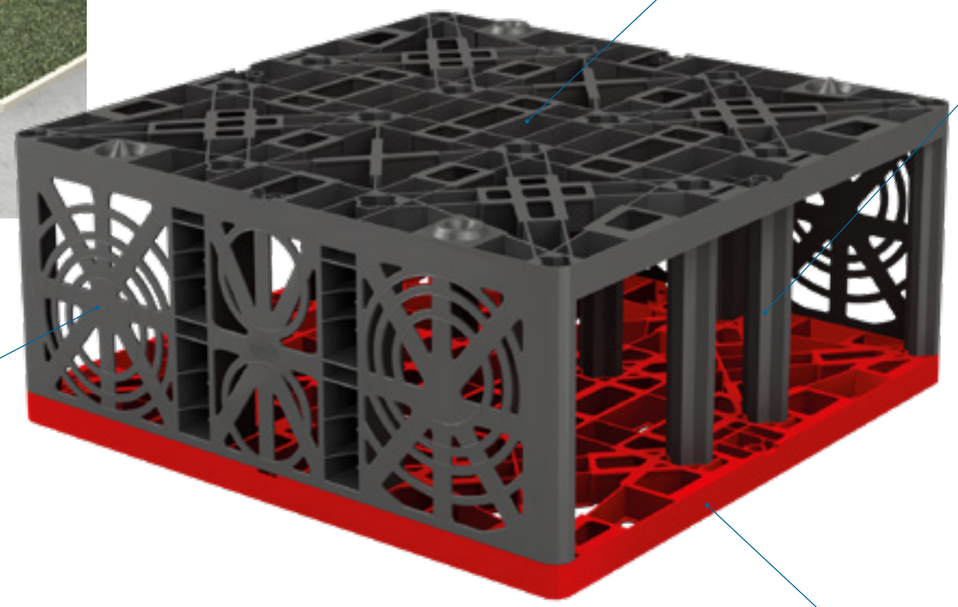
green planet collection

100 % RECYCLED

The EcoBloc Inspect flex is produced out of 100% recycled plastic. GRAF produces its own high quality polymers out of recycled plastic. You can find more information about it on >> page 68/69.

Lorry-bearing

The EcoBloc Inspect flex is suitable for lorry load bearing with an 800 mm (2' 7.5") earth covering.

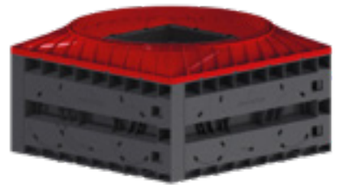


Service life of over 50 years

A durable product design ensures sustainability. Both the EcoBloc system and the Vario 800 flex shaft system are designed to last for over 50 years, providing long-term reliability and environmental benefits.

Fully integrated shaft

The Vario 800 flex shaft system (>> page 52) can be directly installed in an EcoBloc infiltration / attenuation system. The connection surfaces of the inspection channels in the Vario 800 flex shaft system are accurately matched to the EcoBloc Inspect flex system.

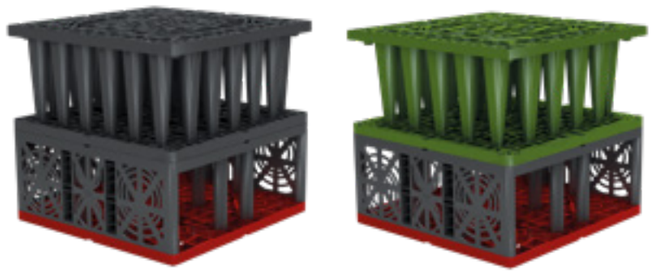


Easy to inspect

The standard inspection channel allows the entire infiltration / attenuation system to be monitored effectively. The EcoBloc Inspect flex allows access by commercially available inspection cameras. This has been confirmed by several independent testing authorities.

Improved logistics

Enhanced logistic efficiency by combining it with EcoBloc maxx or EcoBloc core.



EcoBloc Inspect flex

System overview

Flexible use

The Vario 800 flex shaft provides easy access to all EcoBloc modules. It can be used in many different ways:

- As an inspection shaft
- As an inlet shaft
- As a filter shaft
- As a flow control shaft

Easy to inspect

The Vario 800 flex shaft allows easy access to the EcoBloc system by commercially available inspection cameras. This has been confirmed by several independent testing authorities.

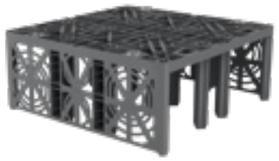
No additional excavation

The Vario 800 flex shaft system can be directly installed in an EcoBloc infiltration or attenuation system. The connection surfaces of the inspection channels in the Vario 800 flex shaft system are accurately matched to the EcoBloc Inspect flex system.

EcoBloc Inspect flex

- Suitable for lorry load bearing
- 150 m³ (39,600 US gal.) / Truck
- Inspectable
- High pressure jetting possible

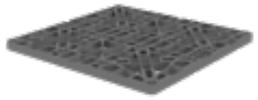
WEBCODE G4107



EcoBloc Inspect flex

DN110 (4") / DN160 (6") / DN200 (8") connecting surfaces

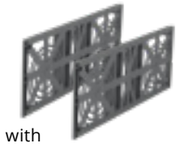
Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
205 (54.2 US gal.)	800 (2' 7.5")	800 (2' 7.5")	320 (12.6")	402005



EcoBloc Inspect flex base plate

Forms the foundation of the EcoBloc Inspect flex system

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
25 (6.6 US gal.)	800 (2' 7.5")	800 (2' 7.5")	40 (1.6")	402006



EcoBloc Inspect flex end plates

The front ends of an EcoBloc Inspect flex system are sealed by end plates with DN110 (4") / DN125 (5") / DN160 (6") / DN200 (8") contact surfaces

Item	Order no.
Set (2 units)	402002

EcoBloc System accessories

EcoBloc connectors

For horizontal connection

Set 10 units
Order no. 402015

Set 25 units
Order no. 402018

Set 200 units
Order no. 402025

Set 600 units
Order no. 402026

Deaeration end

DN 110 (4")
Order no. 369017

DN160 (6") / DN200 (8"), excl. connection pipe
Order no. 369046

EcoBloc adaptor plate

Connection dimensions up to DN630 can be achieved with the optional adaptor plate. Accessories included.

DN200 (8") / DN250 (10")
Order no. 402036

DN315 (12") / DN400 (16") / DN500 (20")
Order no. 402033

DN630 (25")
Order no. 402040

GRAF-Tex geotextile

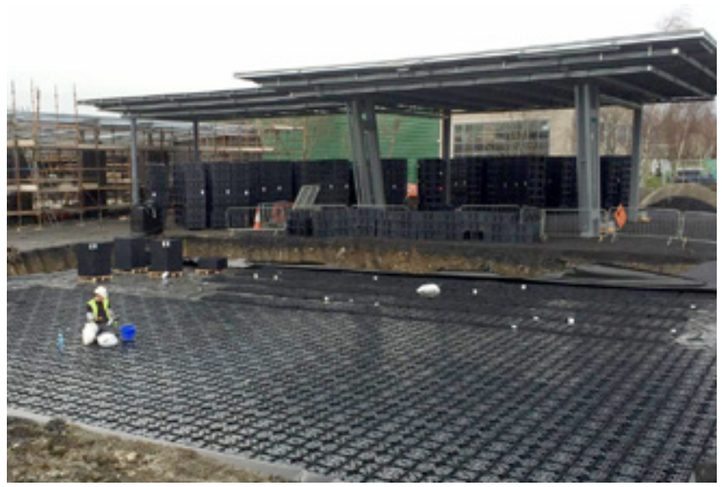
Sold by the metre, roll width 5 m (16' 4.9")

Order no. 231002

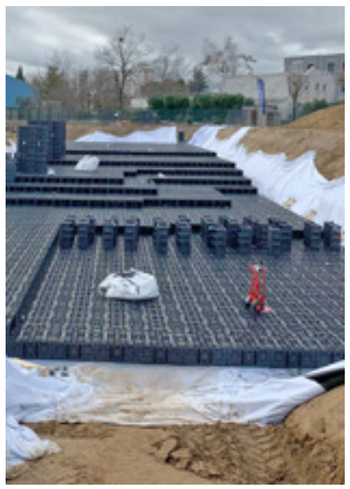
EcoBloc Inspect flex

Case studies

Factory extension, Sandrigo (IT)



Service Station, Dublin (IRE)



Retailer, Anzézieux-Bouthéon (FR)

Senior residence, Leipzig (DE)

Football Stadium, Linz (AT)

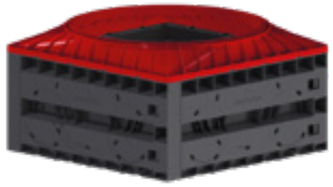
Warehouse, Jandakot (AU)

Train station, Luxembourg (LU)

EcoBloc maxx / core

Fully integrated shaft

The Vario 800 flex shaft system (>> page 52) can be directly installed in an EcoBloc infiltration / attenuation system.



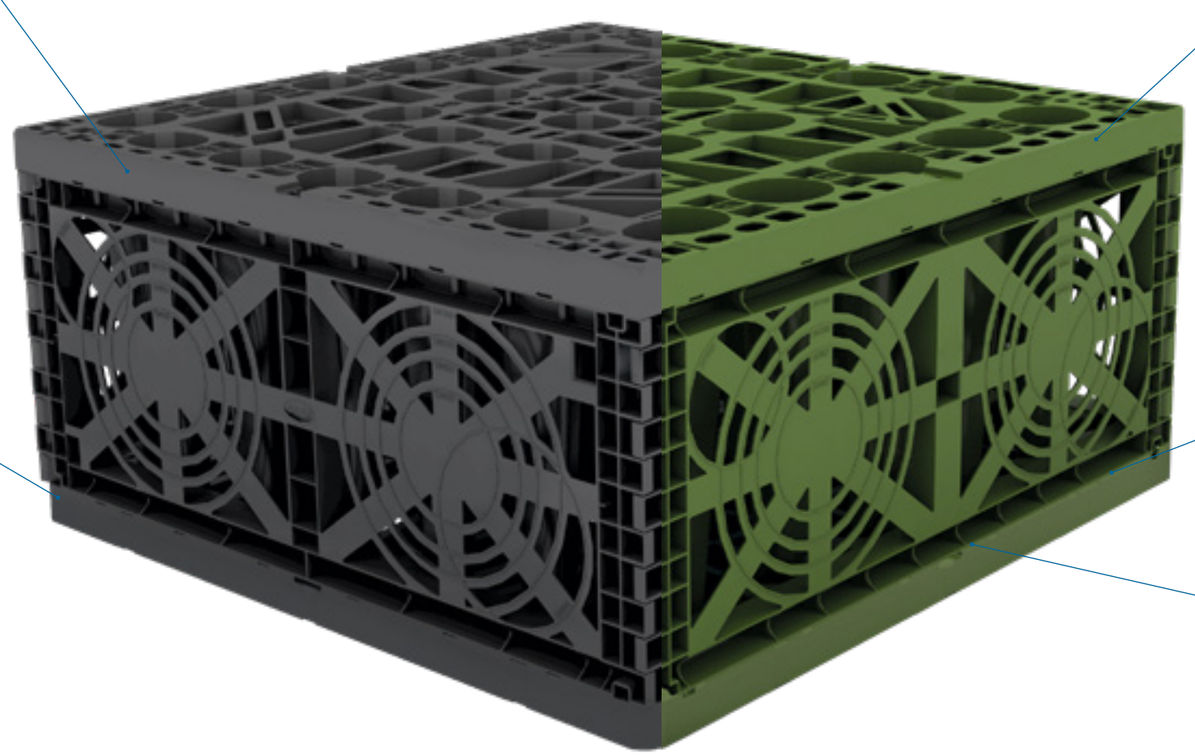
green planet collection

100 % RECYCLED

The EcoBloc maxx and core are produced out of 100 % recycled plastic. GRAF produces its own high quality polymers out of recycled plastic. You can find more information about it at >> page 70/71.

Up to 97 % storage volume

The EcoBloc core has a gross volume of 225 litres (59.4 US gal.) and a storage volume of 219 litres (57.9 US gal.). With a storage volume in excess up to 97 %, it is a market-leading product. The EcoBloc maxx still offers a storage coefficient of 96 % despite the high load-bearing capacity.



Lorry-bearing

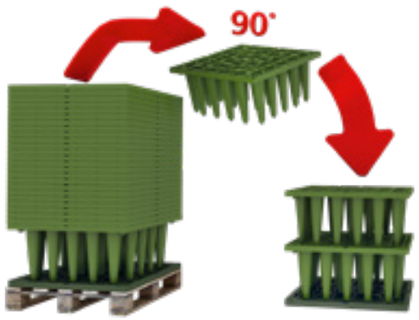
The EcoBloc maxx is suitable for lorry load bearing with an 800 mm (2' 7.5") earth covering.

Service life of over 50 years

A durable product design ensures sustainability. The EcoBloc system and the Vario 800 flex shaft system are designed for a service life of over 50 years.

Easy to inspect

Combination with EcoBloc inspect flex possible to make the system inspectable and cleanable.



1. Stackable

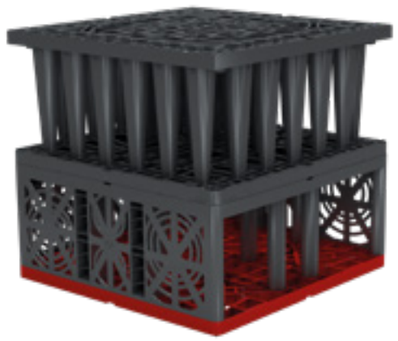
To save space during transport, the EcoBloc maxx and EcoBloc core modules are stacked into each other. This minimizes transport costs, storage space in stock and CO2 emissions.

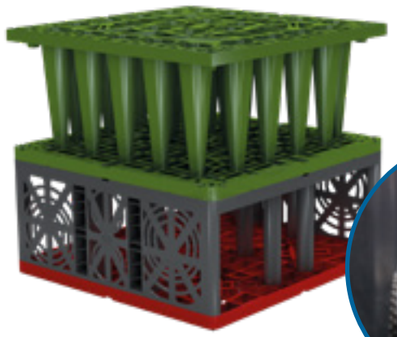
2. Easy installation

The EcoBloc base plate forms the foundations of each EcoBloc system. Up to 13 EcoBloc modules can be fitted on one base plate.

3. Ready

The side faces are sealed with EcoBloc end plates. The EcoBloc system can be adapted to match individual requirements.





EcoBloc maxx / core

EcoBloc maxx

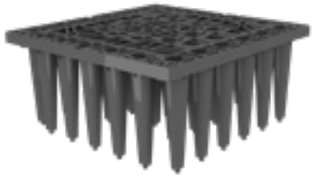
- 410 m³ (108,310 US gal.) / Truck
- Suitable for lorry load bearing
- 96% Storage coefficient

WEBCODE G4108

EcoBloc core

- 610 m³ (161,140 US gal.) / Truck
- Vehicle loading
- 97% Storage coefficient

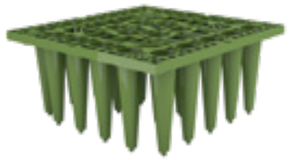
WEBCODE G4109



EcoBloc maxx

Connecting surfaces on EcoBloc maxx end plates

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
225 (59.4 US gal.)	800 (2' 7.5")	800 (2' 7.5")	350 (13.8")	402200



EcoBloc core

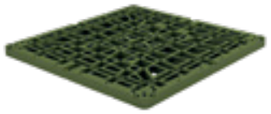
Connecting surfaces on EcoBloc core end plates

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
225 (59.4 US gal.)	800 (2' 7.5")	800 (2' 7.5")	350 (13.8")	402300

EcoBloc maxx base plate

Forms the foundation of the EcoBloc maxx system

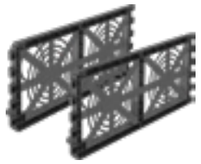
Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
25 (6.6 US gal.)	800 (2' 7.5")	800 (2' 7.5")	40 (1.6")	402201



EcoBloc core base plate

Forms the foundation of the EcoBloc core system

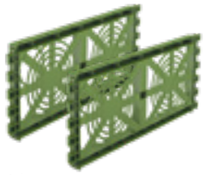
Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
25 (6.6 US gal.)	800 (2' 7.5")	800 (2' 7.5")	40 (1.6")	402301



EcoBloc maxx end plates

The outside surface of an EcoBloc maxx system is sealed by end plates with contact DN110 (4") / DN160 (6") / DN200 (8") / DN250 (10").

Item	Order no.
Set (2 units)	402203



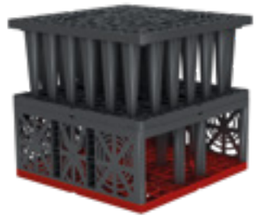
EcoBloc core end plates

The outside surface of an EcoBloc core system is sealed by end plates with contact DN110 (4") / DN160 (6") / DN200 (8") / DN250 (10").

Item	Order no.
Set (2 units)	402303

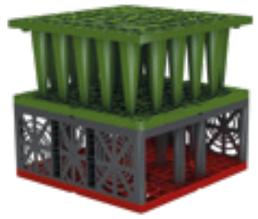
EcoBloc Inspect flex & maxx

- Suitable for lorry load bearing
- 96% Storage coefficient
- Inspectable
- High pressure jetting possible



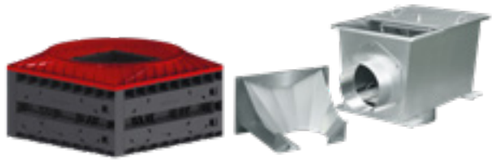
EcoBloc Inspect flex & core

- Vehicle loading / H-15 load bearing
- 97% Storage coefficient
- Inspectable
- High pressure jetting possible



Shaft & shaft accessories

- >> page 50
- Pre-filtration
- internal and external shafts



Attenuation

- >> page 37
- EcoBloc attenuation build up
- Outflow regulators

EcoBloc System accessories

EcoBloc connectors

For horizontal connection

Set 10 units	Order no. 402015
Set 25 units	Order no. 402018
Set 200 units	Order no. 402025
Set 600 units	Order no. 402026

Deaeration end

DN110 (4")	Order no. 369017
DN160 (6") / DN200 (8"), excl. connection pipe	Order no. 369046

EcoBloc adaptor plate

Connection dimensions up to DN630 can be achieved with the optional adapter plate. Accessories included.

DN110 (4") / DN160 (6")	Order no. 402037
DN200 (8") / DN250 (10")	Order no. 402036
DN315 (12") / DN400 (16") / DN500 (20")	Order no. 402033
DN630 (25")	Order no. 402040

GRAF-Tex geotextile

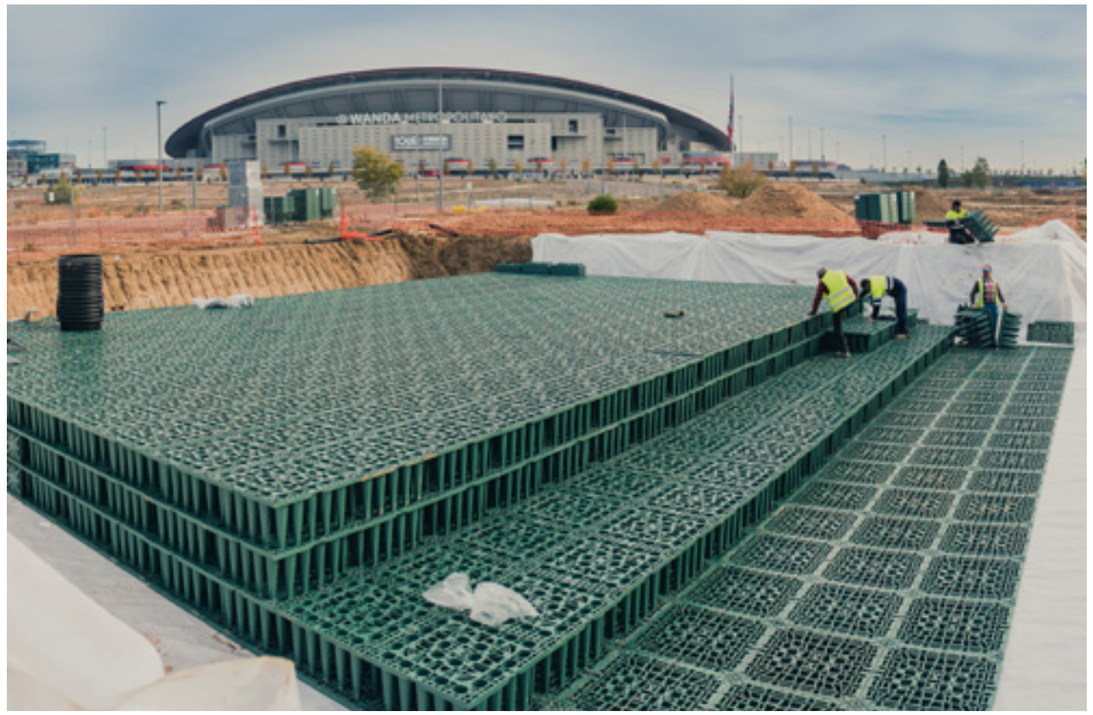
Sold by the metre, roll width 5 m (16' 4.9")

Order no. 231002

EcoBloc maxx / core

Case studies

Warehouse, Vinterbo (NO)



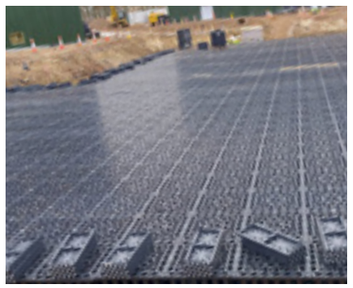
Football Stadium, Madrid (ES)

Infrastructure, South Al-Mutlaa (KW)

Housing development, Acapulco (MX)

Brewery, Kerry (IRE)

Housing development, Bétera (ES)



Studio, Hertfordshire (GB)

Rain Bloc compact 300

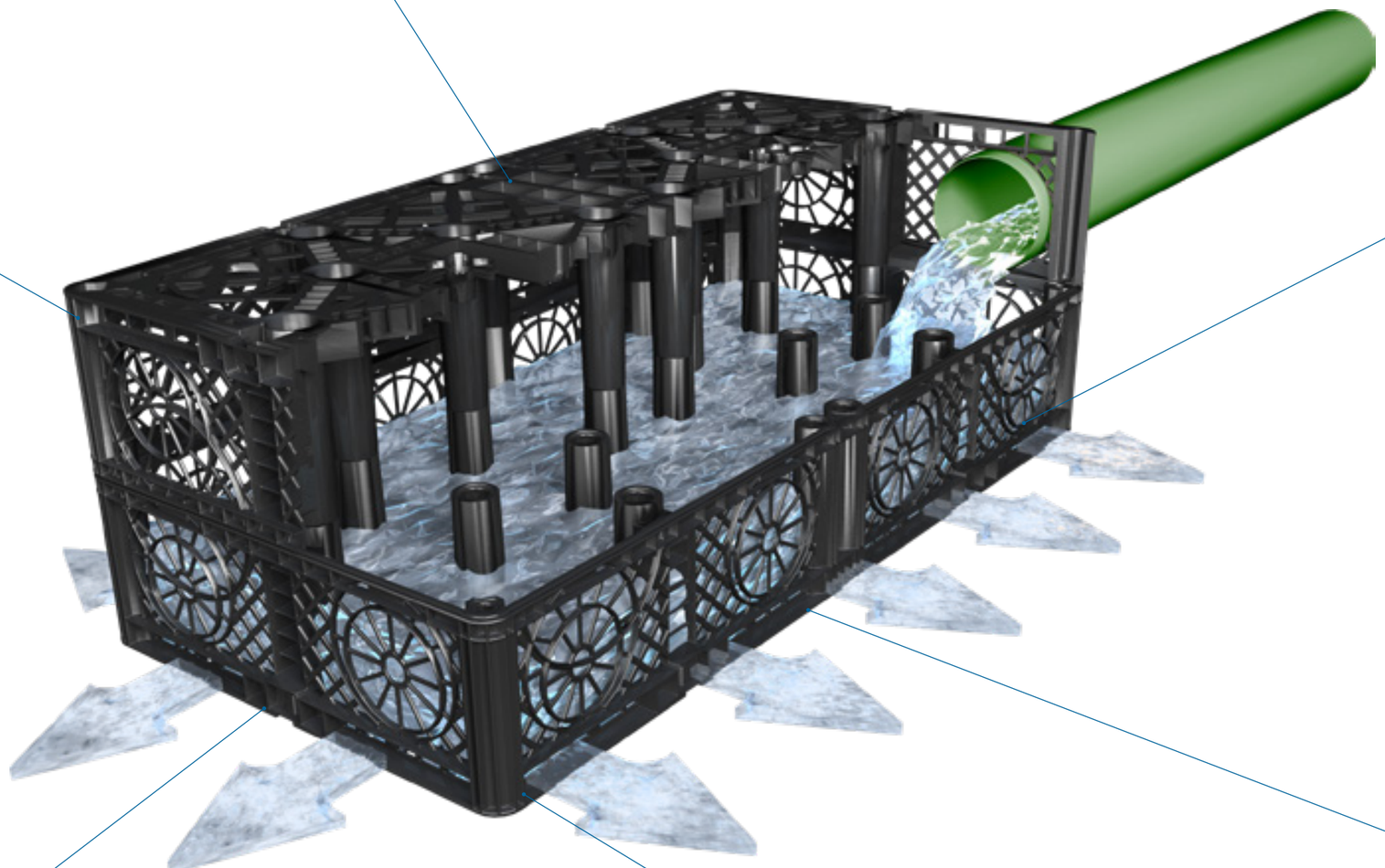
Lorry-bearing

The Rainbloc compact 300 is suitable for lorry load bearing with an 800 mm (2’ 7.5”) earth covering.

green planet collection

100 % RECYCLED

The Rainbloc compact 300 is produced out of 100% recycled plastic. GRAF produces its own high quality polymers out of recycled plastic. You can find more information about it on >> page 68/69.

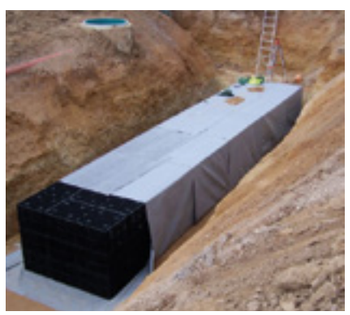


95% storage volume

The Rainbloc compact 300 has a gross volume of 300 litres (79.3 US gal.) and a storage volume of 285 litres (75.3 US gal.).

Minimal Design – Maximum Efficiency

The Rainbloc compact 300 embodies a purist approach to functionality. With no need for end plates or base plates, the system is stripped down to the essentials.



Easy to install

The Rainbloc compact 300 offers a truly effortless installation process. Thanks to its intuitive modular design, the units are simply stacked in an offset layout and securely connected using horizontal and vertical connectors. No complex tools or techniques required.

Service life of over 50 years

A durable product design ensures sustainability. The Rainbloc compact 300 is designed to last for over 50 years, providing long-term reliability and environmental benefits.

Connections up to DN200 (8”)

The Rainbloc compact 300 has integrated contact surfaces on each side of the module to connect inlet or outlet diameters up to DN200 (8”).

Rain Bloc compact 300

Rain Bloc compact 300

- Suitable for lorry load bearing
- No end plates or base plates needed

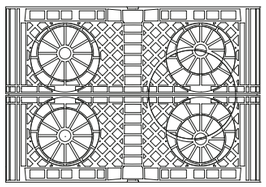
green planet collection
100 % RECYCLED

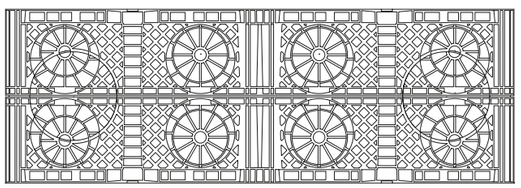
WEBCODE G4110

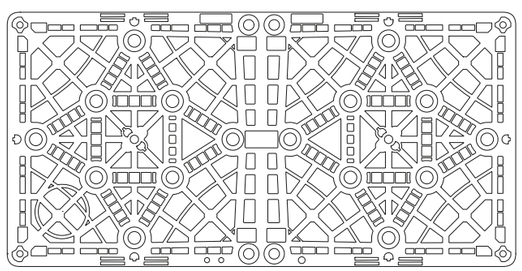
Rain Bloc compact 300

Contact surfaces DN110 (4") / DN125 (5") / DN160 (6") / DN200 (8")

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
300 (79.3 US gal.)	1200 (47.2")	600 (23.6")	420 (16.5")	360050







Rain Bloc compact 300 accessories

Connecting elements
For horizontal connection.

Set 10 units
Order no. 402015

Set 25 units
Order no. 402018

Set 200 units
Order no. 402025

Set 600 units
Order no. 402026

Deaeration end

DN110 (4"), incl. connection pipe
Order no. 369017

DN160 (6") / DN200 (8"), excl. connection pipe
Order no. 369046

GRAF-Tex geotextile

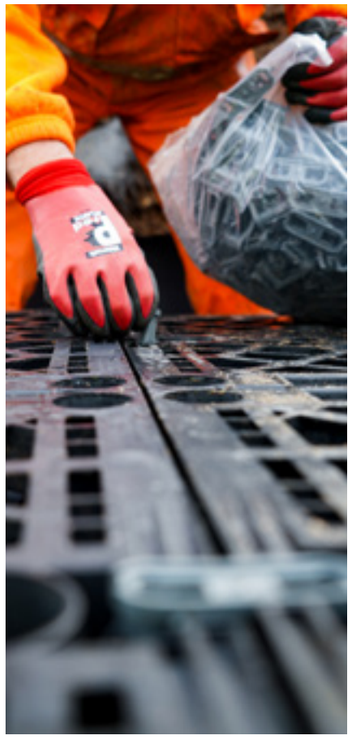
Sold by the metre, roll width 5 m (16' 4.9")
Order no. 231002

External filters and shafts

>> page 54

Case Study

New housing development in Mitcham, London (UK)



Infiltration Tunnel / twin

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. The installation is possible without heavy equipment, as one Infiltration Tunnel only weights 11 kg (24.3 lbs). The tunnel modules are simply stuck together in one line and equipped with 2 end plates per line.

The Infiltration Tunnel / twin is produced out of 100 % recycled plastic. GRAF produces its own high quality polymers out of recycled plastic. You can find more information about it at >> page 68/69.

Infiltration Tunnel twin – Twice the volume with the same space requirement

Upon request, the Infiltration Tunnel twin 600 litres (158.5 US gal.) offers volume through the connection of two identical Infiltration Tunnel modules.

300 l Volume

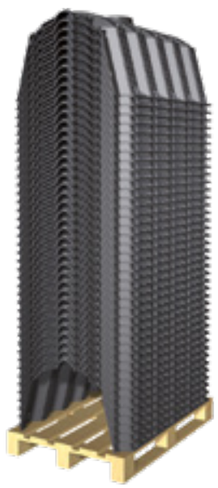
The compact dimensions combined with a storage coefficient of 100 % result in a useful volume of 300 l (79.3 US gal.).

Lorry-bearing

The GRAF Infiltration Tunnel 300 is suitable for lorry load bearing with an 800 mm (2' 7.5") earth covering.

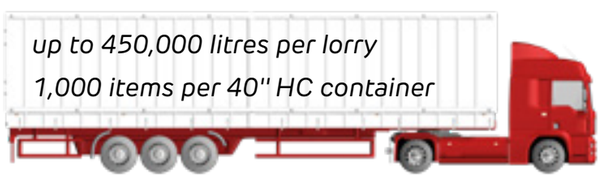
Connections up to DN315 (12")

Large infiltration volumes require large pipe diameters. For the GRAF Infiltration Tunnel, this is not a problem: each end plate features connections in the sizes DN110 (4") / DN160 (6") / DN200 (8") and DN315 (12"). In addition, connections in the sizes DN110 (4") and 200 (8") are provided on the upper surface for the connection of a ventilation system or an inspection opening.



Up to 12,000 litres infiltration volume per pallet

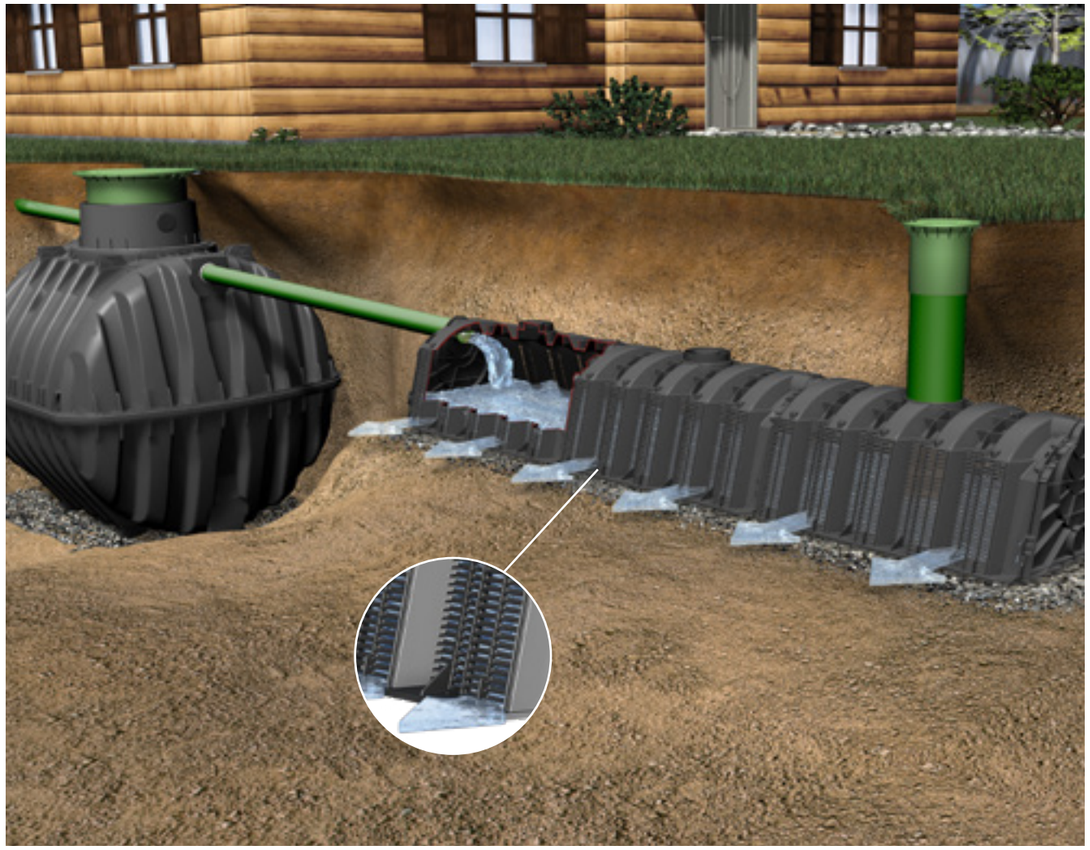
Thanks to its special design, the GRAF Infiltration Tunnel can be stacked easily. Consequently, the shipment of up to 40 Infiltration Tunnels on one pallet saves considerable transport and storage costs.



High infiltration performance

The ditch elements are placed directly upon an even layer of gravel. The sides are then covered with geotextile and the end faces are closed using end plates. This installation and the side slats ensure a permanent high infiltration performance.

Infiltration Tunnel / twin

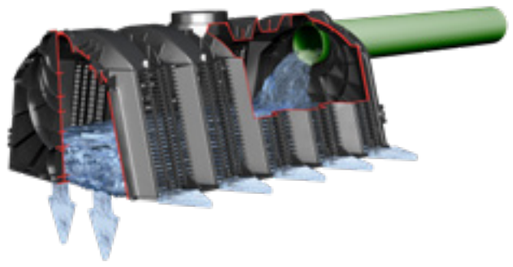


A percolation system downstream of the sewage treatment plant offers optimal disposal of the clarified wastewater. Only a soil with percolation capacity and a minimum distance of 1 meter (3' 3.4") from the groundwater level at the tunnel base are required. The percolation system consists of several tunnel modules as well as two end plates and can be dimensioned as desired.

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 (24.3 lbs). The tunnel modules are simply joined together in a line and two end plates are fitted per line.



Wastewater Treatment Solutions

>> Further details on wastewater treatment and seperators for grease and oil can be found in our "Wastewater Treatment Solutions" range catalogue.

Infiltration Tunnel 300

WEBCODE G4103

- Suitable for lorry load bearing
- 300 m³ (79,250 US gal.) Container
- Inspectable

Infiltration Tunnel 300

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
300 (79.3 US gal.)	1160 (3' 9.7")	800 (2' 7.5")	510 (1' 8")	230010

Infiltration Tunnel twin 600

WEBCODE G4104

- Suitable for vehicle load bearing
- 300 m³ (79,250 US gal.) Container
- Inspectable

Infiltration Tunnel twin 600

Click bold connectors included

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
600 (158 .5 US gal.)	1160 (3' 9.7")	800 (2' 7.5")	1020 (3' 4.2")	410130

Infiltration Tunnel 130

Volume [l]	Length [mm]	Width [mm]	Height [mm]	Order no.
130 (34.3 US gal.)	1190 (3' 10.9")	500 (1' 7.7")	320 (1' 0.6")	410200

End plate for Infiltration Tunnel 300/-twin 600

Contact surfaces DN110 (4") / DN160 (6") / DN200 (8") / DN315 (12")

Item	Order no.
Set (2 units)	231004

End plate for Infiltration Tunnel 130

Contact surfaces DN110 (4")

Item	Order no.
Set (2 units)	410203

Inspection end

DN200 (8")

Order no. 340527

GRAF-Tex geotextile

Sold by the metre, roll width 5 m (16' 4.9")

Order no. 231002

Sold by the metre, roll width 2.5 m (8' 2.4")

Order no. 231007

GRAF click bolt connectors

Connector for Infiltration Tunnel twin (set of 6 pcs. for one Infiltration tunnel twin 600)

Order no. 410094

Deaeration end

DN110 (4"), incl. connection pipe

Order no. 369017

DN160 (6") / DN200 (8"), excl. connection pipe

Order no. 369046

External filters and shafts

>> page 54

Infiltration Tunnel / twin

Case studies

Football Stadium, Havre (FR)

Housing development, Lecco (IT)

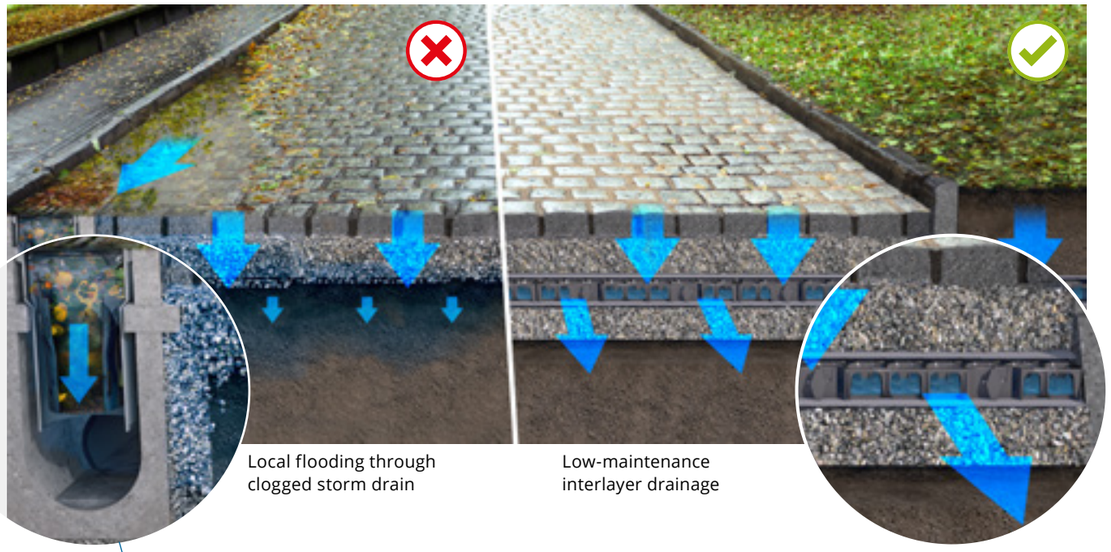
Campsite, Kiew (UA)

Housing development, Quinta da Balreeia (PT)

Housing development, Powode Zdjecie (PL)

Military Area, Mazuren (PL)

XFlow
Advantages



Local flooding through clogged storm drain

Low-maintenance interlayer drainage

- Service vehicle required
- Bad maintenance is only detectable during heavy rain events
- Storm drain deepest point – vulnerable to dirt

- Easy maintenance of catchment area
- No labor intensive maintenance and inspection necessary
- Ideal for areas outside of the regular maintenance scope
- Only the usual cleaning work is necessary on carparks and traversable surfaces and paths
- No further underground construction products required
- Fast detection of missing service

XFlow
System overview and components

XFlow 50-S

- Suitable for lorry load bearing
- 1 cell = 0.16 m² (1.72 ft²) infiltration / collector area
- Storage coefficient of 85 %
- Gross / net volume: 8.2 l (2.17 US gal.) / 7.0 l (1.85 US gal.)

green planet collection
100 % RECYCLED

XFlow 50-L

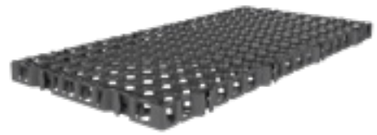
- Suitable for lorry load bearing
- 1 cell = 0.64 m² (6.89 ft²) infiltration / collector area
- Storage coefficient of 88 %
- Gross / net volume: 32.6 l (8.61 US gal.) / 28.7 l (7.58 US gal.)

green planet collection
100 % RECYCLED

XFlow 50-S

Drainage cell with one quarter of the area for installation over small areas or for supplementing edge areas around large installations with XFlow 50-L.

Area [m²]	Length [mm]	Width [mm]	Height [mm]	Order no.
0.16 (1.72 ft²)	560 (22")	280 (11")	52 (2")	495001



XFlow 50-L

Drainage cell ideal for large installations with high savings potential in installation time and work.

Area [m²]	Length [mm]	Width [mm]	Height [mm]	Order no.
0.64 (6.89 ft²)	1120 (44")	560 (22")	52 (2")	495000

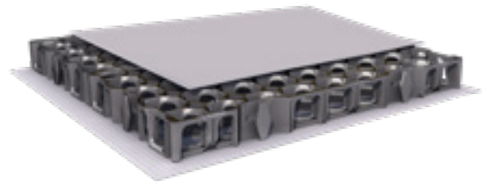
WEBCODE G4701

Accessories

GRAF-Tex geotextile

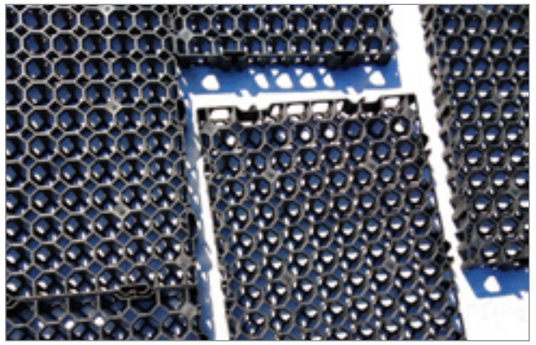
Sold by the metre, roll width 5 m (16' 4.9")

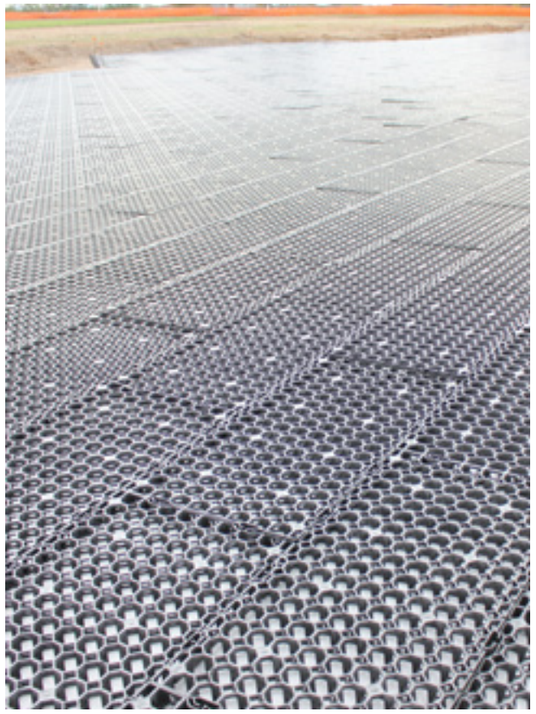
Order no. 231002



XFlow

Case study





Summary

- Dachstein (France)
- Products: XFlow 50-L & XFlow 50-S
- Application: Interlayer drainage
- Specifics:
  - Installation time with 5 installers:
    XFlow 50-L 2,500 – 2,700 m²/day (26,909.8 – 29,062.6 ft²/day)
    XFlow 50-S 1,500 – 1,700 m²/day (16,145.9 – 18,298.7 ft²/day)
  - 27,090 m² (291,594.3 ft²) covered surface

The extensive expansion of outdoor storage area in Alsace, France was the goal of this construction. An area of more than three football fields will be used to store goods, pallets and others products. The area shall be usable also in heavy rain conditions and floods/damages must be avoided. So, landowner decided to combine permeable grid on the surface with GRAF XFlow 50-L and 50-S in top layers to prevent flooding and store temporarily stormwater during stormy weather.

The rainwater will infiltrate from GRAF XFlow drainage cells directly into the soil or is lead through the cells to an overground sewer system. GRAF XFlow drainage cells ensure high-volume for stormwater and best hydraulic performance on each square meter of installation under permeable pavements, grid areas or similar. The two product dimensions serve fastest installations with GRAF XFlow 50-L and highest flexibility in design and landscape forms with GRAF XFlow 50-S.

Attenuation

> Overview Page 38
> Attenuation with EcoBloc Page 40
> Detention and retention cisterns Page 42
> Outflow regulators Page 44

Why attenuation?

An attenuation tank is a simple system used to hold excess water. It receives water through inlets, which can include pipes and channel drains, and usually has one outlet. The tank acts as a void to allow the water to build up and prevent overwhelming downstream drains during heavy storms.

Detention – Tank systems to temporary store and release stormwater

A detention tank is an attenuation tank which contains an outlet at the bottom of the tank. This outlet typically contains a flow control device to regulate the water's discharge rate.

Retention – The combination of detention and rainwater harvesting

A retention tank is the combination of detention and rainwater harvesting. The lower part of the retention tank is designed as rainwater harvesting volume. Right above the defined useful volume of the tank, a flow regulator is installed to release the excessing stormwater controlled through the outlet.

Solutions for attenuation

Attenuation with EcoBloc

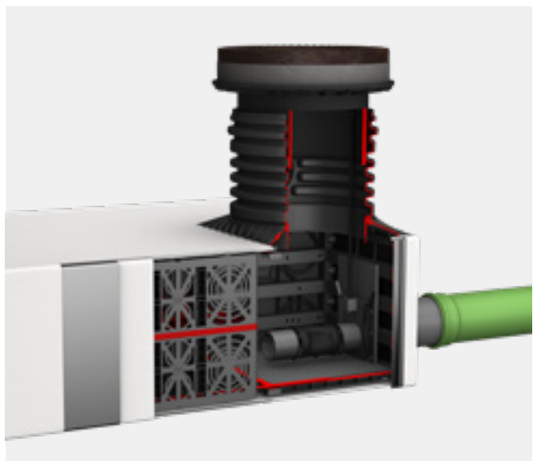
The flexible and individual solution to build a detention tank

>> page 40/41

Pre-fabricated tanks

Tank systems to create a detention or retention system fast and easy

>> page 42/43



Outflow regulators

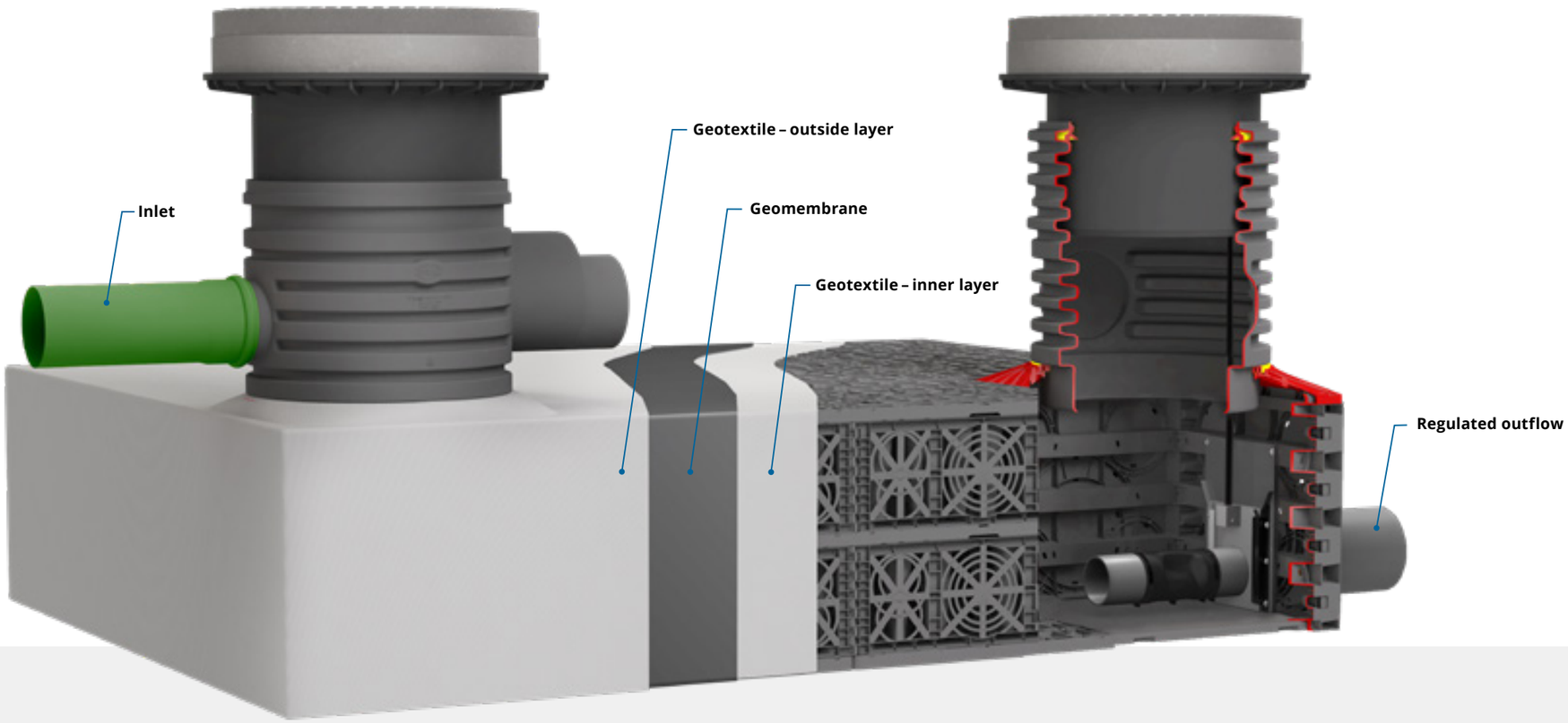
Static, hydro-dynamic flow regulators and the new Eco Flow Control to release the stormwater at a controlled rate.

>> page 44/45

Attenuation with EcoBloc

Retention volumes can be built both with pre-fabricated tank systems (e.g., with the Carat S) and with the EcoBloc system. In the EcoBloc variant, these are completely wrapped with a three-layer construction of geotextile, waterproof geomembrane, and geotextile. The inner layer of geotextile serves to protect the waterproof geomembrane from sharp block edges. The outside layer of geotextile prevents damage from surrounding soil or stones.

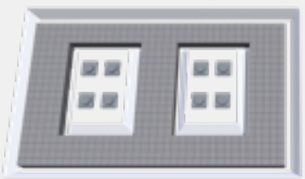
WEBCODE G4310



The flexible solution

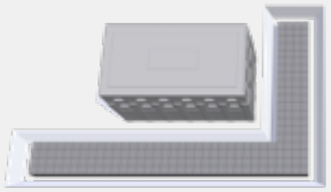
Building envelope

The advantages of constructing an attenuation system with EcoBloc include optimal adaptation to disturbances within the building envelope. The modular EcoBloc can be modeled to fit any dimensions and geometries of the respective building envelope. In contrast to conventional attenuation tanks, larger volumes can therefore be realized.



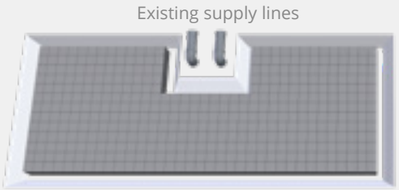
Foundations

The positioning and definition of attenuation systems often happen after the building planning phase. This can lead to the need for adjustments to accommodate planned foundations in the subsoil or existing supporting elements. Larger monolithic attenuation tanks may offer limited flexibility in such situations. However, attenuation systems made of EcoBloc can be positioned and placed around foundations or infrastructure in the soil, providing greater adaptability to the site's requirements and allowing for more efficient use of available space.



Angular geometries

The right-angled dimensions of the EcoBloc family and the corresponding Vario 800 flex shaft system with very short side lengths of 0.8 m (2' 7.5") allow for individual adaptation to building edges or infrastructure. Conventional monolithic tanks are usually circular in dimensions, and the available space is not adequately utilized, especially with right-angled boundaries.



Bypassing existing infrastructure

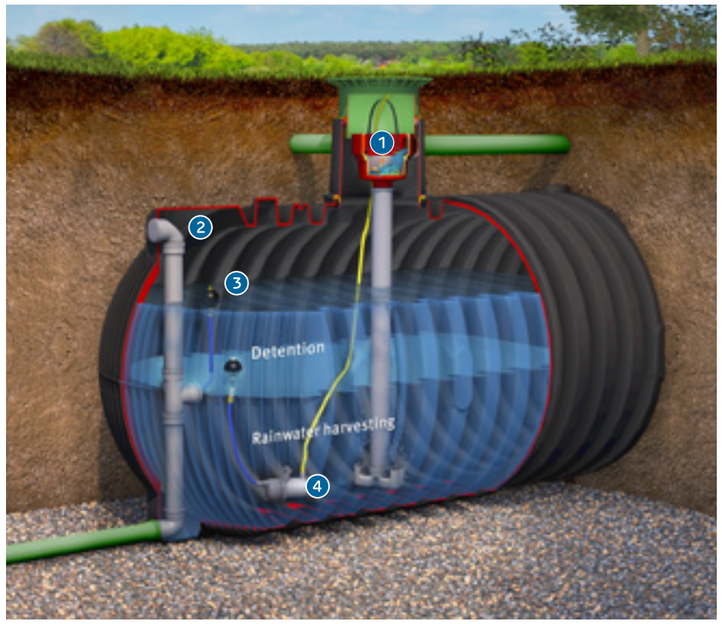
Existing infrastructure such as existing gas lines or sewer lines restrict the possible installation positions and dimensions of attenuation systems. The EcoBloc can be built around the infrastructure in any shape and level, offering optimal usable volume even in complex building envelopes.

Detention and retention cistern

Detention cisterns

Tank systems to temporary store and release stormwater

1. Inlet filter system
2. Emergency overflow
3. Outflow regulator



Retention cisterns plus

The combination of detention and rainwater harvesting

1. Inlet filter system
2. Emergency overflow
3. Outflow regulator
4. Irrigation pump

Carat

WEBCODE G4301 | WEBCODE G4302

Volume [l]	Order no. Detention	Order no. Retention
2,700 (700 US gal.)	370500	–
3,750 (1,000 US gal.)	370501	370519
4,800 (1,250 US gal.)	370502	370520
6,500 (1,700 US gal.)	370503	370521

Carat XL

WEBCODE G4307 | WEBCODE G4308

Volume [l]	Order no. Detention	Order no. Retention
8,500 (2,240 US gal.)	370504	370523
10,000 (2,640 US gal.)	370505	370525
13,000 (3,430 US gal.)	370535	370536

Carat XXL

WEBCODE G4305 | WEBCODE G4306

Volumes from 16,000 l (4,230 US gal.) up to 122,000 l (32,230 US gal.) available

Platin

WEBCODE G4303 | WEBCODE G4304

Volume [l]	Order no. Detention	Order no. Retention
1,500 (400 US gal.)	390300	–
3,000 (800 US gal.)	390301	390312
5,000 (1,325 US gal.)	390302	390315
7,500 (1,980 US gal.)	390305	390324

Platin XL

WEBCODE G4312 | WEBCODE G4314

Volume [l]	Order no. Detention	Order no. Retention
7,500 (1,980 US gal.)	390339	390340
10,000 (2,640 US gal.)	390327	390329
15,000 (3,960 US gal.)	390328	390330

Platin XXL

WEBCODE G4313 | WEBCODE G4315

Volumes from 20,000 l (5,284 US gal.) up to 65,000 l (17,172 US gal.) available

Shafts Covers

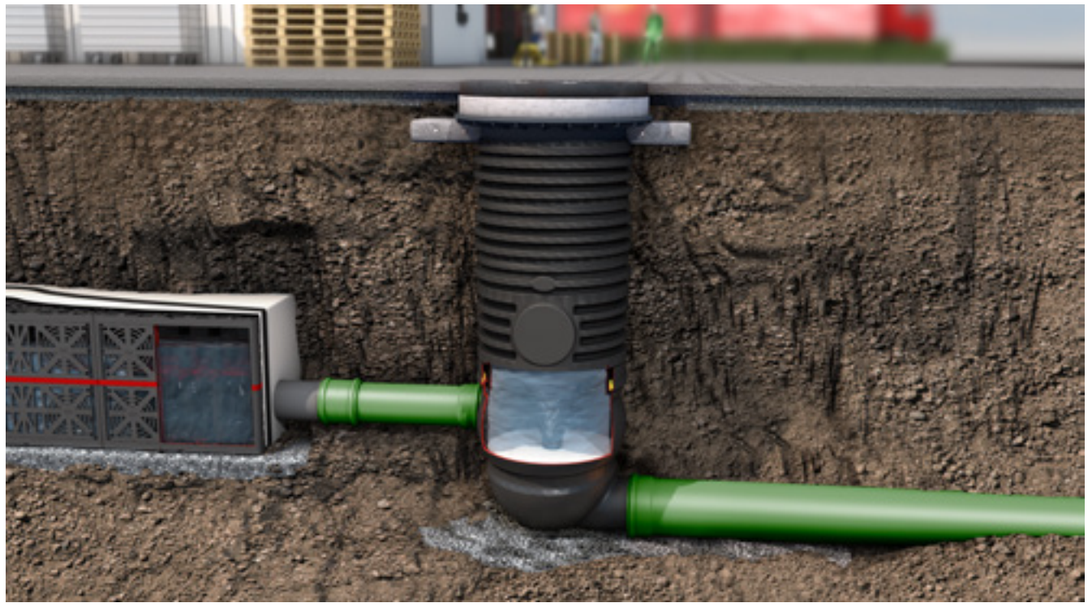
>> page 60/61

>> Further details on retention and rainwater harvesting can be found in our "Sustainable Rainwater Management" range catalogue.

VS-Control flex M

Outflow regulators

The vortex flow control shaft allows for the regulation of volume flows of up to 55 liters per second (l/s) (14.5 US gal./s). Specifically, the vortex flow control shaft model VS-Control flex M is well-suited for integration into attenuation systems equipped with Graf EcoBloc elements or GRAF cisterns. This system ensures precise control over water flow rates, making it an ideal solution for managing stormwater runoff in various applications.



VS-Control flex M

- Minimum height loss 420 mm (1' 4.5")
- Individually adjustable throttle discharge capacity
- Project-specific dimensioning of the replaceable orifice
- Easy inspections thanks to the horizontal arrangement of the orifice
- 360° DN250 (10") discharge rotation for flexible configurations

Diameter	Inlet size	Outlet size	Order no.
DN630 (25")	DN200 (8")	DN250 (10")	340171

WEBCODE G4331

Spare part set VS-Control flex M

Order no. 340180

Shafts Covers

>> page 60/61

Choke drain shaft and flow regulators

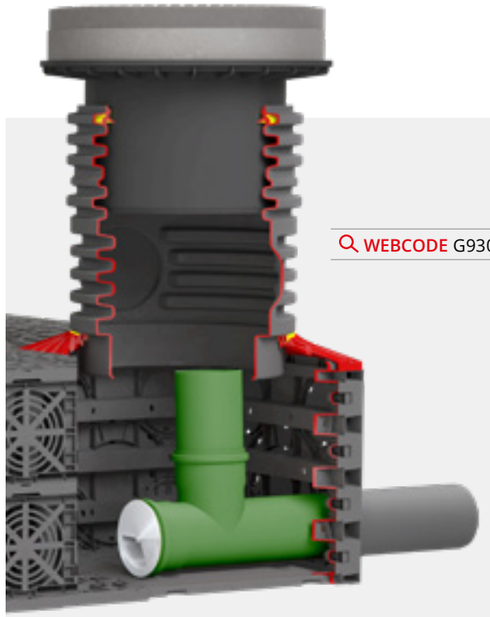
Outflow regulators

Choke drain shaft

WEBCODE G4330

Choke drain DN110 (4") and emergency overflow included.
Ajustable discharge can be set project-specifically.

Loading class	Order no.
pedestrian	340028
vehicle	340029
lorry	340019



WEBCODE G9305

Choke drain

Adjustable discharge can be set project-specifically

For piping	Adjustable discharge	Order no.
DN110 (4")	0.5 up to 10 l/s (0.1 US gal./s to 2.6 US gal./s)	340512
DN160 (6")	1.0 up to 35 l/s (0.3 US gal./s to 9.2 US gal./s)	340548
DN200 (8")	1.5 up to 60 l/s (0.4 US gal./s to 15.9 US gal./s)	340557
DN315 (12")	15 up to 75 l/s (4 US gal./s to 19.8 US gal./s)	340558

Vario 800 flex shaft Flow regulator packages

Adjustable discharge can be set project-specifically

Choke drain set 1 DN110 (4")

Includes DN200 (8") emergency overflow, choke drain DN110 (4") and PE-HD pipe for film welding

Order no. 369005

Choke drain set 2 DN160 (6")

Includes DN200 (8") emergency overflow, choke drain DN160 (6") and PE-HD pipe for film welding

Order no. 369006

Choke drain set 4 DN200 (8")

Includes DN200 (8") emergency overflow, choke drain DN200 (8") and PE-HD pipe for film welding

Order no. 369003

Choke drain set 5 DN315 (12")

Includes choke drain DN315 (12") and PE-HD pipe for film welding

Order no. 369000

EcoFlow Control NEW

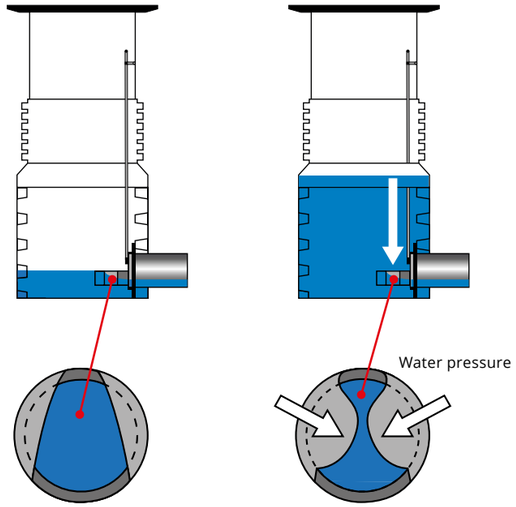
Outflow regulators

Maximum efficiency – Minimum retention volume

The EcoFlow Control uses a flexible membran to regulate the outlow. This ensures precise control, regardless of the water level.

Compared to a static throttle system, the EcoFlow Control is characterised by its excellent performance. Due to the steep rise in the characteristic curve and the resulting constant drain value, an efficiency of over 80 percent is achieved. This high level of efficiency often results in a significant reduction in the required retention volume.

- **Reduced attenuation volume thanks to optimal efficiency compared to other flow control systems**
- **Constant discharge value independent of water level**
- **Discharge values up to 20 l/s possible**
- **Pre-assembled and ready for installation in a Carat or Platin retention tank.**
- **Ready for installation in a Vario 800 shaft system**
- **Simple inspection and maintenance in a Vario 800 shaft system thanks to removal option**



Free discharge

At low water levels in the retention system, the water flows freely through the throttle without altering the membrane tension.

Throttled discharge

At high water levels in the retention system, the increased water pressure causes the membrane to narrow the outlet cross-section, ensuring a constant outflow.

>> Further details on retention and rainwater harvesting can be found in our "Sustainable Rainwater Management" range catalogue.

EcoFlow Control for Vario 800 shaft

Outflow regulators

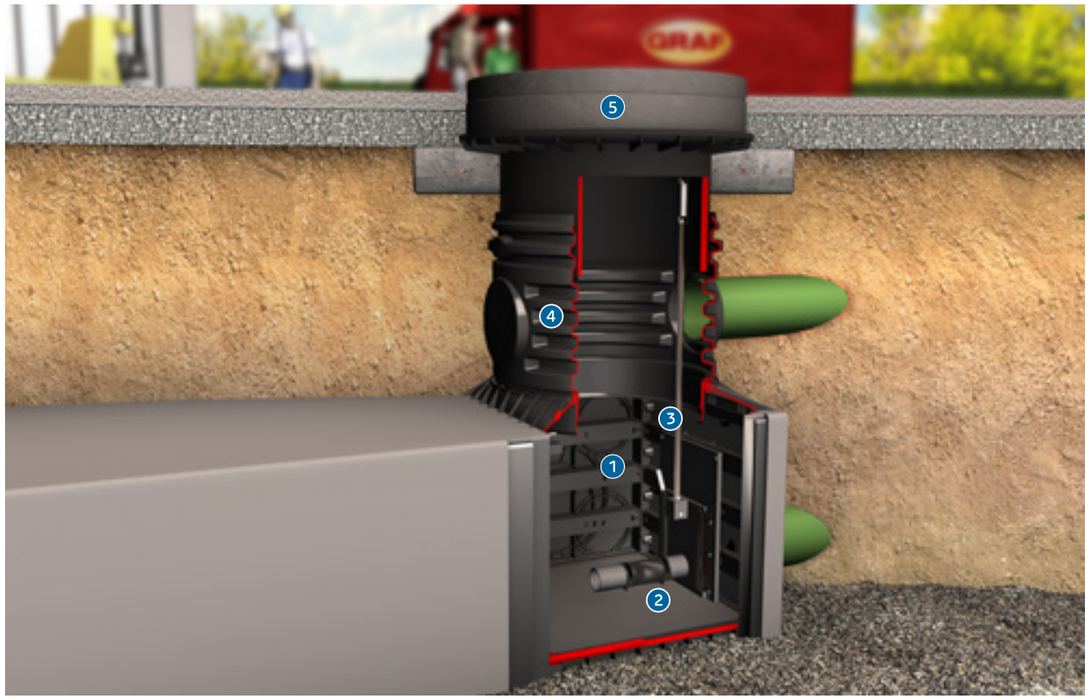


Fig.: EcoFlow Control expansion package with EcoFlow Control accessory set in the Vario 800 shaft system

Designation	Capacity range [l/s]	Outlet size [Ø]	Item no.
EcoFlow Control expansion package S	4.0 – 6.9	DN250	369060
EcoFlow Control expansion package M	7.0 – 8.9	DN250	369061
EcoFlow Control expansion package L	9.0 – 10.4	DN250	369062
EcoFlow Control expansion package XL	10.5 – 13.9	DN250	369063
EcoFlow Control expansion package 2XL	14.0 – 17.9	DN250	369064
EcoFlow Control expansion package 3XL	18.0 – 20.0	DN250	369065
EcoFlow Control accessory set			369066

Scope of supply: ❷ EcoFlow Control expansion package
Not included: ❶ Vario 800 shaft system ❸ EcoFlow Control accessory set ❹ Extension piece ❺ matching cover

WEBCODE G4334

Comparison of static and dynamic throttle

The efficiency of a throttle describes the ratio between the maximum and the average discharge value. The maximum discharge value is the volume flow that may be discharged into the sewer/recipient. This is specified by the authority.

As per DIN 1986-100, the average drain value is used to design the retention volume. It is calculated from the outflow at retention start and when full.

Comparison of outflow regulators

Efficiency in %

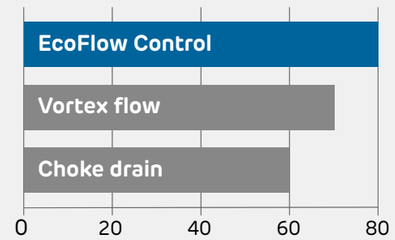


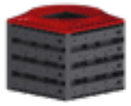
Photo: stock.adobe.com; © by-studio

Filter and shaft systems

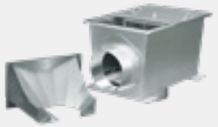
> Overview Page 50
> Vario 800 flex shaft Page 52
> External shaft and filter systems Page 56
> Shaft accessories Page 60

Overview

Shaft systems

		 Vario 800 flex shaft	Infiltration shaft 600	Infiltration shaft 400
Installation location		EcoBloc system	Soil	Soil
Loading class	pedestrian	●	●	●
	Vehicle	●	●	●
	Lorry	●	●	●
Connection options	DN110 (4")	–	●	●
	DN160 (6")	–	●	●
	DN200 (8")	●	●	●
	DN250 (10")	–	●	–
	DN315 (12")	●	●	–
	DN400 (16")	●	–	–
Dimensions		800 x 800 mm (2' 7.5" x 2' 7.5")	Ø 600 mm (24")	Ø 400 mm (16")
Catalogue page		**>> page 52**	**>> page 54**	**>> page 55**

Filters

		Drainstar filter external	Drainstar filter XL external	 Optimax-Pro XXL filter
Installation location		Soil	Soil	external shaft
Loading class	pedestrian	●	●	–
	Vehicle	●	●	–
	Lorry	–	●	–
Max. flow rate		16 l/s (4.2 US gal./s)	30 l/s (7.9 US gal./s)	300 l/s (79.3 US gal./s)*
Material of filter insert		PP	Stainless steel	Stainless steel
Mesh width		0.35 mm (0.01")	0.75 mm (0.03")	0.35 mm (0.01")
Filter basket volume		15 l (4.0 US gal.)	25 l (6.6 US gal.)	–
Dimensions				
Difference in heights between inlet and outlet		–	–	45 mm (1.8")
Dimensions		Ø 550 mm (21.7")	Ø 850 mm (33.5")	**DN315 / DN400:** 675 mm (26.6") x 1125 mm (3' 8.3") **DN500:** 775 mm (30.5") x 1895 mm (6' 2.6")
Height		600 – 1050 mm (23.6" – 3' 5")	780 – 1330 mm (30.7" – 4' 5")	**DN315 / DN400:** 770 mm (30.3") **DN500:** 905 mm (35.6")
Connection options		DN110 (4") / DN160 (6")	DN200 (8") / DN250 (10")	DN315 (12") / DN400 (16") / DN500 (20")
Catalogue page		**>> page 57**	**>> page 57**	**>> page 59**

*max. flow safty up to 500l/s

		Infiltration filter shaft	Infiltration filter shaft XL	Sedimentation filter shaft
Installation location		Soil	Soil	Soil
Loading class	pedestrian	●	●	●
	Vehicle	●	●	●
	Lorry	–	–	–
Max. flow rate		16 l/s (4.2 US gal./s)	30 l/s (7.9 US gal./s)	16 l/s (4.2 US gal./s)
Material of filter insert		Stainless steel / PP	Galvanized	PP
Mesh width		0.35 mm (0.01")	–	0.35 mm (0.01")
Filter basket volume		20 l (5.3 US gal.)	–	17 l (4.5 US gal.)
Dimensions				
Difference in heights between inlet and outlet		–	–	250 mm (10")
Dimensions		Ø 550 mm (21.7")	Ø 855 mm (33.7")	Ø 850 mm (33.5")
Height		600 – 1050 mm (23.6" – 3' 5")	855 – 1385 mm (33.7" – 4' 6.5")	1000 – 1500 mm (3' 3.4" – 4' 11.1")
Connection options		DN110 (4") / DN160 (6")	DN200 (8") / DN250 (10")	DN160 (6")
Catalogue page		**>> page 56**	**>> page 56**	**>> page 58**

Vario 800 flex shaft

Wide access

The Vario 800 flex is capped by GRAF telescopic dome shafts. With a clear width of 600 mm, it gives easy access to the shaft.

Connection surfaces up to DN400 (16")

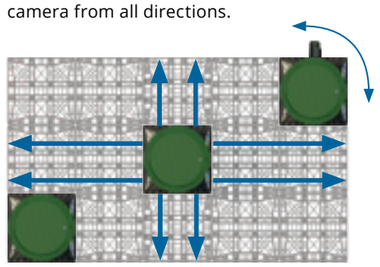
The Vario 800 flex shaft comes with DN200 (8"), DN315 (12") and DN400 (16") connection surfaces. The optional, freely rotating inlet module can be connected to pipes of sizes DN160 (6"), DN200 (8"), DN250 (10") and DN315 (12").

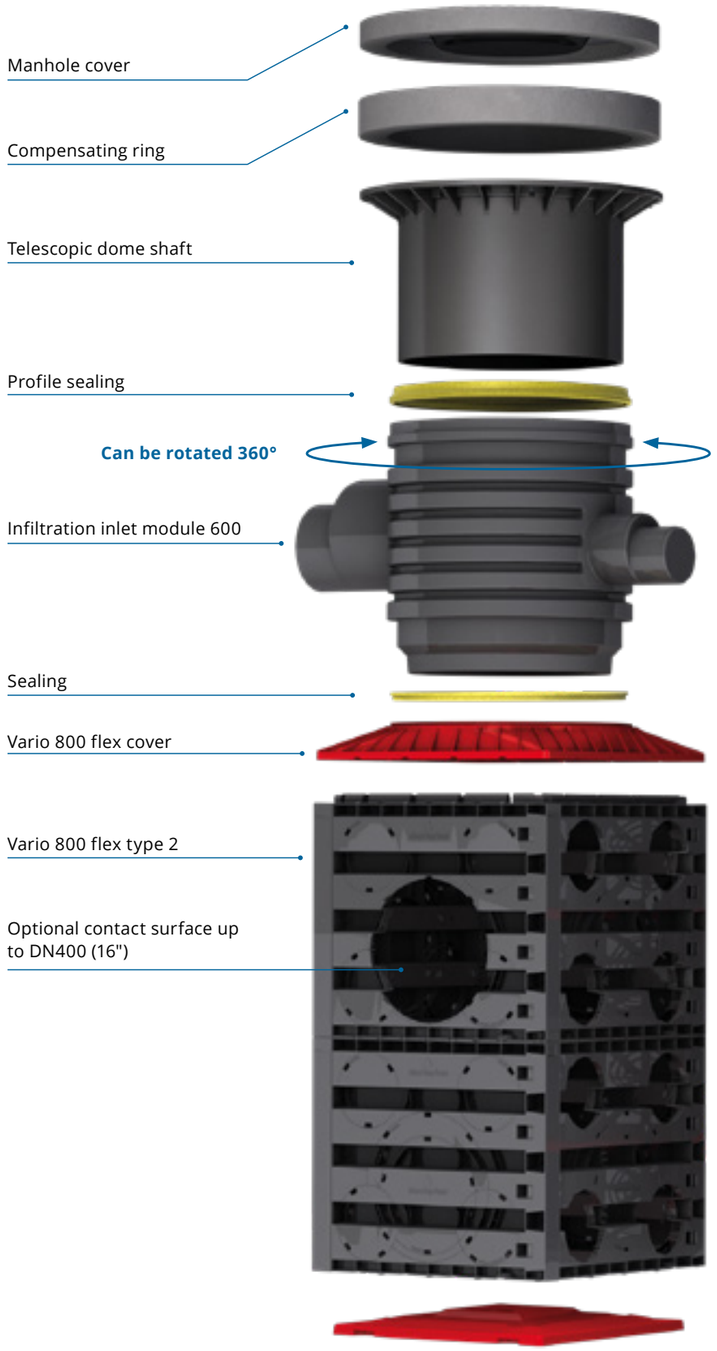
No additional excavation

The Vario 800 flex shaft system can be directly installed in an EcoBloc infiltration or detention system. The connection surfaces of the inspection channels in the Vario 800 flex shaft system are accurately matched to the EcoBloc Inspect flex system.

Can be positioned in any location

The dimensions of the Vario 800 felx shaft enable free positioning within the EcoBloc system. The corner position enables the connection of large pipe diameters of up to DN400 (16") on the two side panels. The central position offers ideal access to the inspection camera from all directions.





1. Stackable

To save space during transport and storage, the parts of the Vario 800 flex shaft are stacked into each other. This minimizes transport costs and CO2 emissions.

2. Easy installation

Groups of four wall elements are connected in a few simple steps and without tools to form a single height unit of the Vario 800 flex shaft. The height can be easily adjusted to the EcoBloc tank depth. A shaft cover and base plate complete the element.

3. Ready

GRAF accessory components can now be added to the Vario 800 flex shaft as required.

Vario 800 flex type 1

Shaft body for one ore more layer of EcoBloc system.
Contact surfaces for DN200 (8")
Height of 355 mm (1' 2")
Order no. 450050

Vario 800 flex type 2

Shaft body for two ore more layer of EcoBloc system.
Contact surfaces for DN200 (8") / DN315 (12") / DN400 (16")
Height of 660 mm (2' 2")
Order no. 450051

Vario 800 flex base / cover set

Each Vario 800 flex shaft requires one base / cover set
Cover height of 100 mm (3.9")
Order no. 450052

Accessories

Shaft covers >> page 60/61

Shaft accessories >> page 60/61

Retention accessories >> page 45

Infiltration filter shaft DN600

- External shaft system DN600 (24"), optimized for the use in combination with EcoBloc or Infiltration Tunnel
- Can be build up individually, depending on the constructions needs
- Can be used as inlet shaft, filter shaft, external inspection shaft or as choke shaft
- All parts include a fitting for the joints

WEBCODE G9302

Infiltration filter shaft DN400

- External shaft system DN400 (16"), optimized for the use in combination with EcoBloc or Infiltration Tunnel
- Can be build up individually, depending on the constructions needs
- Can be used as inlet shaft, filter shaft, external inspection shaft or as choke shaft
- All parts include a fitting for the joints

WEBCODE G9301

Individual components

Infiltration inlet module DN600 (24")
Incl. profile seal for telescopic dome shaft; DN160 (6") / DN200 (8") / DN250 (10") / DN315 (12") connections

Order no. 330360

Infiltration filter strainer DN600 (24")
Made entirely from stainless steel, mesh width 0.75 mm (0.03")

Order no. 340523

Extension 600, length: 1000 mm (24")
With DN200 (8") contact surface, incl. profile seal, effective length: 1000 mm (3' 3.4"), 750 mm (2' 5.5"), 500 mm (1' 7.7")

Order no. 371015

Extension 600, length: 1000 mm (24") with adapter DN200
With DN200 (8") pipe connections, incl. profile seal, effective length: 1000 mm (3' 3.4"), 750 mm (2' 5.5"), 500 mm (1' 7.7")

Order no. 371016

Infiltration distributor module DN 600 (24")
Incl. profile seal for infiltration connecting piece and/or inlet module; 2 x DN160 (6") / DN200 (8") connections; mounting surface for connections of up to DN200 (8")

Order no. 330361

Shafts Covers
>> page 60/61

Individual components

Infiltration inlet module DN400 (16")
Incl. profile seal for telescopic dome shaft; DN160 (6") / DN200 (8") connections

Order no. 330339

Infiltration filter basket DN400 (16")
Mesh width 0.35 mm (0.01")

Order no. 340524

Extension 400, length: 500 mm (16")
To produce greater installation depths, effective length: 500 mm (1' 7.7"), can be shortened to 250 mm (9.8")

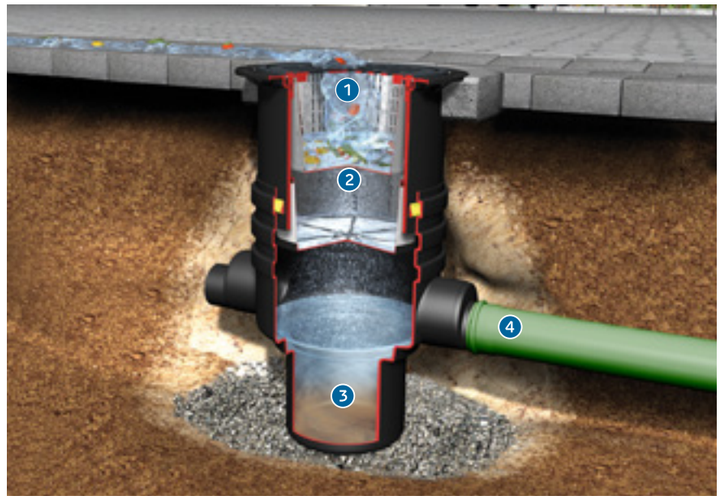
Order no. 330341

Infiltration distributor module DN400 (16")
Incl. profile seal for infiltration connecting piece and/or inlet module; 2 x DN160 (6") connections; mounting surface for connections of up to DN160 (6")

Order no. 330340

Shafts Covers
>> page 60/61

Filters



Infiltration filter shaft

- 3-stage cleaning process
  1. Coarse filter insert
  2. Fine filter basket (0.35 mm (0.01") mesh width)
  3. Sedimentation zone
- Retains contaminants which may affect infiltration performance
- Ideal as a courtyard inlet structure or a trough-trench overflow element
- Suitable for vehicle loading with cast cover, class B
- Continuously variable installation depth of 600 – 1050 mm (24" – 3' 5.3") using the telescopic dome shaft diameter 400 mm (16")
- Maximum flow rate of 16 l/s (4.2 US gal./s)

Connection surface

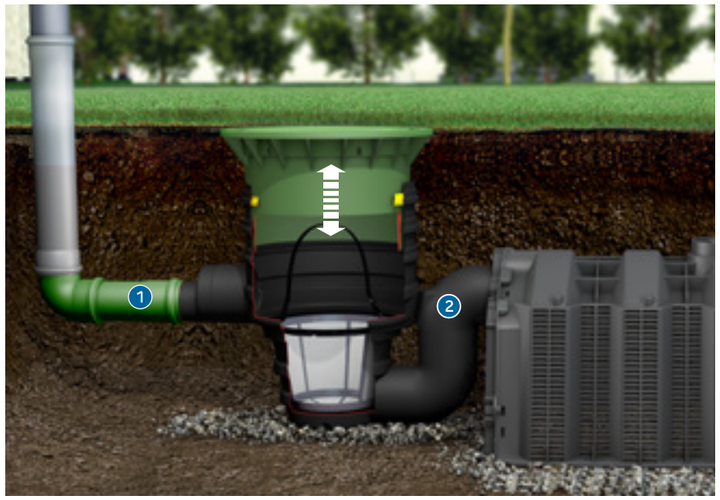
4 Outlet	DN110 (4") / DN160 (6")	330 – 780 mm (13" – 30.7")

All measurements from pipe bottom to top edge of ground

Infiltration filter shaft
suitable for vehicle loading

Order no. 340025

WEBCODE G4401



Drainstar filter external

- No height loss between inlet and outlet
- Filter insert with mesh width of 0.35 mm (0.01")
- Continuously variable installation depth of 600 – 1050 mm (23.6" – 3' 5.3") using telescopic dome shaft
- Ideally suited to infiltration and pond systems
- Maximum flow rate of 16 l/s (4.2 US gal./s)

Drainstar filter external
suitable for pedestrian loading
With plastic cover, childproof

Order no. 340143

Connection surface

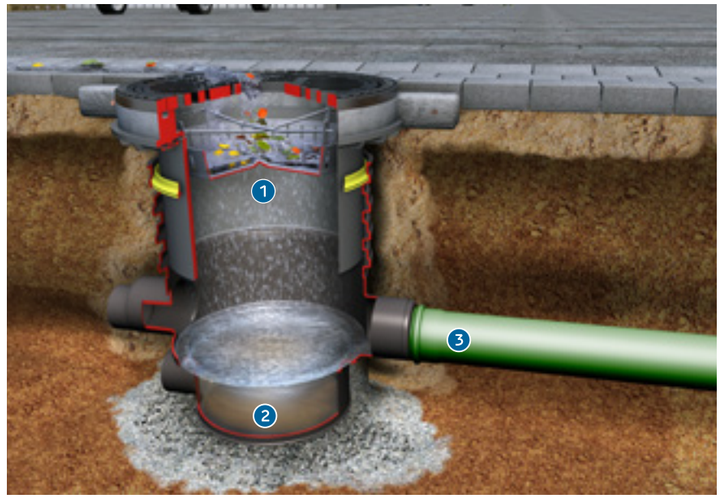
1 Inlet	DN110 (4") / DN160 (6")	330 – 780 mm (13" – 30.7")
2 Outlet	DN110 (4")	330 – 780 mm (13" – 30.7")

All measurements from pipe bottom to top edge of ground

Drainstar filter external
suitable for vehicle loading
With cast cover, class B

Order no. 340144

WEBCODE G4405



Infiltration filter shaft XL

- 2-stage cleaning process
  1. Dirt trap
  2. Sedimentation zone
- Ideal as a courtyard inlet structure or a trough-trench overflow element
- Continuously variable installation depth of 855 – 1385 mm (33.7" – 4' 6.5") using the telescopic dome shaft diameter 600 mm (24")
- Maximum flow rate of 30 l/s (7.9 US gal./s)

Connection surface

3 Outlet	DN160 (6") / DN200 (8")	585 – 1155 mm (1' 11" – 3' 9.5")

All measurements from pipe bottom to top edge of ground

Infiltration filter shaft XL
suitable for vehicle loading

Order no. 340141

WEBCODE G4406

Drainstar filter XL external

- No height loss between inlet and outlet
- Filter insert with mesh width of 0.75 mm (0.03")
- Continuously variable installation depth of 820 – 1370 mm (2' 8.3" – 4' 5.9") using telescopic dome shaft
- Maximum flow rate of 30 l/s (7.9 US gal./s)

Drainstar filter XL external
suitable for pedestrian loading

Order no. 340156

Drainstar filter XL external
suitable for vehicle loading

Order no. 340157

Drainstar filter XL external
suitable for lorry-bearing*

Order no. 340158

*Cover and compensating ring provided on site

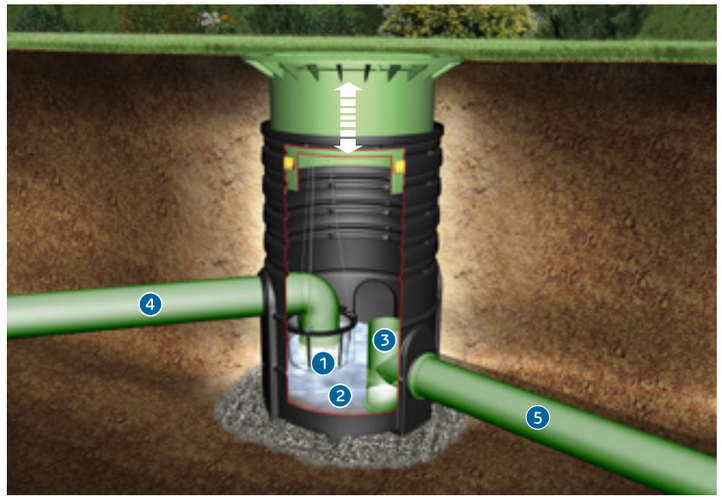
Connection surface

1 Inlet	DN200 (8") / DN250 (10")	510/520 – 1060/1070 mm (20" – 3' 6")
2 Outlet	DN200 (8") / DN250 (10")	510/520 – 1060/1070 mm (20" – 3' 6")

All measurements from pipe bottom to top edge of ground

WEBCODE G4408

External filters



Sedimentation filter shaft

- 3-stage cleaning process
  1. Fine filter basket (0.35 mm (0.01") mesh width)
  2. Sedimentation zone
  3. Submerged pipe as oil separator
- Low installation depth from 1000 – 1500 mm (3' 3.4" – 4' 11.1") using telescopic dome shaft
- Cover has child-proof lock
- Sealed up to ground level
- Maximum flow rate of 16 l/s (4.2 US gal./s)

Connection surface

4 Inlet	DN160 (6")	560 – 1060 mm (1' 10" – 3' 5.7")
5 Outlet	DN160 (6")	810 – 1310 mm (2' 7.9" – 4' 3.6")

All measurements from pipe bottom to top edge of ground

Sedimentation filter shaft

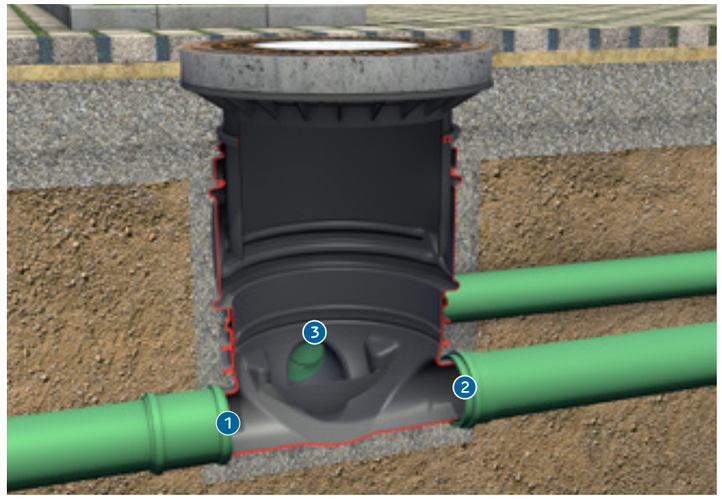
suitable for pedestrian loading

Order no. 340026

suitable for vehicle loading

Order no. 340027

WEBCODE G4402



EcoDiviso

This bypass shaft is designed to control and redirect water flow within pipeline or drainage systems. It distributes flow between multiple pipelines and can evenly split it between two separate stormwater treatment systems.
With the option of an integrated weir, it also allows excess water to bypass the main treatment path during peak load conditions, ensuring efficient flow management and protecting downstream infrastructure.

- Available in two sizes S and M
- Inlet, Outlet and Bypass available in DN110, DN160, DN 200, DN250, DN315, DN400
- Modular design with stepless shaft components, suitable for pedestrian, vehicle and lorry load bearing

Connection surface

1 Inlet	DN110 / DN160 / DN200 / DN250 / DN315 / DN400
2 Outlet	DN110 / DN160 / DN200 / DN250 / DN315 / DN400
3 Bypass	DN110 / DN160 / DN200 / DN250 / DN315 / DN400

EcoDiviso S

telescopic dome shaft not included

Order no. 470080

EcoDiviso M

telescopic dome shaft not included

Order no. 470081

WEBCODE G4412

Optimax-Pro XXL Filter

- Water yield of over 95%
- Self-cleaning filter principle
- Stainless steel filter insert with mesh width of 0.35 mm (0.01")
- Maximum flow rate of 100 l/s (26.4 US gal./s) with DN315 (12") connection 200 l/s (52.8 US gal./s) with DN400 (16") connection and 300 l/s (79.2 US gal./s) with DN500 (20") connection
- Patented filter technology
- Includes cleaning unit
- Low head loss between inlet and dirty water outlet
- Flow-optimized design for maximum hydraulics

WEBCODE G2207

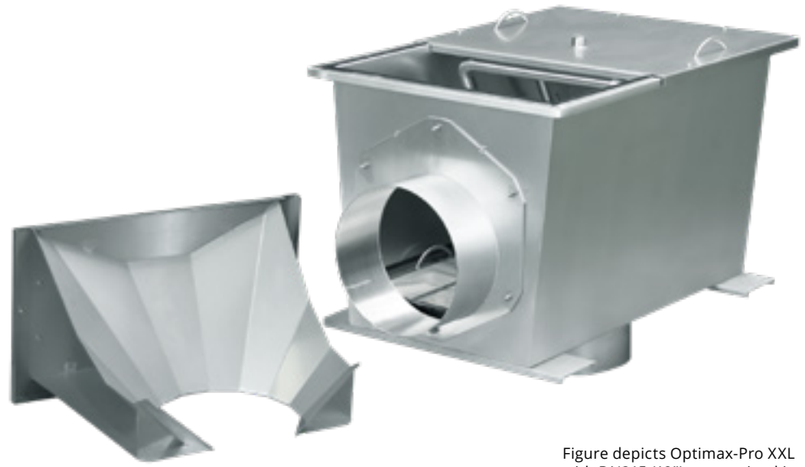


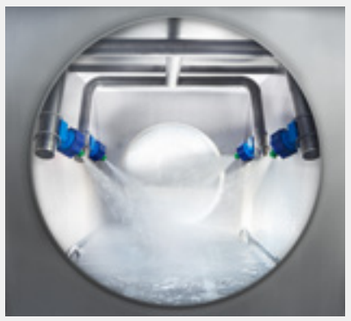
Figure depicts Optimax-Pro XXL with DN315 (12") connection kit

Optimax-Pro XXL Filter external

Connection	Width [mm]	Length [mm]	Height [mm]	Weight [kg]	Order no.
DN315/400	675 (26.6")	1225 (4' 0.2")	770 (30.3")	86/81 (190 lbs/179 lbs)	340164
DN500	775 (30.5")	1895 (6' 2.6")	905 (35.6")	131 (289 lbs)	340165

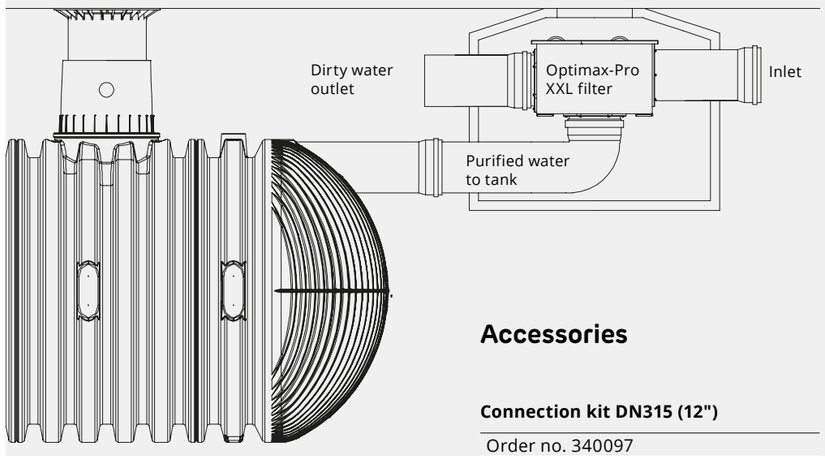
Including filter cleaning unit

Consisting of four adjustable flat jet nozzles with a very powerful water jet to clean the filter screen. This means fewer maintenance intervals. Automatic control possible with Aqua Center Silentio.



How the filter cleaning unit works

Example installation*



*Simplified representation

Accessories

Connection kit DN315 (12")

Order no. 340097

Connection kit DN400 (16")

Order no. 340099

Connection kit DN500 (20")

Order no. 340103

Accessories DN600

Covers

Telescopic dome shaft mini / maxi

With PE cover, suitable for pedestrian loading
colour: grass green

Mini	Order no. 371010
Maxi	Order no. 371011

Telescopic dome shaft 600 (24") car

Suitable for vehicle loading – with childproof
plastic cover class B

Order no. 371052

compensation ring
and manhole cover
not included

Telescopic dome shaft lorry

Suitable for vehicle / lorry load bearing
commercially available concrete rings / covers

Order no. 371021

Individual components

Infiltration filter strainer DN600 (24")

Made from stainless steel,
mesh width 0.75 mm (0.03")

Order no. 340523

Infiltration inlet module DN600 (24")

Incl. profile seal for telescopic dome shaft;
DN160 (6") / DN200 (8") / DN250 (10")
/ DN315 (12") connection

Order no. 330360

Extension 600 (24"), length: 1000 mm

With DN200 (8") contact surface, incl. profile seal,
effective length: 1000 mm (3' 3.4"), 750 mm (2' 5.5"),
500 mm (1' 7.7")

Order no. 371015

**Extension 600(24"), length: 1000 mm
with adapter DN200 (8")**

With DN200 (8") pipe connections, incl. profile seal,
effective length: 1000 mm (3' 3.4"), 750 mm (2' 5.5"),
500 mm (1' 7.7")

Order no. 371016

Extension 600 (24"), length: 300 mm

Incl. profile seal, effective length: 300 mm (11.8")

Order no. 371003

Accessories DN400

Covers

Telescopic dome shaft 400 (16")

With PE cover, suitable for
pedestrian loading, colour: grass green

Order no. 340053

Telescopic dome shaft 400 (16")

With cast iron cover, suitable for
vehicle loading max. load 3.5 t, colour: black

Order no. 340054

Telescopic dome shaft 400 (16") lorry

With cast iron cover,
lorry-bearing, colour: black

Order no. 340049

Telescopic filter shaft 400 (16")

With slotted cast iron cover, suitable for
vehicle loading max. load 3.5 t, incl. coarse filter
insert and fine filter basket (0.35 mm (0.01")
mesh width), colour: black

Order no. 340126

Individual components

Infiltration filter basket DN400 (16")

Mesh width 0.35 mm (0.01")

Order no. 340524

Infiltration inlet module DN400 (16")

Incl. profile seal for telescopic dome shaft;
DN160 (6") / DN200 (8") connections

Order no. 330339

Extension 400 (16"), length: 500 mm

To produce greater installation depths,
effective length: 500 mm (1' 7.7"),
can be shortened to 250 mm (9.8")

Order no. 330341

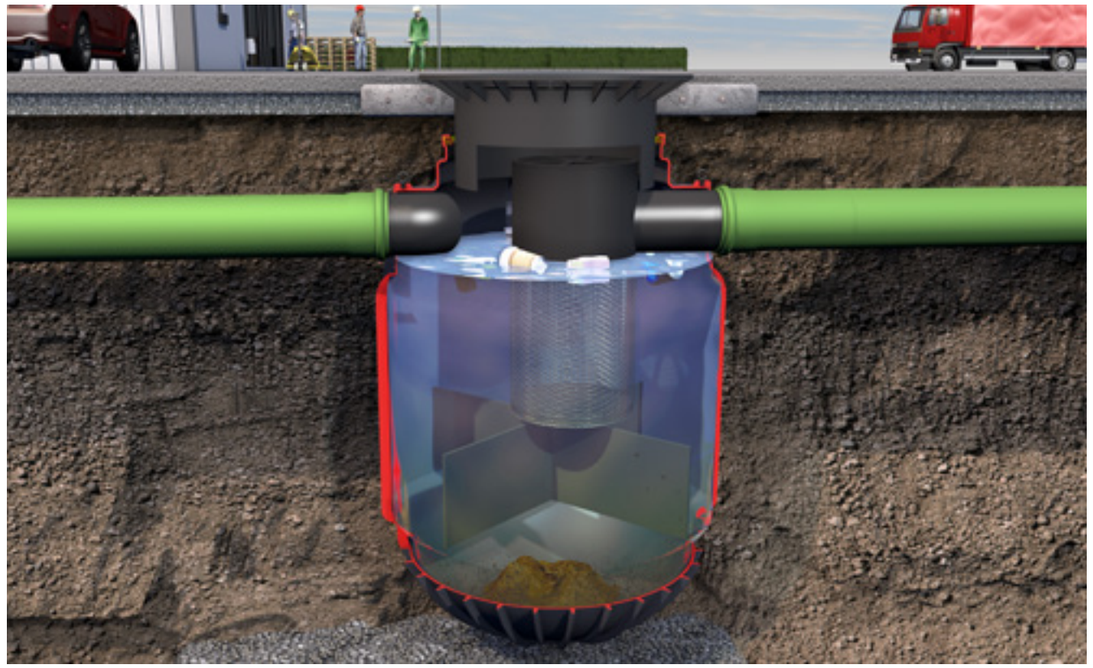
Photo: stock.adobe.com: © PernilleQvist

Rainwater Treatment

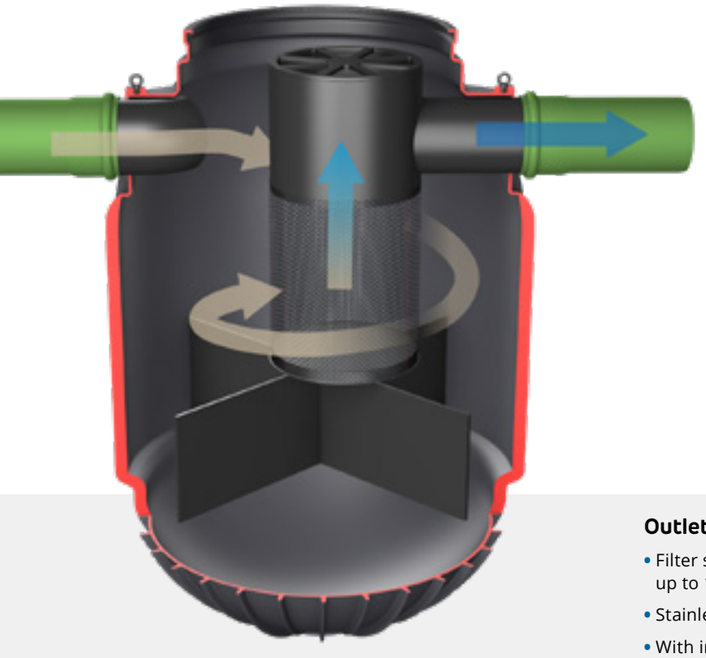
> EcoScreen Saphir Page 64
> EcoLoop Saphir Page 65
> EcoPure 200 Page 66
> EcoPure 180 Page 67

EcoScreen Saphir

Gross Pollutant Trap (GPT)



Picture shows EcoScreen Saphir with telescopic dome shaft 600 cast iron.



EcoScreen Saphir

- Simple but efficient first cleaning stage for coarse pollutants
- Ideal for use with street drains or stormwater drains with a high dirt load where no suitable pre-filter can be installed at the point of entry
- Connection DN200
- Coarse particles < 5mm are verifiable 100% retained
- No height offset between inlet and outlet
- Lorry-bearing with load distribution plate

EcoScreen Saphir
Order no. 340115

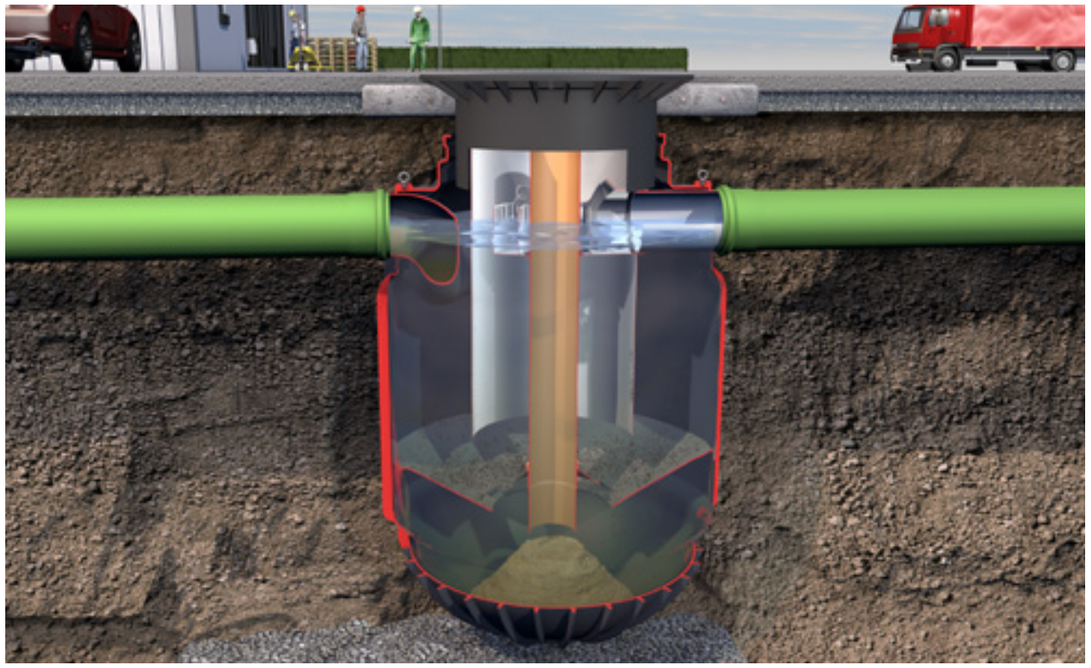
WEBCODE G4413

Outlet

- Filter surface hydraulically loadable up to 10 times the inlet geometry
- Stainless steel screen
- With integrated bypass protected by a screen for 100% retention of coarse particles

EcoLoop Saphir

Hydrodynamic Separator



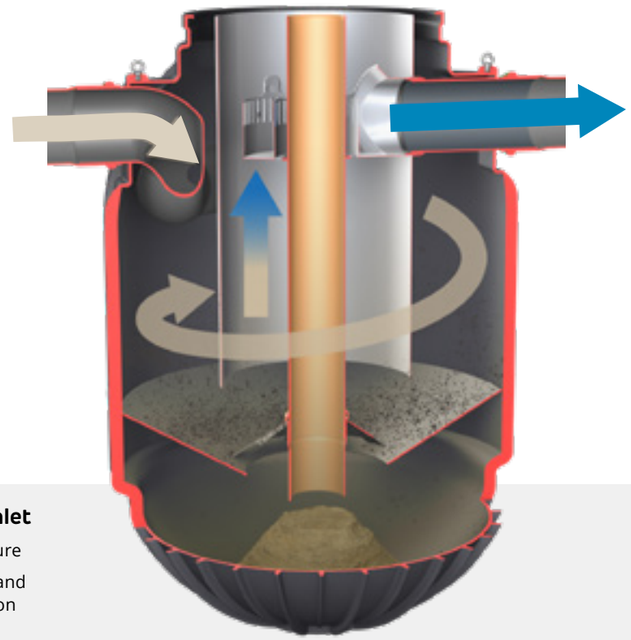
Picture shows EcoLoop Saphir with telescopic dome shaft 600 cast iron.

EcoLoop Saphir

- Second cleaning stage for the retention of very fine particles
- Ideal for areas with higher cleaning requirements
- Connection DN 200
- Certified for the removal of Total Suspended Solids (TSS) and particles <63µm
- No height offset between inlet and outlet
- Lorry-bearing with load distribution plate

EcoLoop Saphir
Order no. 470030

Two-chamber system



Bionically shaped inlet

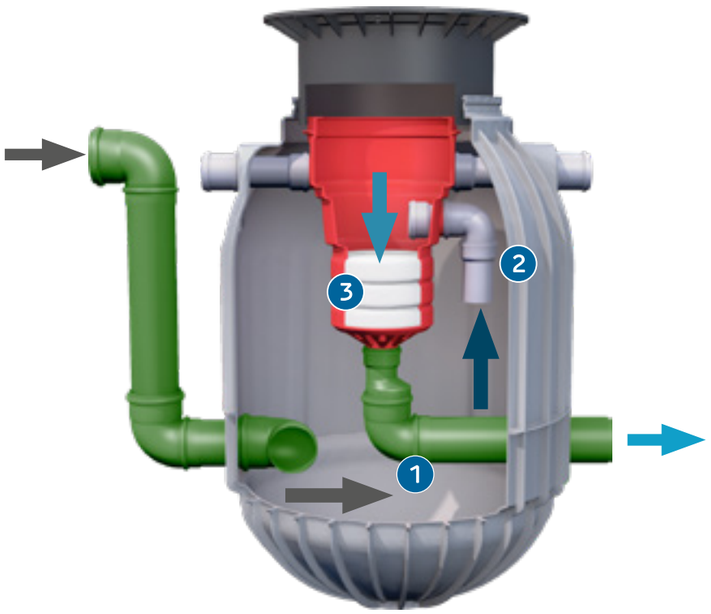
- By the example of nature
- Minimizes turbulence and enhances sedimentation performance
- Tangential flow leads to hydrodynamic sedimentation

WEBCODE G4410

EcoPure 200 – stormwater treatment system

with GRAF PureSorp media

- **German certification for the treatment of stormwater from roads with heavy traffic**
- **Consistently high efficiency due to the desiccation of the filter media after the rain event**
- **Easy installation due to the delivery of the fully assembled system**
- **Easy maintenance and easy replacement of the filter media without heavy equipment**
- **Lorry-bearing in combination with load distribution plate**

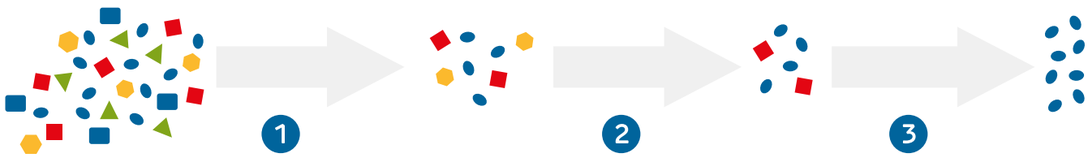


WEBCODE G4407

How does the GRAF EcoPure 200 work?

1. Hydrodynamic separation
2. Light fluid separation
3. Adsorption through the PureSorp filter media

- = stormwater
- = total suspended solids (TSS)
- = dissolved pollutants (heavy metals)
- = light fluids
- = microplastics



Volume [l]	Connection options [mm]	Max. flow rate [l/s]	Order no.
1,200 (315 US gal.)	DN160 (6")	2.0 (0.53 US gal./s)	340155

GRAF EcoPure 200 was tested in Germany according to the world-wide highest requirements. It has a German DIBt certification that is valid for the treatment of stormwater from roads with heavy traffic.

GRAF PureSorp filter media

- TSS, copper and zinc removal
- DIBt certified
- Easy replacement of the filter media without heavy equipment

Replacement Set (3 pcs):

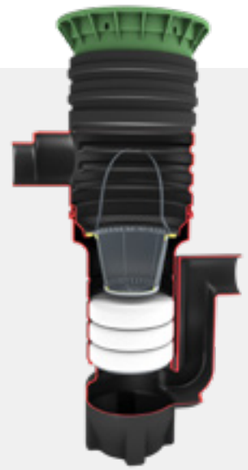
Order no. 231010

WEBCODE G4403

EcoPure 180

External filter shaft with certified GRAF PureSorp filter media. Used in combination with an upstream sedimentation tank as a sedimentation unit.

Connection options [mm]	Max. Flow rate [l/s]	Order no. pedestrian loading	Order no. vehicle loading
DN160 (6")	1.8 (0.48 US gal./s)	340110	340160



GRAF
for a greener planet

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.

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GreenTec Awards
TOP 10
2016
Wirtschafts Woche

The GRAF recycling cycle

GRAF
for a greener planet

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

Wastewater Treatment Solutions

Further details on wastewater treatment and seperators for grease and oil can be found in our "Wastewater Treatment Solutions" 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
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STORMWATER MANAGEMENT

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