

THE HAURATON DESIGNER PACKAGE

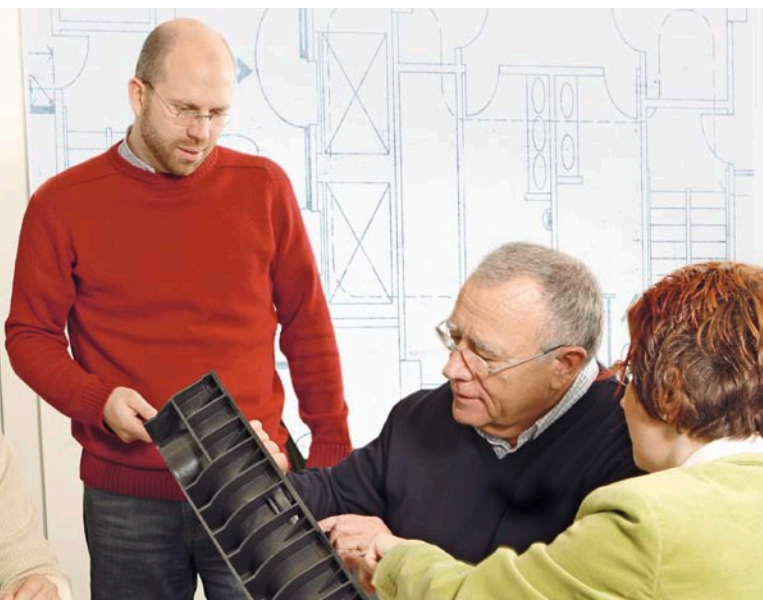
HAURATON IS NOT ONLY INVOLVED IN THE DEVELOPMENT OF INNOVATIVE PRODUCTS, THE COMPANY WILL ALSO SUPPORT YOU IN THE DESIGN AND IMPLEMENTATION OF YOUR PROJECTS.

INDIVIDUAL SUPPORT FOR THE SYSTEM DESIGNER

Designing solutions for the many and diverse requirements in the field of infiltration requires detailed knowledge, great expertise and extensive experience. Our experts, both in field sales as well as in the office, are fully trained to answer technical and product-specific questions to be able to provide you with competent and individual advice. We will support your individual building project from project-related tender documents through to installation - even where the brief calls for unusual duties and design. Give us a call or send us an email! We are always available for you and look forward to solving your individual questions regarding infiltration solutions.

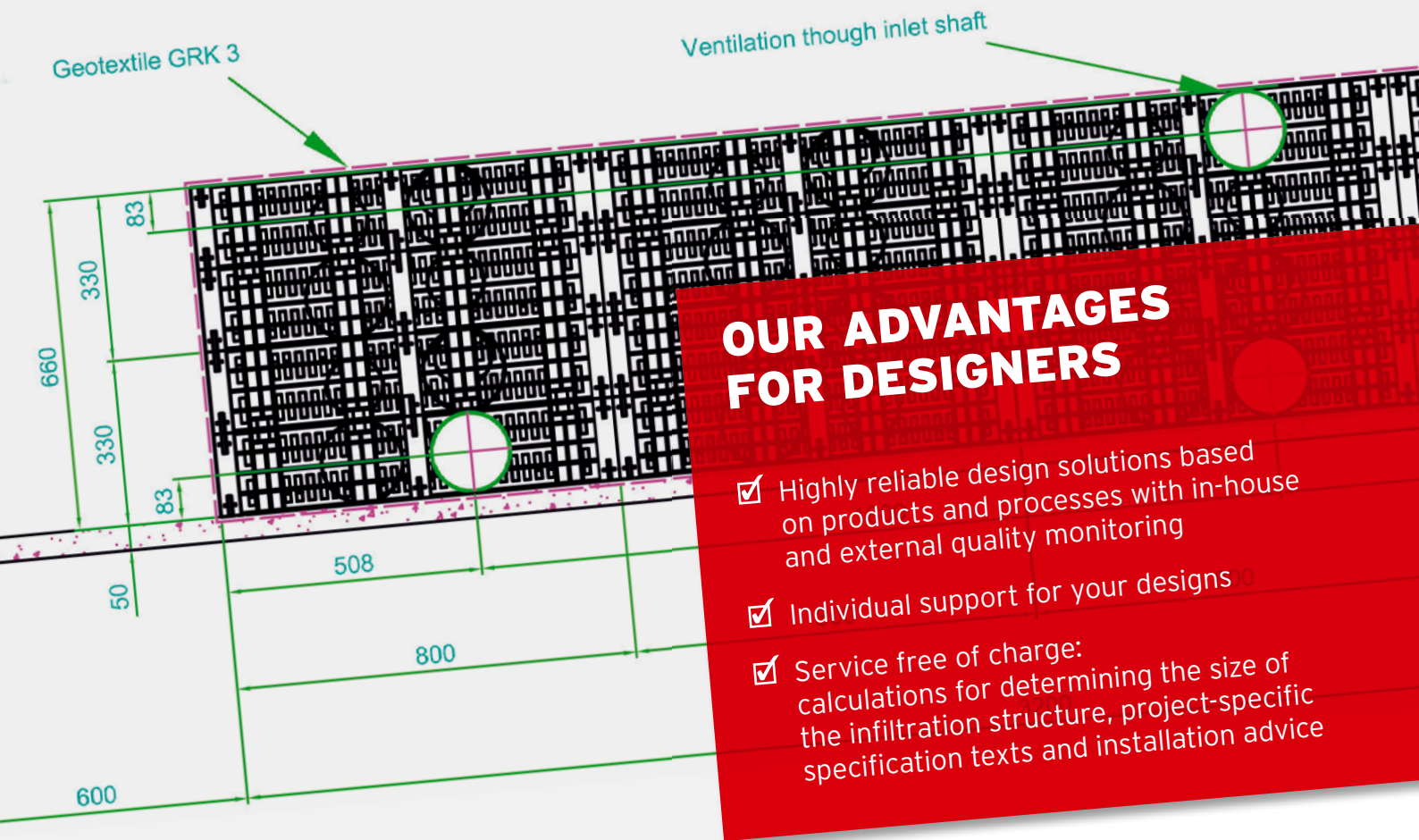
SYSTEM DESIGN

The functionality of an infiltration system depends largely on various conditions, such as the local precipitation data, the absorptive properties of the soil and the computation of catchment areas. In order to make it easier for you to make an informed decision about the type, size and installation of the infiltration systems, we produce calculations for your specific site. Our calculations are free of charge and are based on DWA-A 138. All we need from you for the staff in our specialist department is some detailed information which you can enter in the calculation sheet for our DRAINFIX products. These parameters will be entered into the calculations. If you wish to make use of our service, please do not hesitate to contact our experts in-house and in field sales.



Cross Section DRAINFIX BLOC (1200x800)

M 1: 20



OUR ADVANTAGES FOR DESIGNERS

- ✓ Highly reliable design solutions based on products and processes with in-house and external quality monitoring
- ✓ Individual support for your designs
- ✓ Service free of charge: calculations for determining the size of the infiltration structure, project-specific specification texts and installation advice

HAURATON IS A MEMBER OF THE RAL QUALITY ASSOCIATION FOR WATER SYSTEMS E.V.

RAL (German Institute for Quality Assurance and Certification e.V.) is an organisation in charge of securing high quality levels of products and services. Only RAL, the head organisation of currently 131 quality organisations, is authorised to award quality marks in Germany.

HAURATON is a member of this quality association and can therefore offer the highest level of product certification.

DRAINFIX CALCULATION SHEET

Each HAURATON designer folder contains a DRAINFIX calculation sheet to be used by the system designer to enter all required data for calculating the volume and size of infiltration facility. On the basis of these data, HAURATON will provide free-of-charge calculations based on DWA-A 138.

DRAINFIX BERECHNUNGSBOGEN
ZUR DIMENSIONIERUNG ERFORDERLICHE ANGABEN
RÜCKFAX BITTE AN
+49 7222 958-101 oder -102 oder -147

hauraton

FIRMENNAME + ADRESSE _____

OBJEKTNAME + ORT _____

1. DIMENSIONIERUNG / ANGEBOT Dimensionierung Dimensionierung und Angebot

2. ART DER EINZUGSGEBIETSFLÄCHE

Dachfläche / Material Dachdeckung

- Schrägdach _____ m²
- Flachdach (Neigung bis 3° oder ca. 5 %) _____ m²
- Grinddach (Neigung bis 15° oder ca. 25 %) _____ m²

Straßen, Wege und Plätze

- Asphalt, fugenloser Beton _____ m²
- Pflaster mit dichten Fugen _____ m²
- Pflaster Kiesbelag _____ m²
- Pflaster mit offenen Fugen _____ m²
- lockerer Kiesbelag, Schotterrasen _____ m²
- Verundulante mit Fugen, Sickersteine _____ m²
- Rasengittersteine _____ m²

3. BODENBESCHAFFENHEIT (A_v-WERT)

- Sand _____ m/s
- sandiger Lehm _____ m/s
- Oberboden _____ m/s
- schluffiger Sand _____ m/s
- Lehm _____ m/s
- oder: k_v-Wert (m/s) _____ m/s

4. BELASTUNGSKLASSE
DRAINFIX-Embauvarianten:

- begehbar
- Pkw-befahrbar
- SLW 60

BLOC TWIN 1 TWIN WAVE

5. GEPLANTE RIGOLENABMESSUNG

6. GEWÜNSCHTE SYSTEMART

Länge/Breite/Höhe _____

- Ripole
- Mulden-Ripole

7. MULDENBREITE / VERSICHERUNGSFLÄCHE MULDE

Regenrückhaltung einfach nach DWA-A 137

8. AUSFÜHRUNGSZEITRAUM

D = _____ m A = _____ m²

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DESIGN PRINCIPLES FOR INFILTRATION STRUCTURES

THE DIMENSIONS OF AN INFILTRATION STRUCTURE DEPEND ON A NUMBER OF ESSENTIAL PARAMETERS.

WHY INFILTRATION?

The continuing sealing off of surfaces through the construction of residential and commercial buildings and roads seriously affects the natural water cycle. In urban areas with average densities only about one quarter of the stormwater volume can infiltrate the ground. The largest part has to be drained away via the drainage systems. Defunct and inadequately sized drainage networks are no longer capable of handling these quantities of water. Natural soils and layers of vegetation provide storage for the stormwater and then release it again to the ground water with a time delay after it has been filtered.

As surfaces are sealed on construction sites, this process can no longer take place on an adequate scale. The result is the reduction of groundwater level and soils drying out. Another negative effect is the increasing risk of flooding catastrophes as well as the continuing need to construct costly drainage networks and retention basins. In order to counteract these developments we require systems that store stormwater at the place of precipitation and then release it gradually back into the natural cycle.



Figure 1: Original condition of site. Rainwater can soak away into the open soil. Utilisation of drains max. 80 %.

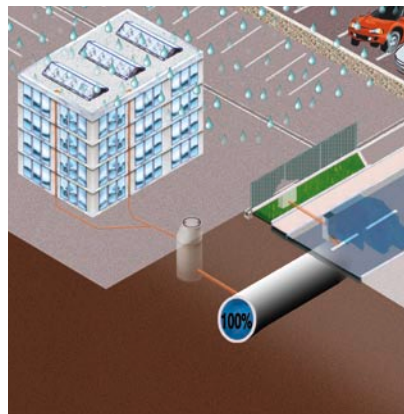


Figure 2: Buildings are erected on the site, the surface is sealed off. Precipitation water can no longer infiltrate the soil and is fully drained into the drainage system. This leads to an overload on the drainage system and hence to high costs for repair and upgrading.

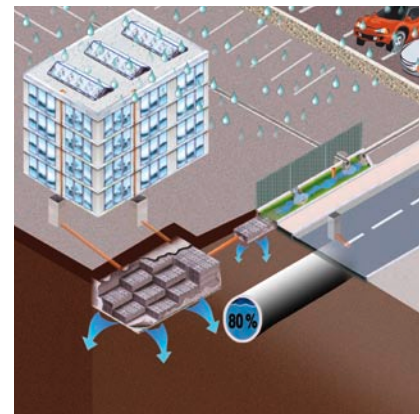


Figure 3: Decentralised infiltration via soak-away structure with infiltration blocks: precipitation water runs into the infiltration structure via channels or pipe drainage or directly from surfaces with infiltration capacity, such as turf. Advantages: less surface area required, less load on the drainage network, the surfaces above the infiltration structure remain usable.

COMMERCIAL REASONS

Constant upgrading work as well as the operation and maintenance of drainage networks and retention basins drives up the costs for local authorities. The effect this has on sewage charges is something we can all feel in our pockets. Many municipalities recommend and support with grants the construction of decentralised infiltration systems on building sites when areas are opened up for new developments. This ecological commitment can also bring financial benefits from grants or reduced levies and charges.

ADVANTAGES COMPARED TO CONVENTIONAL GRAVEL INFILTRATION STRUCTURES

- lightweight
- compact dimensions
- very high storage volume

Today many infiltration systems are built in the form of swales. However, these need a lot of space and are not very popular with nearby residents so that this solution is not very suitable for residential and commercial areas. A more compact version are infiltration structures underground, consisting of beds of gravel surrounded with geotextiles. The main disadvantage of these systems is the relatively small storage volume because only 30% of the overall volume is available for the storage of water. It follows therefore that in order to achieve the same capacity as an infiltration structure based on the DRAINFIX BLOC system, one has to excavate 3 times the amount of soil.

COMPLETE SYSTEM PROVIDER

Each infiltration structure has to meet a specific set of parameters and has to be adapted to the conditions on site. A range of different infiltration systems is available, which can be extended by additional components (e.g. sedimentation systems or manholes), depending on requirements. At HAURATON you will get everything you need from one port of call. Our service covers expert advice through to help with sizing and finally helpful tips for installing and operating the system. Likewise, you will get all the parts you need for the system from one supplier. Our product range includes several sedimentation systems, infiltration structures and manholes as well as the complete range of accessories. Design and build your infiltration system with HAURATON.



ADVANTAGE 1: LESS SOIL TO EXCAVATE

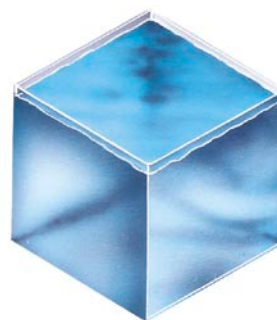


Excavated soil
DRAINFIX BLOC or
DRAINFIX TWIN

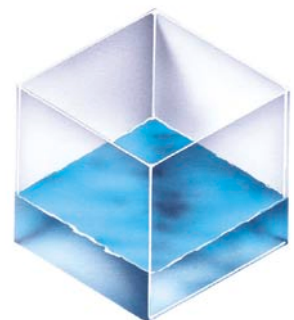


Excavated soil for
conventional gravel

ADVANTAGE 2: LARGER WATER STORAGE VOLUME



Volume of water stored
with **DRAINFIX BLOC**
or **DRAINFIX TWIN**



Volume of water stored
in conventional gravel

DESIGN PRINCIPLES FOR INFILTRATION STRUCTURES

THE DIMENSIONS OF AN INFILTRATION STRUCTURE DEPEND ON A NUMBER OF ESSENTIAL PARAMETERS.

SIZING IN ACCORDANCE WITH DWA-A 138

The regulations issued by the Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e.V., (German association for water and wastewater management and refuse), abbreviated DWA, in Germany are considered the generally accepted basis for the design, construction and operation of water, wastewater and waste management systems as well as the protection of the soil. Infiltration structures are covered in worksheet DWA-A 138. According to that, the following parameters need to be taken into consideration for sizing an infiltration structure:

- catchment area and run-off factor
- soil conditions and permeability, k_f -value
- rain yield and occurrence of rain
- groundwater



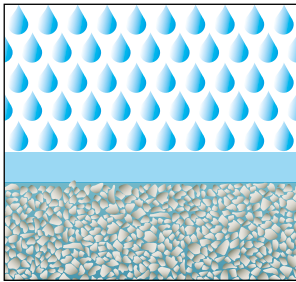
CATCHMENT AREAS

This includes all areas from which precipitation water runs into the infiltration system. The important parameters are the degree of water permeability (run-off value) and planned usage. For example, the water coming off an area of turf is different in quantity and quality to that coming off a road.

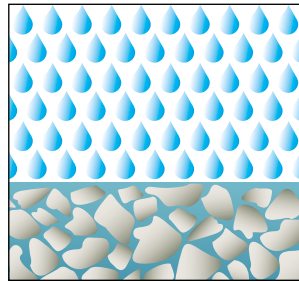
TYPE OF SURFACE	SUGGESTED MEAN RUN-OFF VALUES Ψ_m FOR TYPE OF SURFACE FINISH
Sloping roof	metal, glass, slate, fibre cement: 0.9 – 1.0
	tiles, roofing felt: 0.8 – 1.0
Flat roof (slope up to 3° or approx. 5%)	metal, glass, fibre cement: 0.9 – 1.0
	roofing felt: 0.9
	gravel: 0.7
Green roof (slope up to 15° or approx. 25%)	with ← 10 cm humus layer: 0.5
	with → 10 cm humus layer: 0.3
Roads, pathways and squares (level)	asphalt, concrete without joints: 0.9
	paving with closed joints: 0.75
	firm gravel topping: 0.6
	paving with open joints: 0.5
	loose gravel topping, turf on broken stone: 0.3
	interlocking pavers with joints, draining pavers: 0.25
Banks, hard shoulders and ditches	turf pavers: 0.15
	clayey soil: 0.5
	loamy sand soil: 0.4
Gardens, meadows and agricultural land	gravel and sand soil: 0.3
	level terrain: 0.0 – 0.1
	sloping terrain: 0.1 – 0.3

SOIL PROPERTIES, k_f -VALUE

The properties of the soils are of critical importance for the infiltration characteristics. Sandy soils or those with a gravel content have a lower infiltration factor k_f and hence allow significantly more infiltration than those with a high clay content. This k_f -value is determined by the grain size, composition and volume of the material in the soil and indicates how fast water can infiltrate (soak away). Soils with good infiltration characteristics have k_f -values between 10^{-3} m/s and 10^{-6} m/s and range from sandy gravel to sandy silt.



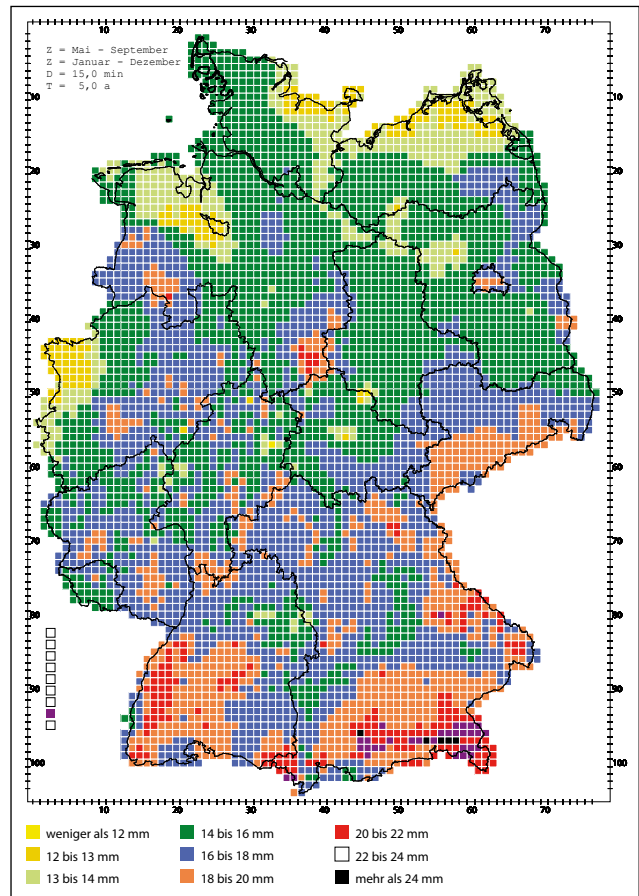
small grain size -
low permeability



big grain size -
high permeability

RAIN YIELD AND OCCURRENCE IN ACC. W. DWA-M 153 AND DWA-A 138

We will determine the rain yield for the location of your infiltration structure on the basis of the KOSTRA data, a long-term collection of data by the German Weather Service. These data list the quantity, duration and intervals of rain for every location in Germany. The calculation is based on the most unfavourable precipitation values, thus ensuring an adequate safety factor.



Map of Germany showing precipitation quantities (in litres per second and hectare)

Depending on where it comes from, water can have more or less dirt particles and may carry fine dirt particles. Engineers can evaluate the properties of the precipitation water in accordance with worksheet DWA-M 153 and use these data for the calculations. Depending on the content of pollutants, worksheet DWA-A 138 distinguishes between harmless, tolerable and not tolerable water qualities. All these factors have to be taken into account when selecting and designing an infiltration system.

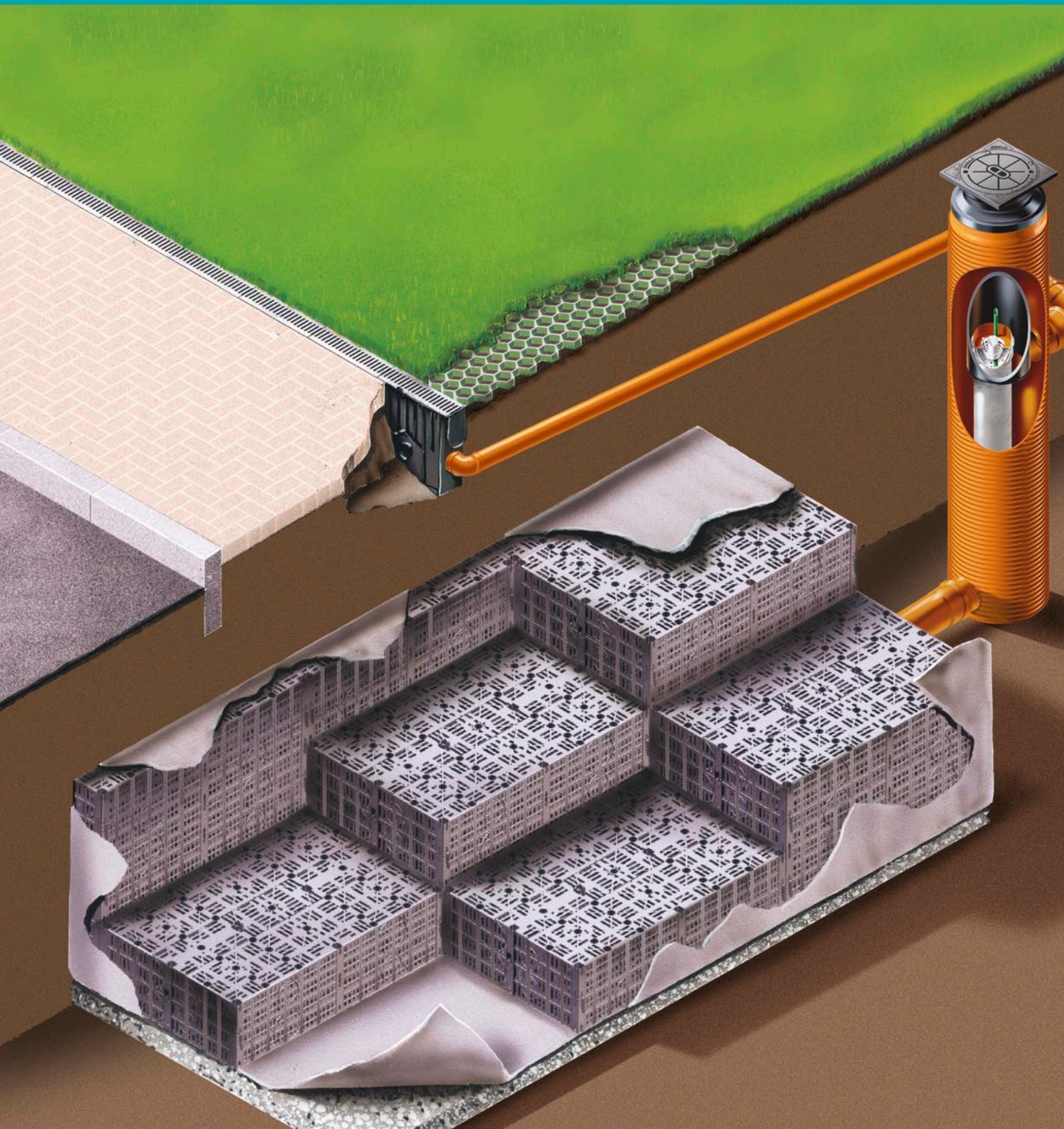
GROUNDWATER

One of the most important ecological reasons for the installation of infiltration systems is the protection of groundwater. With the help of these systems, precipitation water is returned to the natural cycle. An adequate distance (at least 1 m) has to be guaranteed permanently between the floor of the infiltration structure and the highest expected groundwater level. In addition, there must be no polluted layers of soil in the catchment area of the system. Otherwise, pollutants dissolved in water may get into the groundwater.

DRAINFIX® BLOC

STABLE, SAFE AND EXTREMELY STRONG.

INFILTRATION MODULES FOR INDUSTRIAL AND COMMERCIAL AREAS.



AT A GLANCE

- ✓ Infiltration block with very high storage capacity
- ✓ Light-weight and variable infiltration modules
- ✓ Requires only a minimum of excavation
- ✓ Ideal where space is restricted
- ✓ Load-bearing capacity up to SLW 60, suitable for installation under areas with vehicular traffic



DRAINFIX® BLOC

STABLE, SAFE AND EXTREMELY STRONG.

INFILTRATION MODULES FOR INDUSTRIAL AND COMMERCIAL AREAS.

THE PRODUCT

DRAINFIX BLOC is a polypropylene (PP) infiltration block with a very high storage capacity. The void ratio is more than 90%. The system can be installed in areas with different load requirements - even in HGV-trafficked areas up to SLW 60. The modules have been tested structurally for different load conditions. Stormwater enters the infiltration structure through infiltration in accordance with work sheet DWA-A 138. Filtered water will reach the system via an inlet and distribution SHAFT. This SHAFT has an additional small particle filter which is capable of retaining non-soluble residual dirt. The individual elements have compact dimensions and are connected to each other without accessories. In that way the infiltration structure is constructed up to the required calculated size. The SHAFT has an overflow facility connected to the drainage system. In addition, the SHAFT can be used to control the infiltration performance and/or the level of water in the infiltration trench and can be used to function as a control SHAFT.

APPLICATION AREAS

Decentralised infiltration solutions in commercial areas, industrial precincts and on private property, in particular underneath traffic areas, e.g. parking areas to class VI of RStO 01 and other areas with vehicular access, depending on local building regulations.

FURTHER ADVANTAGES

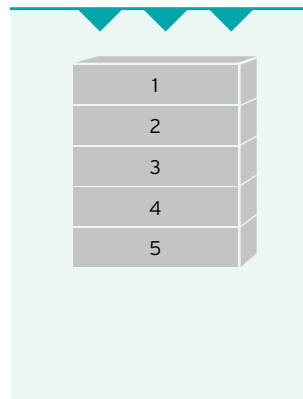
□ Unique connection technology without accessories

In order to achieve the required storage volume simply add several DRAINFIX BLOC elements together using the push-fit function. The individual modules will form a stable structure horizontally and vertically, without additional accessories. This connection method saves time and money. It has been developed by HAURATON and is unique in the market.

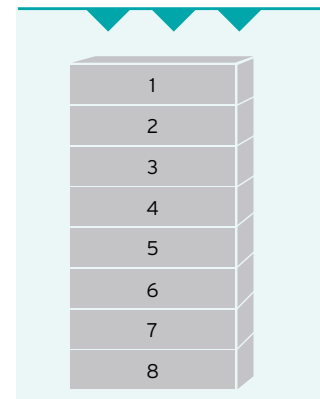
□ High load-bearing capacity

Any infiltration structures in commercial areas are exposed to heavy goods vehicle (HGV) traffic. For these applications and depending on the installation method we offer a DRAINFIX BLOC model for up to SLW 60. These products are therefore particularly suitable for installation underneath trafficked areas with HGV usage, e.g. fire engine access lanes.

SUITABLE FOR HGV, UP TO SLW 60



SUITABLE FOR PASSENGER CARS



More layers are possible depending on the object.



□ **Very strong hence small space requirement**

Depending on the type of soil, the modules can be installed in several layers. Under SLW 60 conditions it is possible to form 5 or more layers (depending on the type of soil and details of the cover); under less heavy loads it is possible to increase the number of layers as calculated for the respective loads, for example 8 layers for passenger car traffic. This minimises the size of the building site and the space requirement.

□ **Change of use**

Where there is a subsequent change of use, DRAINFIX BLOC offers another assurance. Any areas that were originally designed for pedestrian traffic only can also be reclassified for vehicular traffic given certain installation details.

□ **Geotextile dressing to maintain function**

The function of an infiltration structure will be restricted where dirt and soil particles silt up inside the structure. The build up of silt will reduce the amount of infiltration. To avoid this effect, the whole structure is wrapped up in a geotextile membrane made from PP-fleece GRK 3 (weight: 200g/m²). Stormwater will always be filtered when using infiltration structures and SHAFTs, which helps to prevent silting up.

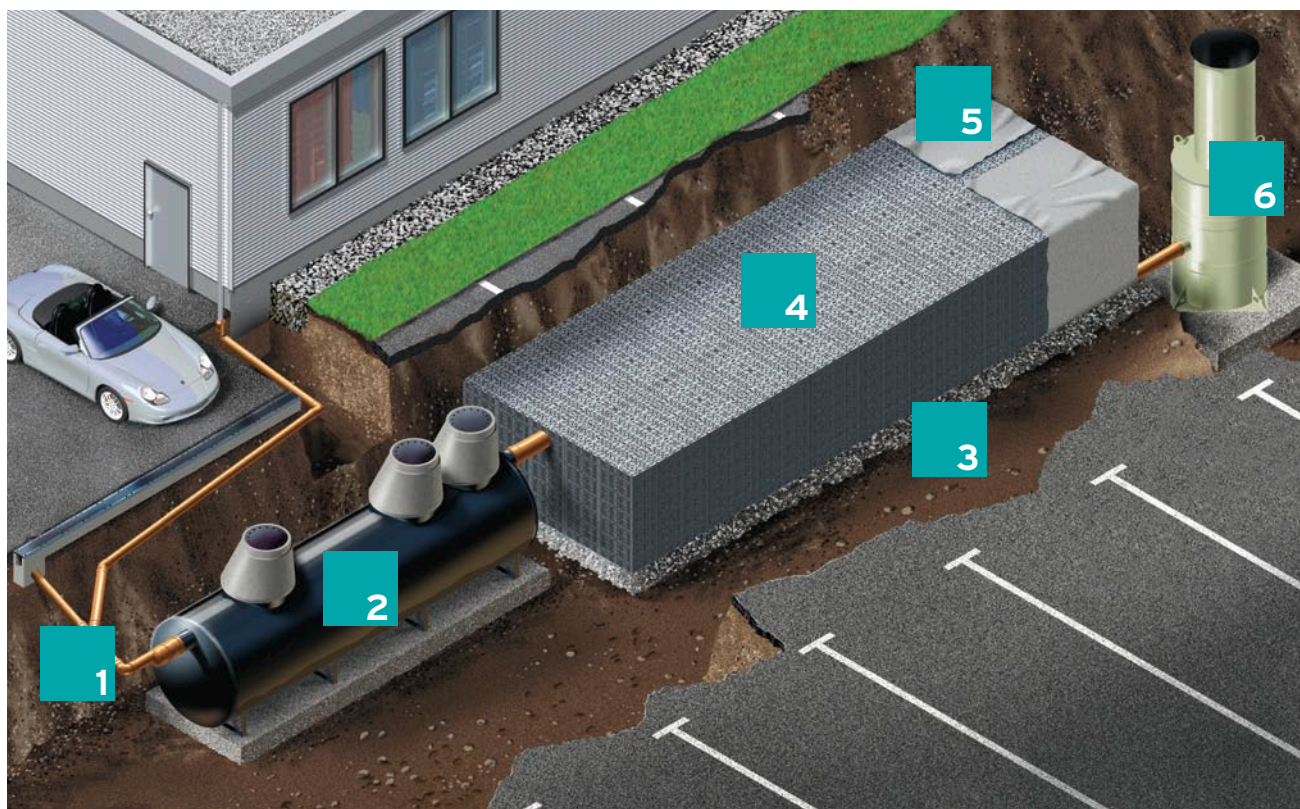


Taylor made solution according planners request

DRAINFIX® BLOC

STABLE, SAFE AND EXTREMELY STRONG.

INFILTRATION MODULES FOR INDUSTRIAL AND COMMERCIAL AREAS.



1

Water inlet pipe

Stormwater collection pipe channels water into the SHAFT

2

Rainwater treatment plant

Individual dimensioned plant to filter dirt particles

3

Road level

Granular subbase on ground with infiltration capability

4

Infiltration element

DRAINFIX BLOC elements with high storage volume and even infiltration performance

5

Geotextile

Can be used to protect the infiltration trench from silting up (optional)

6

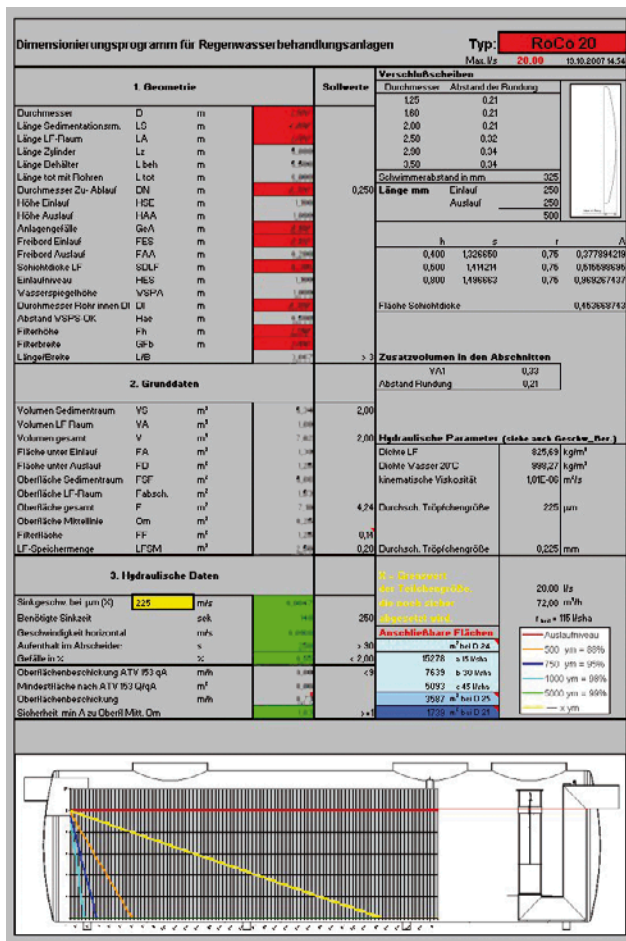
Control shaft

To control, clean and maintain the infiltration trench

Precipitation water collected from e.g. roads or industrial areas can vary widely in the dirt content it carries. If this dirty water gets into the infiltration structure, the fine particles will settle to the floor and will have an adverse effect on the infiltration performance. In extreme cases the whole system may cease to function properly or the groundwater may get polluted.

DRAINFIX sedimentation and filter systems counteract this effect. They work by allowing larger dirt particles to settle in an individually dimensioned sedimentation zone, based on gravity. In a second step, an inbuilt filter ensures that even the finest particles suspended in the water are filtered out. The size and design of these systems is calculated individually for each building project, taking into account all relevant parameters (e.g. precipitation water quantity and content of dirt particles). The experts at HAURATON will take care of this task for you. Cleaning is carried out at a central place by flushing or suction.

DRAINFIX sedimentation systems for commercial areas have to withstand heavy traffic loads. For this reason we manufacture them from steel.



PERMEABILITY VALUES ACCORDING TO DWA-M 153

DRAINFIX sedimentation system type	areas that can be connected in m ²				
	D21	D25	D24		
			15 l/s ha	30 l/s ha	45 l/s ha
20	1739	3587	15278	7639	5093
50	4348	9239	39352	19676	13117
100	8696	17935	76389	38194	25463

DRAINFIX® BLOC SHAFTS

LARGE VOLUMES FOR PROVABLE SAFETY.

THE INFILTRATION STORAGE FOR MAXIMUM LOADS IN COMMERCIAL AREAS.

COMPLETE SYSTEM WITH INLET AND OUTLET CHAMBERS

Water will flow into the infiltration structure via an inlet, filter and distribution chamber which can be used for several inlet pipes. The chamber features a serviceable filter pipe that cleans the water from any silt components before it enters the system. The multi-function outlet chamber fulfils several duties:

□ Outlet, emergency overflow

Where the quantities of water are very large, the infiltration structure may get completely filled up. To provide for that case, it is possible to connect an overflow which will allow excess water to run into another infiltration structure or into the drainage system.

□ Control mechanism

In the case of poor infiltration properties of the soil, as well as to provide additional security, it is possible to fit a commercially available dynamic or static control mechanism for retention and infiltration.

□ Venting

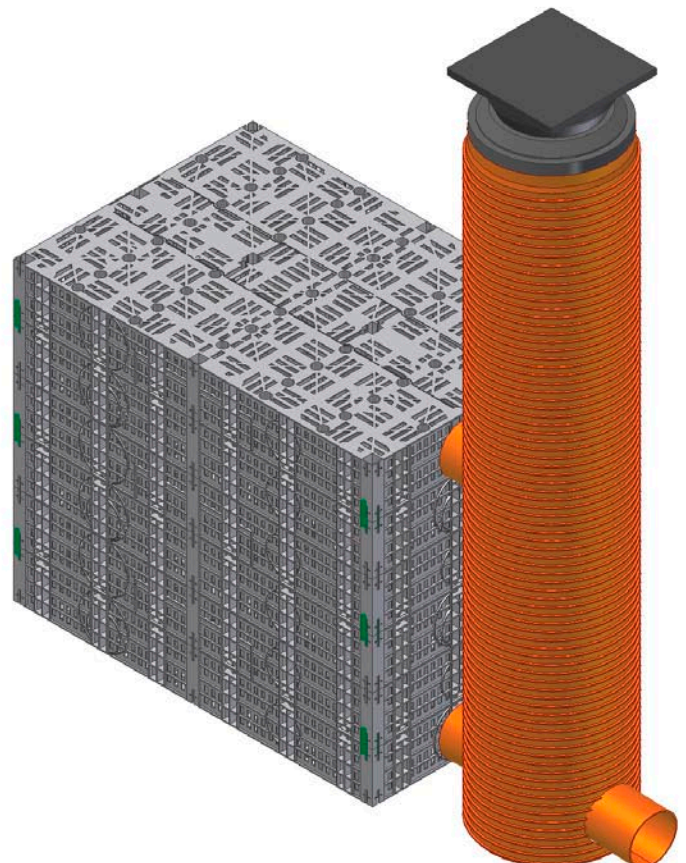
It is also necessary to allow air to escape from the system so that it can cope with a very sudden inflow of water. The chamber can also be used for the purpose of discharging air.

□ Control

Another important function of the chamber is the control of the infiltration performance and level within the infiltration structure. No other chamber is available in the market with such a broad spectrum of functionalities. The chamber is made of plastic and available in classes A 15, B 125 and D 400 to suit different requirements.

MULTI-FUNCTION SHAFT

- inlet
- emergency overflow
- venting
- outlet
- control mechanism
- control/monitoring



□ Pre-formed connections

DRAINFIX BLOC modules as well as all chambers have pipe connections for sizes DN 100/150. This allows for easy and quick connections to standard PVC pipes.



Further shaft dimensions we can offer after the individual dimensioning.



Shaft DN 1000



DRAINFIX® BLOC

MAXIMUM STRENGTH AND LONG-TERM DURABILITY ARE AN ESSENTIAL REQUIREMENT FOR INFILTRATION STRUCTURES BUILT WITH INFILTRATION BLOCKS. DRAINFIX BLOC MODULES HAVE BEEN SUBJECTED TO RIGOROUS TESTING. THE RESULT: DRAINFIX BLOC HAS BEEN PROVEN TO BE ONE OF THE STRONGEST SYSTEMS ON THE MARKET.

PROVEN TO BE ONE OF THE STRONGEST SYSTEMS ON THE MARKET

Proven quality and strength

- quality management system in accordance with DIN ISO 9001:2000
- suitable for load class SLW 60 according to calculations by civil engineer (VBI)
- calculations and product testing in accordance with strict BBA requirements (British Board of Agreement)
- proven long-term functionality (50 years) as tested under British standards

= maximum reliability for the system designer
= DRAINFIX BLOC

STRENGTH TESTED TO BBA REQUIREMENTS

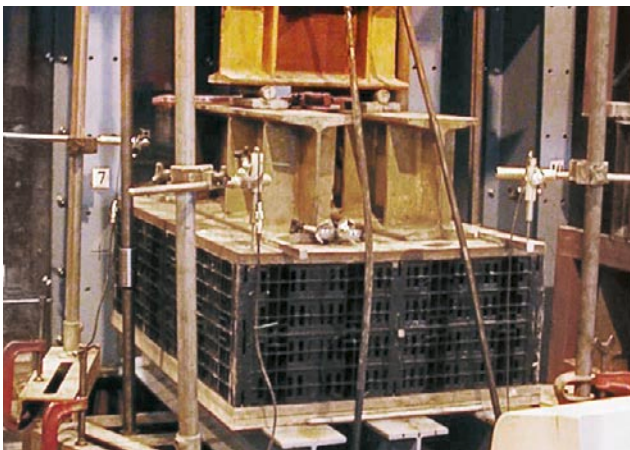
Test methods

The results are based on a number of structural tests:

- vertical and horizontal point loads applied via a 300 mm diameter steel plate
- vertical and horizontal distributed load applied via a steel plate covering the whole test specimen
- serial testing to assess creep characteristics. Test loads representing 80 %, 60 %, 40 % and 20 % of the maximum permissible point load were applied for a defined period of time (200 days).



Test with point load from above



Test with vertical distributed load



Test with horizontal load

RESULTS

Since March 2003, a standardised test method for plastic objects has been introduced in compliance with BBA regulations (British Board of Agreement).

- tests for maximum horizontal and vertical loading:

results:

distributed load

vertical compressive strength = 600 kN/m²

horizontal compressive strength = 120 kN/m²

point load

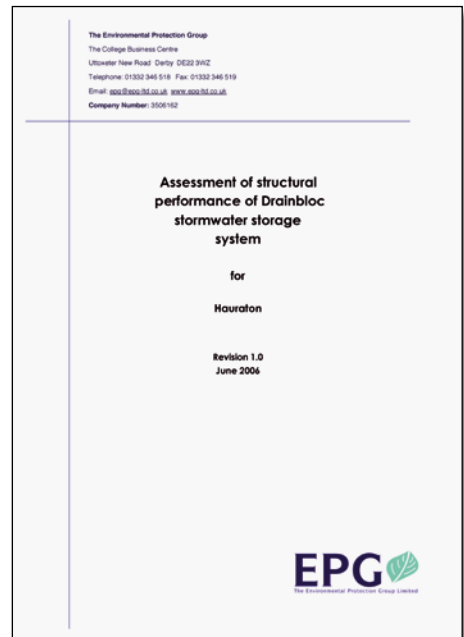
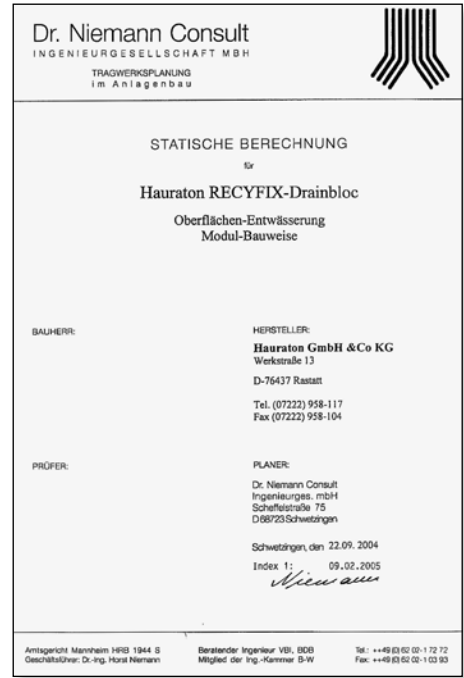
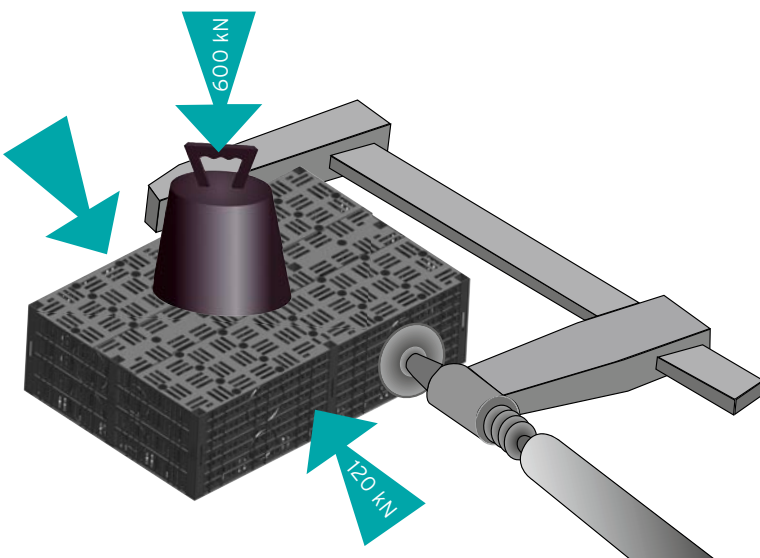
vertical compressive strength = 800 kN/m²

horizontal compressive strength = 120 kN/m²

- achievable installation depth up to 7.1 m depending on type of soil and load - without permanent supporting structures such as geolattice, sheet piling or concrete walls
- long-term test (up to 200 days) for assessing the creep characteristics - allows conclusions for a life span of up to 50 years
- the DRAINFIX BLOC by HAURATON also has been calculated under the German standard DIN1072 up to load class SLW60

DRAINFIX BLOC: strong system for maximum load-bearing capacity = maximum reliability for the system designer

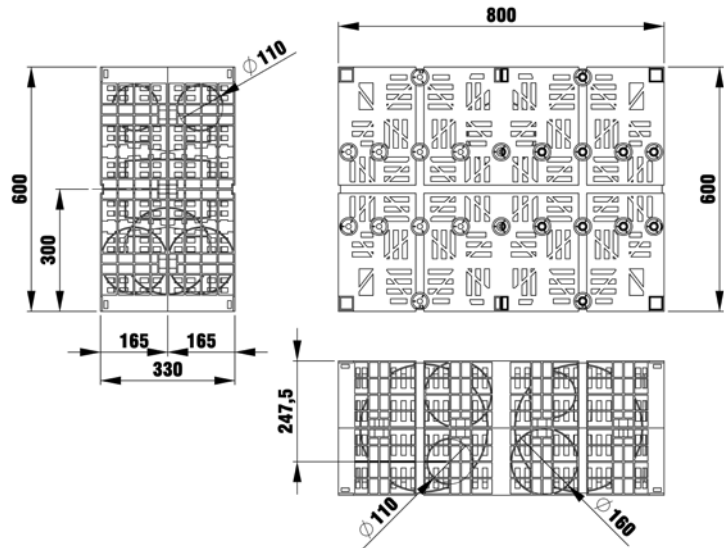
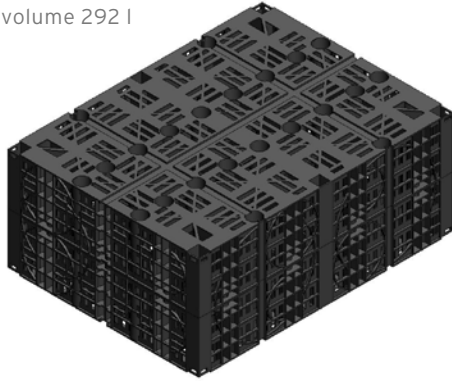
DRAINFIX BLOC by HAURATON has been tested in accordance with the exacting English test methods.



DRAINFIX®BLOC

DRAINFIX®BLOC - Seepage element, SLW 60 depending on installation

Black, volume 292 l



	Length mm	Width mm	Height mm	Weight kg	Article No.
Size 1, Black, volume 146 l	600	800	330	-	96025
Size 2, Black, volume 292 l	1200	800	330	23,0	96000
Supplementary for access with camera (for Size 2)	1200	800	330	2,4	96150

DRAINFIX® - Rainwater treatment plants (ATV)

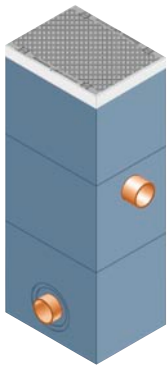
Type 20



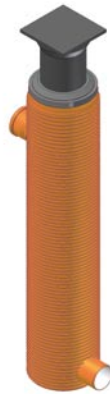
	Length mm	Width mm	Height mm	Weight kg	external diameter mm	Flow capacity l/s	Article No.
Type 20	6000	1500	1650	-	1500	20	96400
Type 50	9000	2500	2650	-	2500	50	96410
Type 100	17000	2500	2650	-	2500	100	96420

All DRAINFIX - Rainwater treatment plants (ATV) are also applicable for DRAINFIX TWIN.

DRAINFIX® - Multifunction shafts



Inlet and distribution shaft SUPER, 3-piece with closed ductile iron cover, black, class E 600



Filter shaft* 400/1500 with fine filter cartridge, with ductile iron grating, closed, class B 125



Discharge shaft DN 1000 with inlet and outlet DN 150

	Length mm	Width mm	Height mm	Weight kg	Article No.
Inlet and distribution shaft SUPER, 3-piece with closed ductile iron cover, black, class E 600	510	390	1250	289,0	96250
Multifunction discharge shaft SUPER, 3-piece, with closed ductile iron cover, black, class E 600	510	390	1250	284,0	96350
Filter shaft* 400/1500 with fine filter cartridge, with ductile iron grating, closed, class B 125	400	-	1673	-	96710
Filter shaft* 400/1500 with fine filter cartridge, with ductile iron grating, closed, class D 400	400	-	1673	-	96720
Filter shaft* 400/2000 with fine filter cartridge, with ductile iron grating, closed, class B 125	400	-	2173	-	96760
Filter shaft* 400/2000 with fine filter cartridge, with ductile iron grating, closed, class D 400	400	-	2173	-	96770
Multifunction shaft* 400/1500 with ductile iron grating, closed, class B 125	400	-	1673	-	96715
Multifunction shaft* 400/1500 with ductile iron grating, closed, class D 400	400	-	1673	-	96725
Multifunction shaft* 400/2000 with ductile iron grating, closed, class B 125	400	-	2173	-	96765
Multifunction shaft* 400/2000 with ductile iron grating, closed, class D 400	400	-	2173	-	96775
Discharge shaft DN 1000 with inlet and outlet DN 150	1000	-	2345	-	96890

* Height adjustable via telescope adaptation

DRAINFIX®BLOC - Accessories



Connection adaptor for DRAINFIX BLOC Size 1, red



Connection adaptor for DRAINFIX BLOC Size 2, green

	Length mm	Width mm	Height mm	Weight kg	Article No.
Connection adaptor for DRAINFIX BLOC Size 1, red	74	46	48	-	96115
Connection adaptor for DRAINFIX BLOC Size 2, green	35	35	100	-	96110
Geotextile from PP-fleece GRK3 rollware 2 x 200 m, 200 g/m ²	-	-	-	80,0	96120
Geotextile form PP-fleece GRK3, sold by 2 m ² per metre cutting-off of the the roll	-	-	-	0,2	96130

TENDER PROPOSALS

DRAINFIX BLOC INFILTRATION ELEMENTS

1. ___ no.

DRAINFIX BLOC

black, storage volume 292 l, made from PP; infiltration block, suitable for infiltration, retention and storage trenches and swales, with over 90 % storage capacity, with integrated connector adapters for safe positioning in accordance with DGBM, height 330 mm, length 1200 mm, width 800 mm, art. no. 96000. To be supplied and laid in accordance with the manufacturer's installation instructions. With suitable installation details load class up to SLW 60 - suitable for HGV. Quality in acc. with DIN EN ISO 9001:2000
Manufactured by: Hauraton GmbH & Co. KG
P. O. Box 16 61
D-76437 Rastatt, Germany
Tel.: +49-7222-958-0
Fax: +49-7222-958-102
E-Mail: export@hauraton.com

ACCESSORIES

2. ___ no.

DRAINFIX RAINWATER TREATMENT PLANT TYPE 20 ATVR

DN 1500 mm, length 6000 mm for 20 l/s, inlet in front of DRAINFIX ditch including filter element and sedimentation space; pipe connection possibility DN 300, art. no. 96400

3. ___ no.

DRAINFIX RAINWATER TREATMENT PLANT TYPE 20 ATVR

DN 2500 mm, length 9000 mm for 50 l/s, inlet in front of DRAINFIX ditch including filter element and sedimentation space; pipe connection possibility DN 300, art. no. 96410

4. ___ no.

DRAINFIX RAINWATER TREATMENT PLANT TYPE 100 ATV

DN 2500 mm, length 17000 mm for 100 l/s, inlet in front of DRAINFIX ditch including filter element and sedimentation space; pipe connection possibility DN 300, art. no. 96420

5. ___ no.

INLET AND DISTRIBUTION SHAFT SUPER

in 3 parts, made from fibre-reinforced concrete with galvanised steel frame, load class E 600 with SIDE-LOCK boltless quick-locking system, 4-fold locking and closed cast iron cover, consisting of top, middle part with filter element and base, h/w/l 1250 x 390 x 510 mm, art. no. 96250

6. ___ no.

MULTI-FUNCTION OUTLET SHAFT SUPER

in 3 parts, made from fibre-reinforced concrete with galvanised steel frame, load class E 600 with SIDE-LOCK boltless quick-locking system, 4-fold locking and closed cast iron cover, consisting of top, middle part with filter element and base, h/w/l 1250 x 390 x 510 mm, art. no. 96350

7. ___ no. **FILTER MANHOLE 400/1500**
made from PP, with closed cast iron cover, load class ____, nominal width 400, with telescopic adapter and integrated sludge trap and fine filter cartridge with inspection facility, including visual maintenance indicator, inlet and outlet spigot DN 150, height of manhole 1,673 mm, can be extended by up to 680 mm via telescopic function, art. no. _____
8. ___ no. **FILTER MANHOLE 400/2000**
made from PP, with closed cast iron cover, load class ____, nominal width 400, with telescopic adapter and integrated sludge trap and fine filter cartridge with inspection facility, including visual maintenance indicator, inlet and outlet spigot DN 150, height of manhole 2,173 mm, can be extended by up to 180 mm via telescopic function; art. no. _____
9. ___ no. **MULTI-FUNCTION CHAMBER 400/1500**
made from PP, with closed cast iron cover, load class ____, nominal width 400, with telescopic adapter, inlet and outlet spigot DN 150, height of manhole 1,673 mm, can be extended up to 680 mm via continuous telescopic extension, functions: outlet, emergency overflow, venting, control, art. no. _____
10. ___ no. **MULTI-FUNCTION CHAMBER 400/2000**
made from PP, with closed cast iron cover, load class ____, nominal width 400, with telescopic adapter, inlet and outlet spigot DN 150, height of manhole 2,173 mm, can be extended up to 680 mm via continuous telescopic extension, functions: outlet, emergency overflow, venting, control, art. no. _____
11. ___ no. **DRAINFIX OUTLET SHAFT DN 1000**
with pipe connection possibility inlet and outlet DN 150, inlet height 794 mm, Shaft height 2345 mm, art. no. 96890
12. ___ no.. **CONNECTION ADAPTER**
for DRAINFIX BLOC, made from PP, for securing different layers of DRAINFIX BLOC against thrust, height 100 mm, art. no. 96110. When blocks laid in rows use 6 pieces, when laid in several layers use 4 pieces for each 2.40 m x 2.40 m area.
13. ___ no. **GEOTEXTILE, BY THE ROLL**
white, for wrapping up DRAINFIX BLOC, made from PP fleece, mechanically reinforced GRK 3, weight 200 g/m², length of roll 100 m, width of roll 4 m, art. no. 96120
14. ___ no. **GEOTEXTILE, BY THE METRE**
white, for wrapping up DRAINFIX BLOC, made from PP- fleece, mechanically reinforced GRK 3, weight 200 g/m², width 4 m, art. no. 96130

**TENDER PROPOSALS
ARE AVAILABLE AT
WWW.HAURATON.COM**