

Trade fair special:  
IFAT 2024



# Funke INFO

The magazine of Funke Kunststoffe GmbH



## IFAT 2024 Infrastructure needs pioneers



**P. 07**  
**BeWa® Irrigation Gully**  
Road salt-free irrigation



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**SCFlowControl**  
The self-cleaning throttle



**P. 15**  
**VPC® Delta-Ring**  
The level invert transition



## Dear readers,

On May 13, it's that time again: at IFAT 2024, the industry meets to discuss the latest developments in water, sewage, waste and raw materials management. Funke Kunststoffe will be there with a whole series of new and further developments. At the exhibition stand in Hall B3, Stand 205/304, we will present new, forward-looking and needs-relevant system solutions for modern water management and sustainable sewer infrastructure.

How can we deal with future challenges such as water scarcity and flooding? We want to discuss answers to these and other questions with our visitors as part of our extensive networking. The further developments in our product portfolio offer diverse, flexible and sustainable solutions - for example for road drainage and professional stormwater management. In addition, there are current developments in the field of connection technology, sewer connections and Funke chambers.

Our many new product solutions underscore the pioneering role that Funke has taken on in recent years, particularly with the expansion of the system concept for sewer pipes and the wide range of fittings as well as in the area of stormwater management.

In this spirit, we warmly welcome you to the Funke stand! The entire Funke team looks forward to interesting discussions and extensive networking with you.

**Timo Langer**  
Head of Sales

## Special: Funke IFAT

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### Legal Notice

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04/2024

# Our new system solutions at a glance



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New formulations with selected ingredients for special areas of application

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## Going sustainably into the future

# Funke is working to reduce its carbon footprint



**2023 was the warmest year since weather records began. There is a correlation between the amount of climate-relevant greenhouse gases released and global warming. The best-known representative of these is CO<sub>2</sub>. To counteract the greenhouse effect, a reduction in CO<sub>2</sub>eq emissions is necessary.**

Funke Kunststoffe GmbH is aware of its social and ecological responsibility as a third-generation family business that has been in operation for over 65 years. In addition to the use of 100% green electricity, the gradual switch to e-mobility, the introduction of a code of conduct for employees and the continuous development of durable construction products to reduce human-caused environmental impacts – such as the wide range of products in the field of rainwater management – Funke has been using recycled materials for selected products for over 25 years.

This has saved more than 12,000 t CO<sub>2</sub>eq in the soil

reinforcement product segment alone in recent decades compared to the use of new products. At company level, the corporate carbon footprint (CCF) can be used as an indicator for this development. It describes the total amount of greenhouse gas emissions (including CO<sub>2</sub> emissions) caused directly or indirectly by the business activities of companies. In this respect, the CCF provides an overview of exactly where greenhouse gas emissions occur within the operational processes and value chain and in what amount.

### Funke reacts

Efforts in the area of sustainability have resulted in pleasing reductions since the introduction of the energy management system (DIN EN ISO 50001) in 2014. In the period from 2015 to 2023, the CCF for Scope 1 and 2 of Funke Kunststoffe GmbH was reduced by 55% compared to the reference year 2015. In the area of sewer pipes, Funke is taking the next two logical steps and is now offering environmentally conscious



customers new climate-friendly products in addition to the tried-and-tested Funke HS® Sewer Pipe System. These are the Pipe2Pipe sewer pipe system HS® and the Plant2Pipe sewer pipe system HS®.

### Pipe2Pipe

The Pipe2Pipe sewer pipe system HS® uses recycled PVC-U (up to 60%) in combination with conventional petroleum-based PVC-U produced using green electricity. This enables a CO<sub>2</sub>eq reduction of 60% compared to an Funke HS® Sewer Pipe with a nominal diameter of DN/OD 500 per meter of pipe.

### Plant2Pipe

Plant2Pipe sewer pipe system HS® goes one step further and relies on up to 100% bio-based PVC-U, which uses ethylene from renewable sources in the mass balance approach while maintaining the same quality. The market also refers to this as 'drop-in' plastics. Compared to the tried-and-tested Funke HS® Sewer Pipe – also using the nominal diameter

DN/OD 500 as an example, this enables a reduction in CO<sub>2</sub>eq of up to 80% per meter of pipe.

With this in mind, our appeal to clients, planners and grid operators is: don't fall for empty "green promises". Please check the products you use in your civil engineering work carefully. After all, the new construction and renovation measures you implement should last for many years and also offer future generations a safe and functioning underground infrastructure.

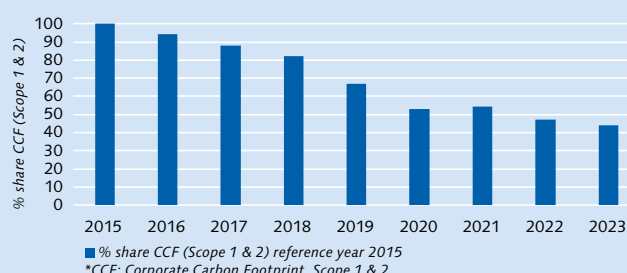
With these offers, we provide you with a real CO<sub>2</sub>-reduction. We recommend that you check the validity and environmental benefits of alternative offers.

**1,100 g CO<sub>2</sub>eq of a greenhouse gas is just as harmful to the climate as 100 g CO<sub>2</sub>**

The GHG Protocol was developed in 1998 as a joint initiative of the World Resources Institute and the World Business Council for Sustainable Development to create a standardised framework for calculating greenhouse gases. The GHG Protocol contains a global set of standards for recording and managing greenhouse gas emissions for companies and the public sector. It also includes guidelines and specifications that enable companies to take stock of their greenhouse gas emissions and calculate their corporate carbon footprint.

Source: [www.climatepartner.com](http://www.climatepartner.com)

### CCF\* Development 2015 to 2023



## The innovative Funke road gully

# The potential weakness of a mortar joint is removed

Funke Kunststoffe has further developed the road gully presented at the last IFAT. Its construction can absorb all occurring loads and transfer them into the ground via a base plate. The cone plate made of cast iron can be adjusted lengthwise. The transverse gradient can be adjusted using bushes. Commercially available covers 300 x 500 mm or 500 x 500 mm for kerb gullies according to DIN 4052 can be combined with the Funke kerb gully. New versions of the base also available.

Road gullies are among the most sensitive areas in road drainage. Different types of damage occur due to material fatigue such as broken mortar joints. In addition to deviations in the position of the cover, frame breakages and cracks in the walls or base are commonplace. This necessitates costly refurbishment or renewal measures that put a strain on the budget.

### Functional and well thought out

The Funke road gully consists of a concrete base plate, a wall-reinforced base made of PVC-U with a nominal width of DN/OD 500 and a two-part cone plate made of cast iron. The base has a wall thickness of 19 mm and is equipped with an Funke HS®-VARIOcoupler DN/OD 160. A channel with a 10° gradient to the additional outlet ensures complete emptying of the road gully. The two-part cone plate is connected by adjustable support jaws.



*The support jaws and bushes allow perfect adjustment of the height and tilt level*

The support jaws are used to adapt to the longitudinal gradient of the road (0 to 12 % in each direction). Adjustment to the cross slope is possible with bushes. The bushes replace the mortar joint. This makes an easily damaged and repair-prone weak point a thing of the past. The height of the base is 50 cm when using short sludge buckets respectively 70 cm when using long sludge buckets. The higher base is also suitable for installing an INNOLET®-Filter, a retrofit kit for road gullies according to DIN 4052. Depending on the construction site situation and the position of the connection pipe, it may make sense to use a base with a height of 0.9 m; other heights are possible.



*Possibility to have the base as a "wet silt trap" with odour trap/immersion pipe*



*Base with additional DN/OD 110 connection for formation level drainage*



*Base for DN/OD 250 manifold with DN/OD 160 drainage connections*

## Funke Quick Coupling

# Installation parts can be easily and quickly removed from the surface ground level

The Funke Quick Coupling makes it possible to remove installations from a road gully or chamber quickly and conveniently from the surface. The advantages in use are plentiful. For example, the Quick Coupling simplifies camera inspection or jetting pipes from the surface. Dip pipes or flow control elements can be removed in no time at all to insert a camera or a flushing nozzle into the jetting pipe.

The requirements for products used for wastewater disposal or stormwater treatment are becoming increasingly complex. For example, when it comes to additional installations such as filters or dip pipes in road gullies or chambers. Added to this are rising safety standards and constantly increasing demands on the quality of work.

### Avoid accessing chambers

Even entering a chamber involves considerable effort for safety reasons. First, a tripod is set up and a safety harness is put on. In addition, a gas warning device must be prepared, and the chamber must be measured. Later, a second person takes over the securing of the person entering the chamber. They also operate the tripod's winch in an emergency. This entails costs. There is also a residual risk for the person accessing the chamber.

### Create a workspace

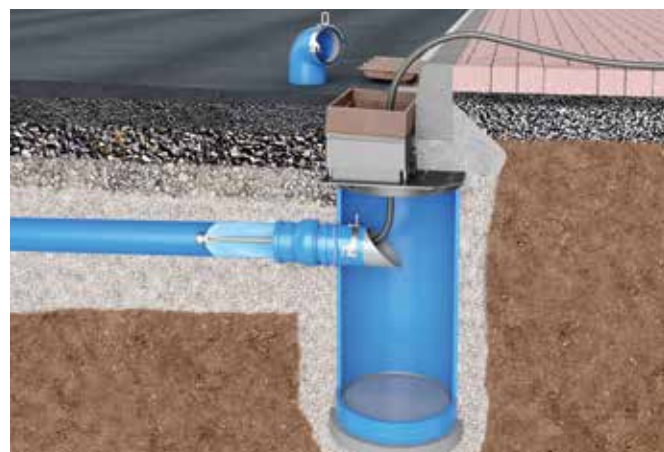
With the Funke Quick Coupling, a flow control element can, for example, be removed from the road surface, serviced and then quickly and easily reinserted. Depending on requirements, it can be fitted with a locking mechanism. If components such as the Funke CompactClean (see page 11) are installed using Quick Coupling, the weight of the Funke CompactClean prevents the Quick Coupling from coming loose. On the other hand, it is advisable to fit smaller components such as flow control elements or dip pipes with a locking mechanism to prevent them from coming loose due to buoyancy forces or turbulence. A quick coupling for removing chamber installations from deeper wastewater shafts is in preparation.



*With the Funke Quick Coupling, dip pipes, filters and other installation parts can be quickly and easily removed from chambers and reinserted*



*The locking tab is rotated by at least 45° and the built-in part can then be removed*



*Funke road gully with inserted camera and jetting bar (optional) during a flushing process*



## Road salt-free irrigation of tree sites

# The BeWa® Irrigation Gully makes it possible

**BeWa® Irrigation Gully is the name of the new road gully from Funke Kunststoffe GmbH for the passive irrigation of tree sites. Its special design makes it possible to switch between summer and winter operation. This allows all stormwater to be directed into the sewer in winter and protects the tree from water containing road salt.**

Climate change and heavily sealed surfaces contribute to a lack of water supply for urban trees. This requires active irrigation of the tree sites, a labour-intensive process. The BeWa® Irrigation Gully is a street and yard drain with two connections. One connection links the BeWa® Irrigation Gully to the stormwater drain. With a guide element and the second connection, the stormwater runoff can be directed to the tree site. This enables passive irrigation with low personnel costs.

### Protection from road salt

The special feature: The irrigation gully leading to the tree can be blocked by repositioning the guide element in winter mode so that saline water cannot reach the tree and is drained off via the rainwater channel. Switching between summer and winter operation takes just a few seconds by simply turning the guide element

through 180° with a sewer hook and can be carried out when emptying the sludge bucket. The BeWa® Irrigation Gully can also be combined with various stormwater treatment systems depending on the installation situation and individual requirements.



*By changing the guide element, the irrigation gully can be set to winter mode*



## Advantages

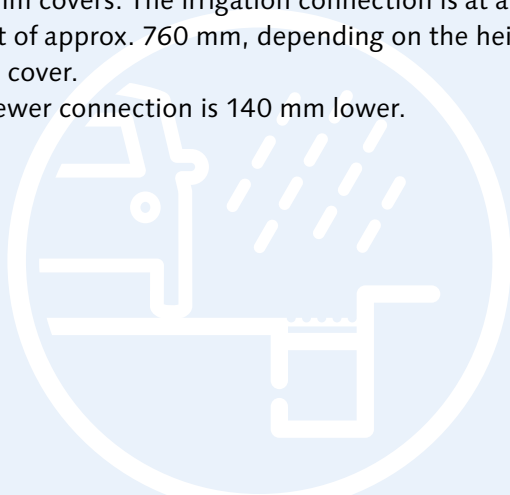
- Movable guide element
- Adjustable between summer and winter operation
- Summer operation for passive tree irrigation
- Winter operation protects the vegetation from saline water and waterlogging
- Stormwater catchment area of up to 250 m<sup>2</sup>
- Cover adjustable in transverse and longitudinal direction
- Corrosion and de-icing salt resistant
- Two adjustable connections (0° to 11°)
- Trafficability class D400/SLW 60 (HA20)
- Easy cleaning

### Stormwater catchment area up to 250 m<sup>2</sup>

The BeWa® Irrigation Gully is designed for a stormwater catchment area of up to 250 m<sup>2</sup>. It is based on the design of the Funke road gully. It therefore consists of a concrete base plate, a wall-reinforced base made of PVC-U with a nominal diameter of DN/OD 500, a two-part cone plate made of cast iron and the guide element.

A channel with a 10° gradient to the drain connection ensures that the irrigation gully is completely emptied. The two-part cone plate is connected by adjustable support jaws. These support jaws are used to adapt to the longitudinal gradient of the road (0 to 12% in each direction). The BeWa® Irrigation Gully is designed for standard (Germany) 300 x 500 mm covers. The irrigation connection is at a height of approx. 760 mm, depending on the height of the cover.

The sewer connection is 140 mm lower.





*Installing the Funke Area-Clean-substrate*

## Funke Retention Filter System

# High degree of cleaning even for large areas

The new Funke Retention Filter System is used to treat stormwater runoff. It has a length of 4.87 m, a width of 2.44 m and a height of 0.85 m. The stormwater catchment area can be up to 2,500 m<sup>2</sup>. By connecting up to four systems per inlet channel in parallel, the stormwater catchment area can be extended to up to 10,000 m<sup>2</sup>.

The stormwater runoff requiring treatment is cleaned in several stages within the system. First of all, coarse materials are separated in a pre-cleaning process. Finer particles are separated in the subsequent sedimentation area. In the third treatment stage, the water is filtered through an also newly developed Funke Area-Clean-substrate. This retains and partially breaks down fine particles and dissolved materials.

### Automatic emptying

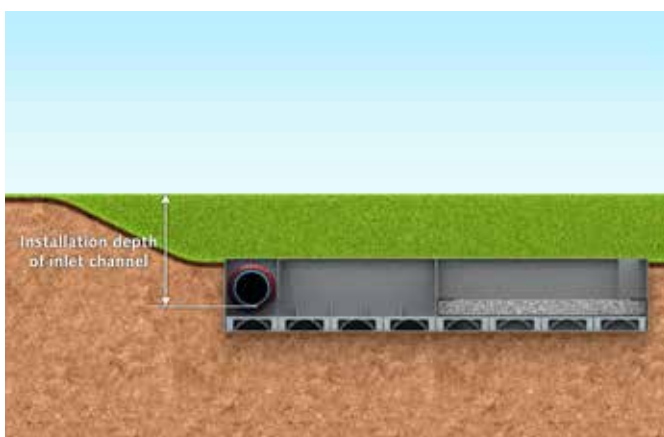
After a rainfall event, the system empties automatically with the aid of a special emptying throttle, making the specific system volume available as retention space for further rain events. This ensures uniformity of the runoff and a reduction in runoff peaks. Once a rainfall event is over and the system has run empty, the particles retained in the sedimentation unit dry and agglomerate. This further impedes remobilisation and discharge of particles during heavy rainfall events.

### Low maintenance effort

The Funke Retention Filter System is characterised by its low servicing requirements. With a semi-annual visual inspection, an annual inspection of the sedimentation chamber and a substrate change every four years, the Retention Filter System is already fully serviced.

### Difficult height conditions no problem

Thanks to the low construction height of just 0.85 m, the Retention Filter System is also suitable for high groundwater levels and difficult subsoil conditions. However, the highest expected groundwater level must be below the base of the system. The low height difference of just 14 cm between the inlet and outlet invert level is an unbeatable advantage, especially for shallow drainage networks. To adapt the system flexibly to the depth of the incoming drainage sewer, it can be installed in a trough-like depression.



*Installing the Funke Retention Filter System in a trough-like depression*

# Funke CompactClean

## Treat stormwater runoff directly in the road gully

**With the new Funke CompactClean, stormwater runoff can be treated directly in road gullies. The compact design enables the suction and flushing of wet silt traps when installed. The new connection system also allows quick installation and removal of the filter.**

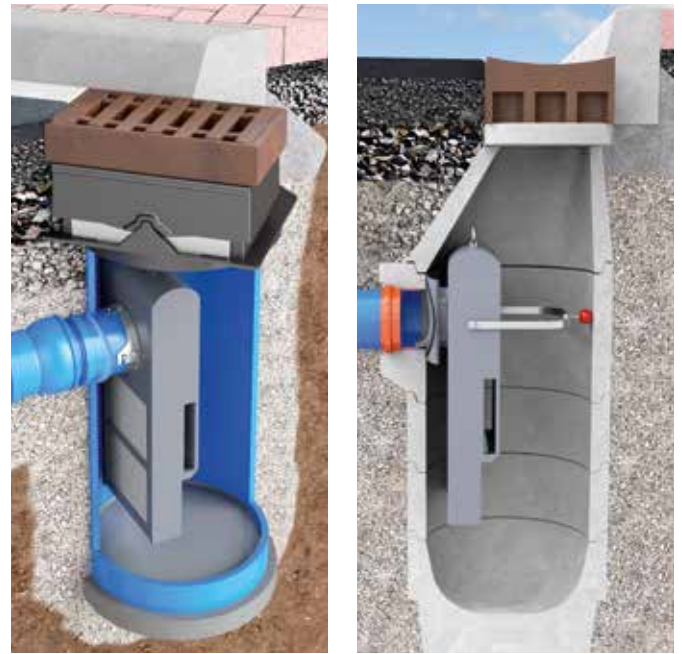
Stormwater runoff in road gullies is polluted due to material intrusion from vegetation, passers-by, residents and vehicles. It must therefore be cleaned appropriately before being discharged into water bodies. With the Funke CompactClean, stormwater runoff can be treated directly in the road gully. Retention values for substance inputs of 77 % (AFSgesamt/FAStotal) and for material intrusion of  $< 63 \mu\text{m}$  (FAS63) of 54 % were achieved here.

### Good retention of microplastics

Tyre abrasion or microplastics also end up in kerb gullies with the stormwater. These pollute water bodies and endanger aquatic biology. For this reason, the retention of plastic powders and grains with different densities was also determined in accordance with the test procedure for material retention capacity provided by the German Institute of Building Technology's (DIBt) Approval Principles for Stormwater Treatment Systems (Part 1). A total of 95 % of the plastic particles between  $63 \mu\text{m}$  and 1 mm were retained.

## Advantages

- Simple retrofitting in road gullies in accordance with DIN 4052
- Good material retention capacity
  - Material intrusion (total): 77 %
  - Fine material intrusion ( $< 63 \mu\text{m}$ ): 54 %
  - Microplastics ( $63 - 1,000 \mu\text{m}$ ): 95 %
- Quick installation and removal
- It is also possible to empty the wet silt trap with the built-in Funke CompactClean
- Odour trap function



*Funke CompactClean cleans stormwater runoff directly in the road gully*

### Servicing and installation made easy

Depending on the location, it may be necessary to suck out the silt chamber of the road gully more frequently than to change the substrate in the filter. The compact design of the Funke CompactClean allows the silt chamber to be sucked out and rinsed without having to remove the Funke CompactClean. This prevents delay of the servicing process for the road gully and means that servicing of the Funke CompactClean can be carried out separately.

### Easy retrofitting in existing kerb gullies

The Funke CompactClean is fixed into concrete road gullies in accordance with DIN 4052 using a specially developed connection system. This enables installation without special tools in a matter of seconds, which also makes retrofitting in existing gullies/chambers possible.

Alternatively, the Funke CompactClean can be installed in Funke road gullies quickly and easily using the Funke Quick Coupling (see page 7).

## SCFlowControl

# Long-term operational reliability of throttles with low flow rates

The self-cleaning throttle developed by Funke Kunststoffe "SCFlowControl" has a cleaning unit that works automatically and is operated without external energy. Depending on the water level, the brush-equipped cleaning unit is moved past the throttle opening from bottom to top (rising water level) or from top to bottom (falling water level) and any dirt that has become stuck is removed.

More and more frequently, local authorities and water companies are only issuing discharge permits for into the public sewer very low flow rates. This requires the arrangement of retention volumes and throttle elements upstream of the discharge. As the free flow cross-section available in the throttle also becomes very small at very low flow rates, the risk of clogging increases. Throttles for flow rates  $< 2 \text{ l/s}$  are affected in particular. Many throttles for small flows are permanently clogged and drain permanently via their emergency overflow. The retention chamber built at great expense is useless in these systems.

### Dirt is completely removed

Internal investigations have shown that leaves play a major role in blocking throttles. Blockages without leaves mainly occur when the water level is close to the throttle opening. The dirt carried by stormwater increases the risk of clogging, especially in small throttle openings. It is precisely in this area that cleaning takes place using the SCFlowControl. The cleaning unit even removes fibres that are partially drawn into the throttle opening.



*Cleaning process of a heavily soiled throttle opening*

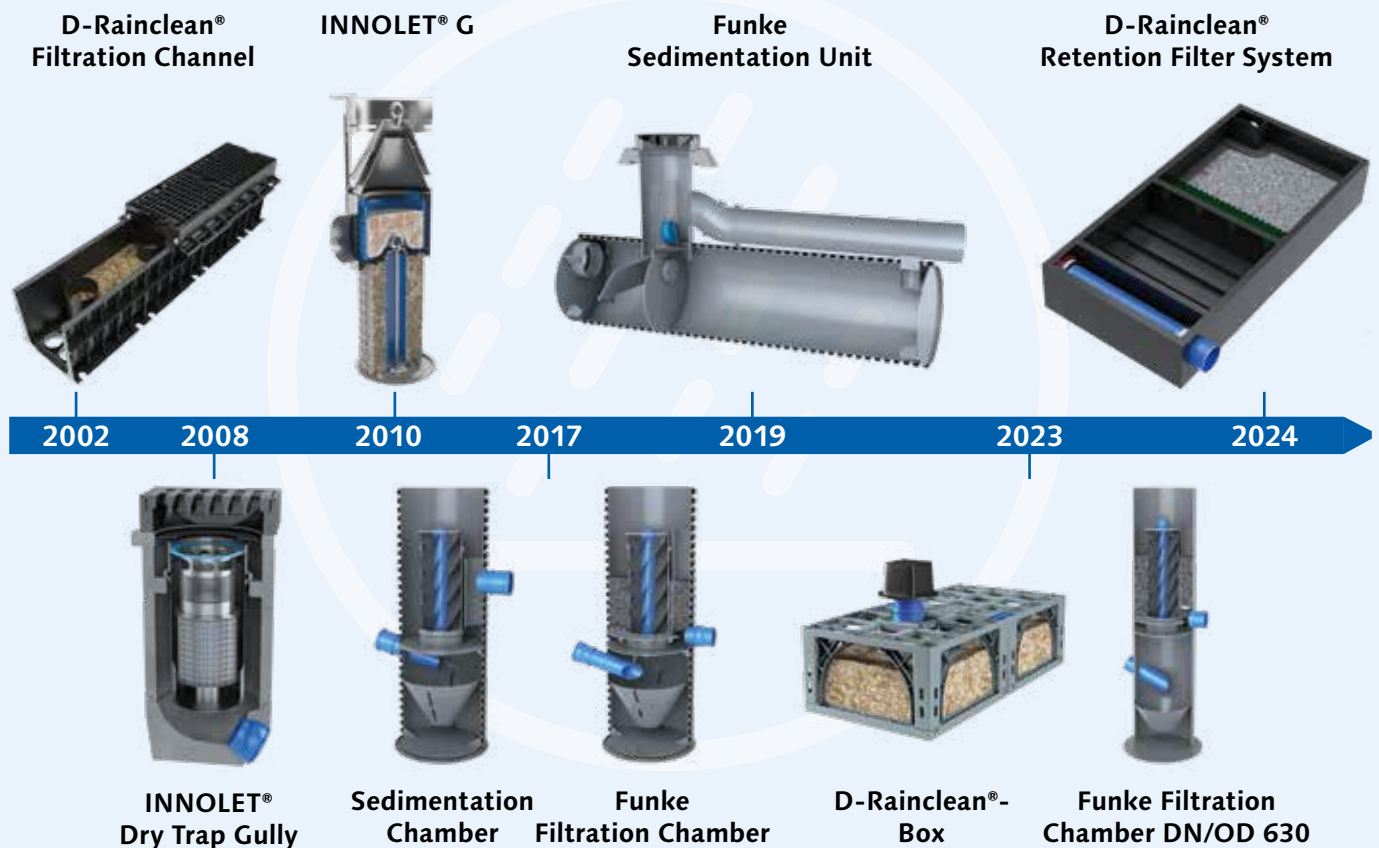


*DN/OD 400 Control Chamber with guide unit of the SCFlowControl*



*Cleaning unit of the SCFlowControl with two cleaning elements*

## Stormwater treatment – the development continues



## The Funke Sedimentation Unit has been extended For areas up to 10,000 m<sup>2</sup>

The Funke Sedimentation Unit (DN 1000/4) is now available in a further effective length (DN 1000/6). This increases the scope of application for the treatment of stormwater to areas from 4,000 m<sup>2</sup> to 10,000 m<sup>2</sup>. The AFS63/FAS63 efficiency of the system depends on the size of the stormwater catchment area. To treat runoff from larger areas, several systems can be connected in parallel.

The Funke Sedimentation Unit (DN 1000/4) has been an integral part of the rainwater treatment system product family since 2019. It was developed to treat stormwater runoff before it is discharged into the surface water body.

*The extended system is suitable for areas up to 10,000 m<sup>2</sup>*

### Decisive advantage

The float-controlled feeding of the rear sedimentation chamber is the biggest advantage of the system compared to other treatment systems available on the market. During heavy rainfall events and

high run-offs, the float closes the rear chamber, preventing excessive flow conditions and retained sediments from being discharged again.



## Flexible couplings made by Funke

# Making sewer construction fit for the future

Funke Kunststoffe sees itself as a manufacturer of products and a provider of solutions. In dialogue with users, modern and innovative products are created with which, for example, the transition from pipe to pipe can be created within a pipe system just as easily, permanently and safely as between pipes made of different materials and with different nominal diameters and geometries. In addition to pipes and fittings, Funke's complete systems offer a comprehensive range of transition pieces that can be used to master any

challenge – professionally, economically and reliably over the long term. Examples of this are the **BI-Adapter** and the **BSM Adapter®** as well as the **VPC® Pipe Coupling** in its various versions and the **VPC® Delta-Ring**, which can be used to connect sewer pipes of different types and nominal widths to each other without misalignment and in compliance with standards (e.g. DIN). And with the **Funke Tap Press Seal**, Funke has introduced an innovative annular space seal for pipes in the nominal diameter range DN 30 to DN 300.



You can find more information  
and further products for  
Funke flexible couplings here:



## VPC® Delta Ring and VPC® Delta Pipe Coupling

### A winning combination

With the VPC® Delta Ring and the VPC® Delta Pipe Coupling, Funke has expanded its range of connection technology. The combination of both products makes it possible to achieve level invert transitions between pipes made of the same or different materials and different diameters.

#### Many combinations possible

This allows pipes with a circular inside diameter in a nominal diameter range from DN 100 to DN 1000 to be connected in any combination. A fast product manufacturing process and very short delivery times ensure great flexibility on the construction site. The VPC® Delta

Ring is made of extremely resistant elastomer. It meets the requirements for level inversion in accordance with DIN EN 476. The product can be fitted with an external rib to prevent it from sliding and impresses with its compact and space-saving design. An integrated stop ring serves as an insertion limiter. The tested tightness is 0.5 bar in accordance with German DIN 4060.

The new VPC® Delta Pipe Coupling is installed together with the VPC® Delta Ring. It is produced to fit the VPC® Delta Ring and the larger of the pipes requiring connection. Integrated swivel joints ensure ease of installation.



*When fitted correctly, the VPC® Delta Ring ensures a misalignment-free transition and fulfils the requirements of DIN EN 476*

## Funke Tap Press Seal

### Precisely feed through pipes

The annular gap pressing seal connection system of the Funke Tap Press Seal consists of a robust EPDM sealing sleeve and a multi-part ring made of polyamide impact segments. It enables fast, precise and site-specific installation. Regardless of whether it is wastewater, cable protection, water or gas pipes, the new Funke Tap Press Seal ensures a safe transition through cellar, hall or shaft structures ( $\geq$  DN 1000).

The Funke Tap Press Seal offers generous tolerance compensation, which enables flexible adaptation to different pipe diameters and structural conditions. Even slightly ovalized openings pose no problem thanks to the adaptable ring of impact segments. With the option of a bend of up to 3°, the seal offers a high degree of flexibility during installation without compromising performance. The integrated stop bars ensure precise and uncomplicated installation. This saves time and effort. And increases accuracy.



*The Funke Tap Press Seal is suitable for use in wastewater, cable protection, water or gas pipes*

## Secure integration with Funke

# Professional solutions for sewer connection

The transition between the lateral sewer pipe and the main pipe is still one of the most sensitive points in the sewer system. The list of damage revealed after inspections or camera inspections is long and ranges from defective, leaking and broken sewer connections to root ingrowth. Funke recognised the need for action on this topic early on and has repeatedly carried out pioneering work. This is demonstrated by develop-

ments such as the **FABEKUN® Junction** or the **CONNEX Junction** as well as the **Complete Saddle Set**, the **Funke Renovation Socket**, the **Funke VPS Junction** or the **CONNEX Liner Connection System**. With the **U3® Connection** and the **Cast Iron Pipe Connection System CONNEX**, Funke has rounded off its extensive portfolio of sewer connection technology.



You can find more information  
and further products for  
Funke sewer connections here:



## Funke VPS Junction

# Sustainably and securely integrated

**The lateral sewer integration of sewer connection pipes into the main pipeline is an important point when it comes to planning and implementing drainage systems. The Funke VPS Junction DN/OD 160 or 200 enables effortless retrofitting in sewer pipes with nominal diameters from DN 300 to DN 2800.**

The versatile solution works regardless of the wall thickness of concrete, vitrified clay or plastic sewer pipes. To install the connection, a core bore of 187 mm or 230 mm is drilled.

Thanks to its intelligent, unique design, the connection's sealing collar adapts seamlessly to the inner contour of the main pipe's bore side edge. The sealing collar, which is connected to the supporting structure of the connection, follows the curvature along this bore side edge and thus ensures a seamless and stabilising connection.

Under the flexible sealing collar is a specially designed seal that is compressed evenly and over the entire surface. This creates an effective positive-fitting and forced-fitted connection.



*The Funke VPS Junction is suitable for wall thicknesses from 7 mm to almost any wall thickness*

## Repair pipe supplemented by two additional nominal widths



# For pipes made of concrete, vitrified clay, GRP and AZ/FZ

**Funke has added the two nominal widths DN/ID 350 and DN/ID 450 to its range of repair pipes for the repair of damaged sewers made of vitrified clay or concrete pipes.**

In contrast to conventional smooth-walled and wall-reinforced plastic sewer pipes made of PVC-U, PP or PE, the respective inner diameter of the repair pipe corresponds to the inner diameter of the vitrified clay or concrete pipe. Use of the Funke Repair Pipe or DN/ID high-load sewer pipe ensures a level invert transition to the existing rigid pipe. This is often an important prerequisite for subsequent trenchless renovation with a pipe liner.

Matching the DN/ID sewer pipe in nominal widths DN 200 to 500 mm, corresponding repair branches are also available in 45° and 90° versions. Bends and other fittings can also be manufactured to order. The professional connection of the plain ended repair pipe with

another repair pipe or with the existing old pipe made of e.g. clay or concrete is carried out using the VPC® Pipe Coupling from the Funke product range.



*Repairing damaged sewers or retrofitting sewer connections is quick and easy with repair branches and repair pipes*

# The chamber range from Funke

## For (almost) all areas of application

### Fast inspection of sewer connections

With its riser pipe (D = 200 mm), the HS® Demarcation/ Control Chamber allows quick access to the sewer system in public and private areas and offers the option to carry out inspections, jetting, leak checks and shut-offs for nominal pipe sizes DN/OD 160 and 200.

The HS® Control Chamber DN/OD 400 enables the correct connection of incoming sewer connection pipes in nominal widths DN/OD 160 and 200. The DN/OD 630 version is particularly suitable for shallow installation depths. Pipes up to a nominal diameter of DN/OD 400 can be connected.



HS® Demarcation/  
Control Chamber DN/OD 200



HS® Drainage Chamber DN/OD 400



HS® Drainage Chamber DN/OD 630

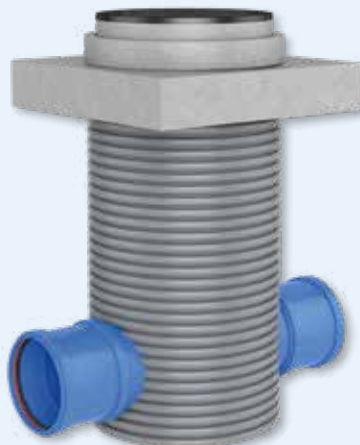
### Diversity included

The two Funke plastic chambers DN 800 and DN 1000 are accessible and can optionally be supplied with a factory-integrated ladder. The 800 mm chamber is suitable for pipe connections up to DN/OD 400. Pipes up to a nominal diameter

of DN/OD 630 can be connected to the 1000 mm chamber. A 600 mm chamber in an identical design rounds off the range of corrugated chambers in grey for nominal connection widths up to DN/OD 400.



Plastic chamber DN 600



Plastic chamber DN 800



Plastic chamber DN 1000

### Ideal for small spaces

The Funke DN 1000 combination chamber was designed for use in separated systems. Particularly where space is limited, the design of the combination chamber allows wastewater and stormwater to pass through one chamber structure. The wastewater is routed in an

open channel (up to DN/OD 315), while the rainwater flows through a closed Funke HS® Sewer Pipe (up to DN/OD 630), which is usually located slightly higher, is tangent to the side of the chamber wall. This is equipped with a large inspection opening inside the chamber.

When connecting larger nominal pipe diameters up to DN/OD 800, it is possible to use a larger chamber pipe with a nominal diameter of DN/OD 1200. These chambers are often manufactured to order as so-called tangential chambers with an internal diameter of > 1,100 mm.



Combination chamber DN 1000



Tangential chamber DN/OD 1200

### A successful combination of materials

The concrete-plastic chamber has been a permanent fixture in the Funke chamber range for around ten years. While the chamber base as well as the cover slab and the cone are made of concrete with a polyurethane (PUR) lining, the riser pipe is made of corrugated PVC-U pipe, which can also be supplied to the customer with an integrated stainless-steel ladder on request. The production enables apex-high channel designs and connections up to a nominal pipe diameter of DN/OD 630.

Made from the same materials, the DN 625 compact chamber is a supplement to the 1000 mm chamber and is particularly suitable for use with shallow installation depths of < 1.00 meters and a load class of

SLW 60 (HA20). High-load sewer pipes such as the Funke HS® Sewer Pipe up to a nominal diameter of DN/OD 500 can be connected to the monolithic component.



Concrete-Plastic Chamber DN 1000



Compact Chamber DN 625

# New substrate formulations from Funke

## We think ahead!



With modern, innovative products in the field of stormwater management, Funke offers pioneering solutions for the treatment of polluted stormwater runoff. One example of this is **D-Rainclean®**, a substrate that achieves its exceptional cleaning performance with selected natural minerals with a high exchange capacity and filter effect. Using the foundation of the basic formulation, which has been setting standards for many years both in combination with the **D-Rainclean®** filtration swales, but also in open infiltration channels, Funke has now developed further formulations with specifically selected ingredients for special areas of application.

**D-Rainclean®** is a technical substrate for the decentralised and effective treatment of polluted stormwater runoff. By passing through a **D-Rainclean®** substrate layer, particulate and dissolved pollutants are retained by processes such as filtration, adsorption, ion exchange, precipitation and biodegradation.

The same applies to **SpurClean**, a substrate which, in contrast to the **D-Rainclean®** substrate, was specifically designed for high retention and degradation of organic trace substances such as biocides and herbicides as well as their transformation products, in addition to

the retention of filterable substances, heavy metals and mineral oil hydrocarbons.

**LakeClean** is a technical substrate for adsorbing phosphates (PO<sub>4</sub>-P) and heavy metals from wastewater, stormwater runoff and surface water bodies. Phosphates have a high bioavailability and are a limiting nutrient for algae growth in surface waters. PO<sub>4</sub>-P concentrations should therefore be reduced as far as possible before discharging residential run-off into the environment.

The formulation of **UrbanClean** is particularly suitable for retaining particulate, dissolved pollutants and dissolved organic pollutants in addition to the retention of filterable substances, heavy metals and mineral oil hydrocarbons. The substrate is approved by the Swiss Wastewater and Water Protection Professionals (VSA).

### Service life up to 40 years

While the service life of **D-Rainclean®**, **SpurClean** and **UrbanClean** can be up to 40 years (based on the specifications of the DiBt approval of the **D-Rainclean®** filtration channel), the service life of **LakeClean** depends largely on the PO<sub>4</sub>-P concentrations and loads with which the **LakeClean** filter stage is fed.



## Application areas

### 01. D-Rainclean®

- Yards, paths and traffic areas
- Public and private parking areas
- Roof surfaces with increased heavy metal erosion
- Operating areas with high impairment of stormwater quality
- Areas up to cat. III according to german DWA-A 102-2

### 02. SpurClean

For areas with increased removal of organic matter:

- Roof surfaces with waterproofing membranes containing root penetration inhibitors
- Facade surfaces with algicide-containing coatings

### 03. LakeClean

- As an additional treatment stage downstream of the irrigation gully of rainwater treatment plants or small wastewater treatment plants
- Lake restoration

### • 04. UrbanClean

according to VSA approval Switzerland:

- Squares and streets
- Mixed settlement drainage area
- Railroad facilities

### 01. D-Rainclean®



### 02. SpurClean



### 03. LakeClean



### 04. UrbanClean



Infrastructure needs pioneers

# Funke solutions in practice

## HS® (High Strength) Sewer Pipes with special dimensions

When renewing the almost 100-year-old sewers in the city centre of Hamm (Germany), brown Funke HS® Sewer Pipes SN 16 in nominal widths of DN/OD 315 and 400 as well as Funke HS® Sewer Pipes SN 12 in DN/OD 710 were installed. Due to the challenging conditions of the construction project, the excavation trench was backfilled with temporarily fluid and self-compacting backfill material (liquid soil). The Funke HS® Sewer Pipes with the special length of 4.80 m were suspended in the middle of the trench in the space between the shoring elements on the installation aids in such a way that a 25 cm high gap remained between the pipe and the trench base, in which the liquid soil could be distributed when backfilling. This created an optimal lower bedding. At the same time, the pipes were fixed to the laying aids with buoyancy protection (steel pipe) to counteract the buoyancy – a procedure that demanded a lot from the pipe's statics.

**Special feature:** Pipe-laying in liquid soil

**Funke system:** Funke HS® Sewer Pipes SN 16, SN 12



## For maximum load

During the construction of a storage well on a farm in Witzenhausen (Germany) the highest point loads had to be absorbed. A special design, in which additional DN/OD 200 support pipes are installed in the D-Raintank 3000® and D-Raintank 3000 smallbox® elements, provided a flexible solution.

The rainwater attenuation basin consists of D-Raintank 3000 smallbox® elements all around. A combination of D-Raintank 3000® elements and D-Raintank 3000 smallbox® elements is used in the middle. The system has an exceptionally high load capacity.

**Special feature:** Use of system elements reinforced with DN/OD 200 support pipes

**Funke system:** D-Raintank 3000® and D-Raintank 3000 smallbox®

## Retention with Sedimentation Unit

Due to the volume of rainwater produced and in view of official requirements, a local civil engineering company built a water-retaining structure with an upstream Sedimentation Unit when moving to a new site within Drensteinfurt (Germany). In future, the water-retaining structure made of D-Raintank 3000® elements will ensure that the required 100 m<sup>3</sup> of rainwater can be temporarily stored on site and successively released into the public stormwater drain. A DRT function block was integrated to meet the client's request for accessibility to the water-retaining structure. This is a fully-fledged access shaft that creates an accessible free passage of 950 mm up to the base of the water-retaining structure. Thanks to the open structure of the D-Raintank 3000® and the design of the DRT function block, it is possible to access and inspect large areas of the intermediate storage tank. As dusty goods are stored and handled on the company premises, the precipitation water is fed through the Funke Sedimentation Unit before being discharged into the water-retaining structure. This is suitable for a stormwater catchment area of up to 5,000 m<sup>2</sup> and impresses with its excellent cleaning performance.

**Special feature:** water-retaining structure with DRT function block

**Funke system:** D-Raintank 3000®, Funke Sedimentation Unit, HS® and CONNEX sewer pipe systems



## Funke road gully in use

Funke road gullies were used for the final road extension in the southern industrial estate in Rahden (Germany), where they can now prove their durability without any mortar joints. The main difference between the Funke road gully and conventional designs lies in how the components are adapted to the surface layer. Mortar joints are usually used directly under the cover to make fine adjustments to the height and slope. Even if this is quick and easy to implement, there is one major disadvantage. Mortar joints are susceptible to damage and repair and are therefore cost-intensive for water companies and local authorities in the long term. This shortcoming has been remedied by Funke with its road gully. A total of 20 Funke road gullies for 300 x 500 mm covers were used on a 750 m long stretch. In some areas, they are installed in double-row pendulum channels, as the longitudinal gradient in the road is less than 0.5 % in places.

**Special feature:** Installation without repair-prone mortar joint

**Funke system:** Funke road gully

**"The no-joint design is remarkable. If the road gullies deliver what they promise in terms of durability and freedom from damage, this is money well spent that will pay off in the long term."**

*Dipl.-Ing. Oliver Zierenberg,  
Building and Urban Development Department of  
the Town of Rahden (Germany)*

## 30 years of the Funke HS® Sewer Pipe System

# "We've always thought ahead"

12  
kN/m<sup>2</sup>

16  
kN/m<sup>2</sup>

PVC-U



Up to  
DN/OD  
800

WRC  
approved  
PT/SSA0724 & PT/HS0724  
Valid until 2024 - 2024-01-01



Solid  
wall  
pipe

Over 30 years ago, Funke introduced a product with exceptional performance parameters in the shape of the HS® (High Strength) Sewer Pipe. It can be used to solve almost all tasks that arise in modern civil engineering and sewer construction.

As early as 1993, Kunststoffröhren Sendenhorst GmbH – now Funke Kunststoffe GmbH (Germany) – launched a high strength sewer pipe made of unplasticised polyvinyl chloride (PVC-U) on the market. Even back then, the aim was to be able to offer a high strength sewer pipe for use both in the domestic connection sector and in the municipal sector for SLW 60 (HA20) applications. The completely new PVC pipe system was intended to differ significantly from the classic PVC-KG/UD SN4 pipe in terms of its structural properties as well as its appearance.

This was the birth of the "Funke HS® Sewer Pipe" in

DN/OD 160 and 200 mm, which was offered in brown for wastewater pipes and blue for rainwater pipes. At the same time, the production of wall-reinforced fittings in the brown and blue started. Today's Funke HS® Sewer Pipe can therefore be regarded as a pioneer of wall-reinforced plastic sewer pipes and as a forerunner of later SN8 sewer pipe systems.

The Funke HS® Sewer Pipe has been continuously developed over the last few decades. Today, it is produced in nominal widths from DN/OD 110 to 800 mm. In addition to the standard pipe in "SN12", the dimensions DN/OD 160 to 630 mm are also available in the ring stiffness class SN16. Naturally, the modern PVC-U sewer pipe system was successively expanded with a large number of fittings in the same colour and wall thickness.

Always up to date!



[www.funkegruppe.com](http://www.funkegruppe.com)