

Trade fair special:
RO-KA-TECH 2025



Funke INFO

The magazine of Funke Kunststoffe GmbH



RO-KA-TECH 2025

Infrastructure needs pioneers



P. 05
Funke Sewer Connections
Now with bio-attributed
plastics



P. 07
Funke Plant2Pipe®
Sustainability
redefined at Funke



P. 12
Funke Substrates
Treat stormwater runoff
in a targeted manner



Dear readers,

From May 13 to 16, RO-KA-TECH will open its doors at the exhibition grounds in Kassel. At the trade fair for underground wastewater infrastructure, companies from the pipe and sewer construction industry will present their products, innovations and services to network operators, planners and decision-makers from the municipal sector. Traditionally, Funke Kunststoffe GmbH is also represented with an exhibition stand, focusing on sustainability in new construction and rehabilitation.

For years now, our modern and high-performance system solutions have been helping to create a healthy and liveable environment in which people and infrastructure are protected. By developing and marketing innovative products, as well as using recycled materials and sustainably sourced raw materials, we're actively taking measures to tackle climate change. For example, in the area of sewer pipes: In addition to the established HS® Sewer Pipe System, two climate-friendly product lines, Funke Pipe2Pipe® and Funke Plant2Pipe®, have been added to the portfolio for environmentally conscious customers. And with our sewer connections, we're going one step further. To live up to our pioneering role, we produce all of the PVC components of our sewer connections from 100 % bio-attributed PVC-U.

This edition of Funke INFO showcases the products and solutions we offer for cost-effective and sustainable sewer construction and rehabilitation measures.

We wish you an enjoyable read,

Timo Langer
Head of Sales

Rudolf Töws
Head of Engineering

Trade fair special: Funke at the RO-KA-TECH

Contents

03 | Into the future with Funke

04 | Sustainability at Funke

05 | bio-attributed sewer connections

06 | Funke Pipe2Pipe®

07 | Funke Plant2Pipe®

08 | Renovation Socket and CONNEX Liner Connection System

09 | Repair Pipe and VPC® Delta Ring

10 | Funke Quick Coupling

11 | Funke CompactClean® and Funke Clamp Connection

12 | Substrate Applications

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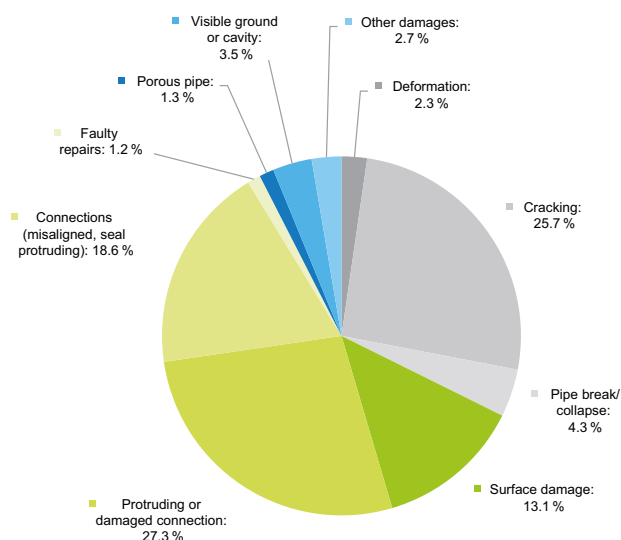
Top quality, sustainable civil engineering solutions

Tread new paths with Funke

Many sewer networks are outdated and urgently require maintenance and modernisation. This requires significant investments and planning. Additionally, increasing urbanisation is causing more surface sealing, which further burdens the sewer system. Rainwater can only naturally infiltrate to a limited extent and is increasingly drained through the sewer system. Furthermore, the impacts of climate change, which leads to extreme weather events such as heavy rainfall and droughts, place significant strain on sewer networks. Efficient use and management of water resources are therefore becoming increasingly important. This includes monitoring and optimising sewer infrastructure to minimise losses and ensure reliable supply. However, maintenance measures are also a priority to keep one of our largest assets in good condition for future generations.

Taking responsibility for future generations

Surveys regularly conducted by the German Association for Water Management, Wastewater, and Waste (DWA) on the condition of the sewer system in Germany clearly show that increased efforts are necessary for sewer rehabilitation to improve the condition of the sewer network in Germany over the long term. According to the Federal Statistical Office, the public sewer network in Germany had a total length of approximately **619,000 km** in 2022. The 2020 DWA survey revealed that only around **1 %** of the sewer network is rehabilitated each year.



Damage distribution by the structural condition of the sewers (data from 161 municipalities with 68,265 km of sewer network) KA Korrespondenz Abwasser, Abfall · 2020 (67) · No. 12

Facts:

619,000 km is the length of the public sewer network in Germany

36.9 years is the average age of the sewer system in Germany

6,190 km ($\approx 1\%$) of the sewer network in Germany is rehabilitated per year

Source:

DWA Survey on the Condition of Sewers in Germany, 2020

Thinking about the future

In order to prevent the rehabilitation needs for future generations from growing even further, Funke Kunststoffe sees it as an important task to develop and establish durable and reliable products for underground infrastructure in the market. The goal is to maximize the lifespan of sewers and the efficiency of the sewer network to minimise rehabilitation needs and reduce future maintenance and repair costs. This way, future generations can benefit from a robust and long-lasting underground infrastructure. For existing sewer systems in need of rehabilitation, which typically consist of conventional pipe materials, Funke develops products like the rehabilitation socket and the CON-NEX Liner Connection System.

Funke thinks ahead

Against this backdrop, Funke Kunststoffe GmbH, as a system provider of products made from the versatile material PVC-U, offers modern, high-performance and top quality sustainable civil engineering solutions. The product range covers areas such as sewer pipe systems, property drainage, sewer connections, chamber systems, stormwater management, soil reinforcement and tree protection. The solutions, from the sewer connection all the way to the collector, are continuously developed in dialogue with users.

Sustainability is part of our DNA

Sustainable action in the business sense means balancing economic, ecological and social goals to promote the well-being of both current and future generations. This commitment is an essential part of the DNA of Funke Kunststoffe GmbH.

As a key player in the PVC-U pipes and fittings sector, the company is committed to fostering a sustainable future within the PVC industry. Therefore, sustainable development of this material in all areas – such as the environment, economy and social responsibility – is one of the company's key objectives. With a sustainability-driven approach in the use of raw materials and recyclates, as well as the continuous development of production processes, the company's carbon footprint has already been significantly reduced in recent years.

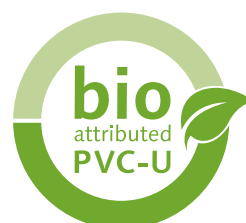
Funke sets an example

Measures 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 Corporate Carbon Footprint (CCF) for Scope 1 and 2 of Funke Kunststoffe GmbH was reduced by 88% compared to the reference year 2015. In the field of sewer pipes, Funke is consistently taking the next logical steps by introducing climate-friendly products.

A change in mindset is necessary

For mass-intensive, durable and high-quality construction products such as the sewer pipe systems offered

by Funke, there are three key factors that are directly influenced by the manufacturer, according to DIN EN 15804. These include, in addition to raw material supply, transportation and manufacturing. In the Product Carbon Footprint (PCF) for plastic sewer pipes such as the HS® Sewer Pipe, approximately 90% of CO₂-equivalent emissions in a cradle-to-gate assessment come from raw material supply for conventionally produced PVC-U. Funke addresses the emissions caused by transportation by using European PVC. In manufacturing, minimised emissions are achieved through efficient production facilities powered by 100% green electricity. Therefore, the most significant lever in the Product Carbon Footprint (PCF) is the material used for production. Mass-intensive plastic pipes with high load-bearing capacities are produced using the co-extrusion process. This makes pipes ideally suited for the use of large amounts of recycled materials. Continuous production monitoring ensures the highest product quality with a 50%-reduced environmental impact.



Secure and sustainable integration with Funke

Sewer connections now with bio-based raw materials

The transition between sewer connection pipes and collectors was long a neglected topic in sewer construction. Funke has been a pioneer in this area, regularly introducing cost-effective and practical products that simplify on-site work in the trench and ensure permanently tight connections. Now, Funke has decided to manufacture all PVC components of these fittings exclusively from bio-attributed PVC-U

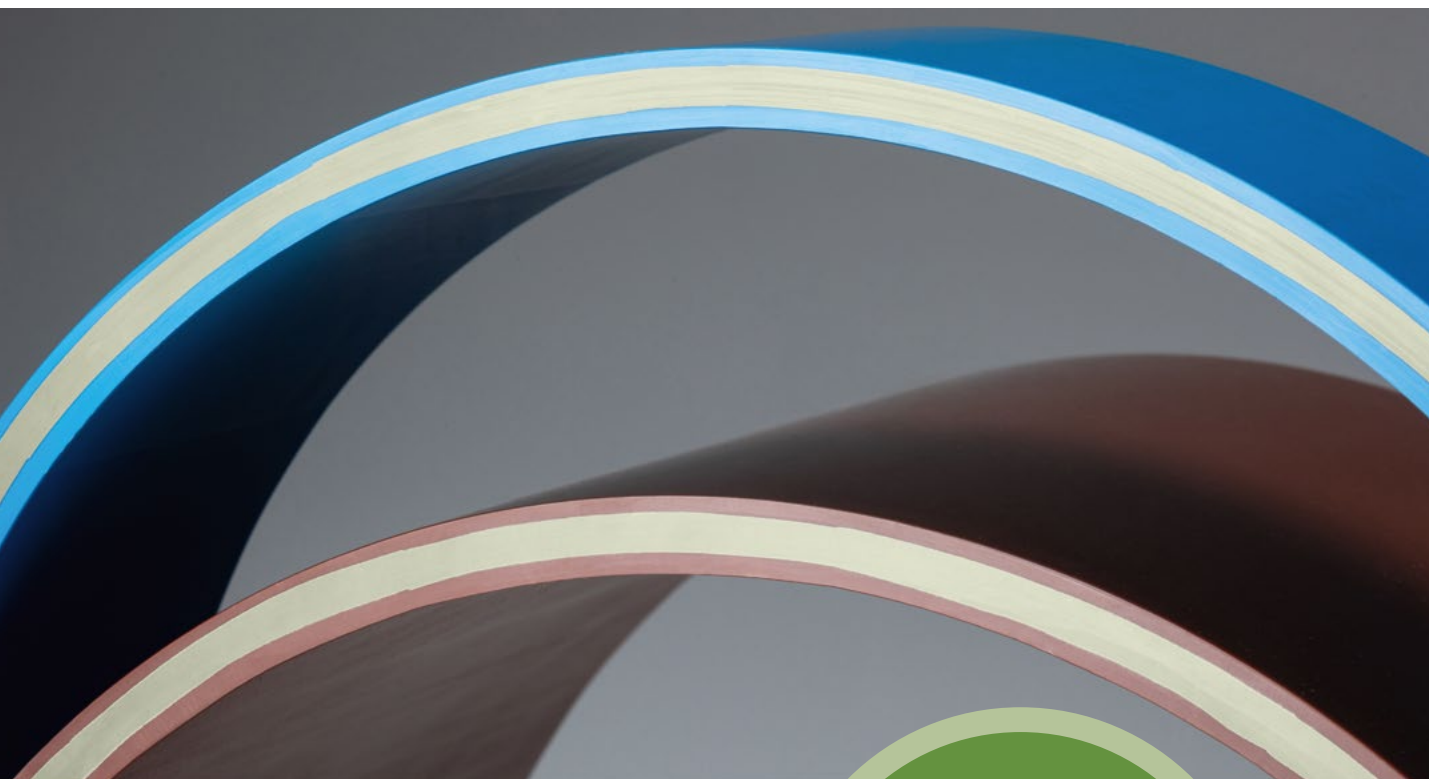
raw materials. This means that since early 2025, the production of Funke's sewer connections has largely eliminated the use of fossil raw materials in balance sheet terms.

More information on bio-attributed can be found here:



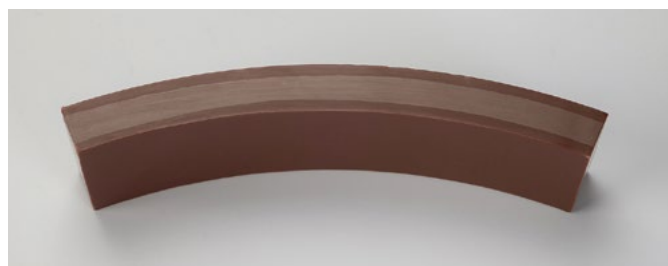
Funke Pipe2Pipe®

Above and beyond the normal standard



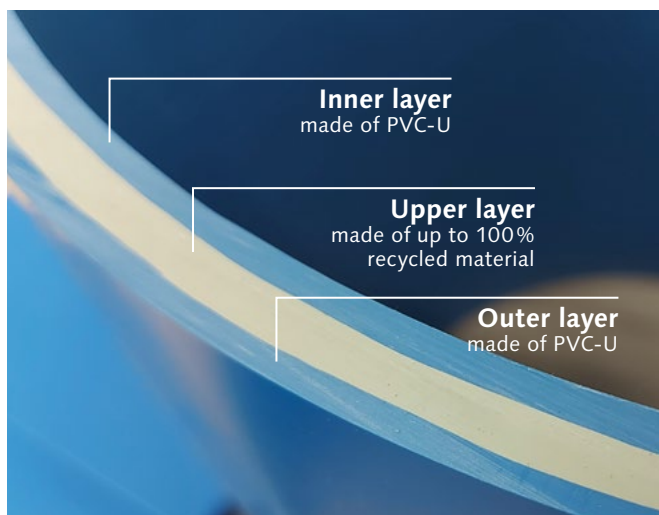
Funke Pipe2Pipe®

Funke Pipe2Pipe® is the sustainable pioneer for closing material cycles. This is achieved through the consistent use of post-consumer and post-industrial recyclates in combination with PVC-U sourced from a supply chain powered by green electricity. Funke goes beyond standard market practices by deliberately embracing the circular economy, where resources are reused, recycled and regenerated. DIN EN 1401 allows a recycled content with an agreed specification of 20%. To make a real impact, Funke increases this share to 40–50% (depending on the nominal diameter) in Funke Pipe2Pipe®. After all, only a consistent avoidance of CO₂ emissions aligns with our philosophy and is the right step towards a decarbonised industry.



With Funke Pipe2Pipe® – the new pipe made of approx. 40% recycled material – Funke Kunststoffe is going sustainably into the future.

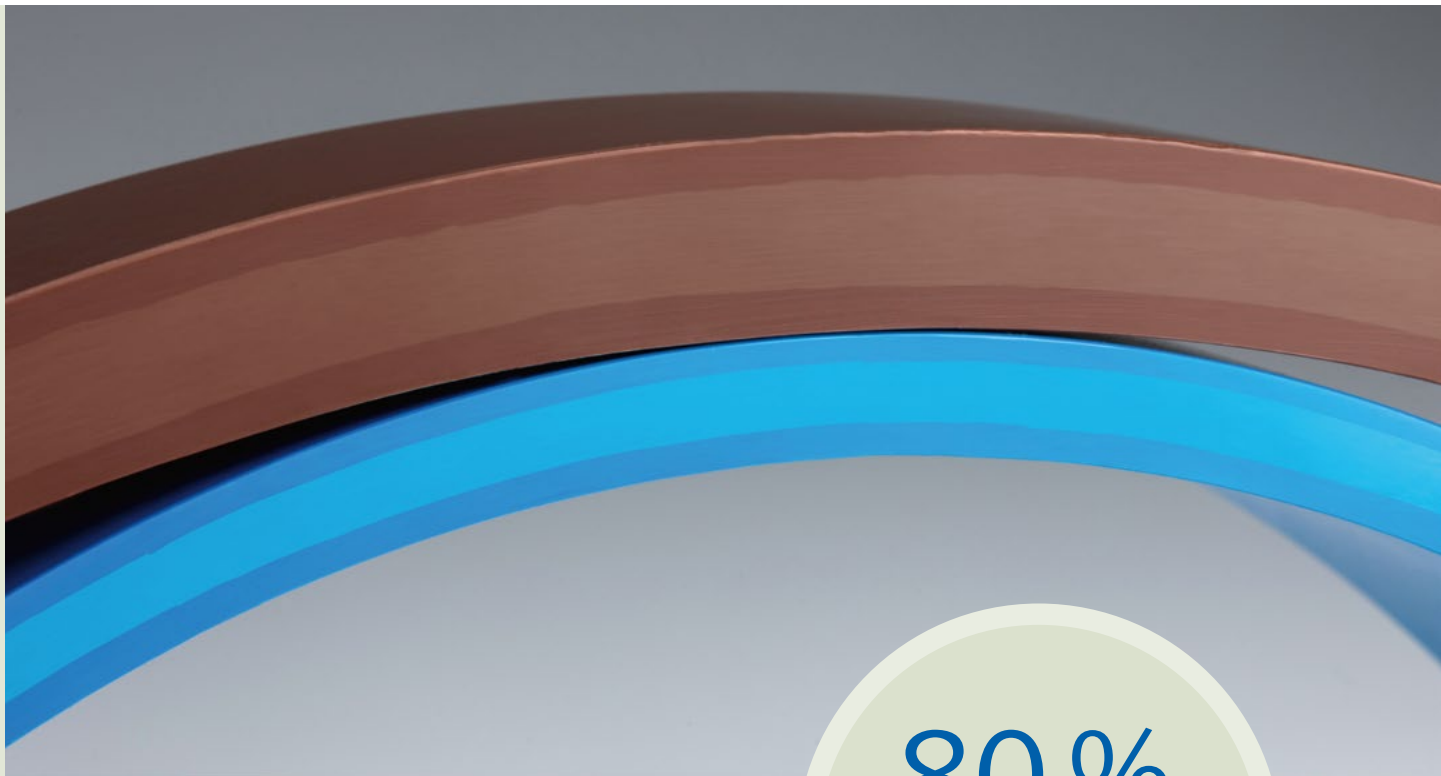
50 %
CO₂ savings
in Pipe2Pipe
pipe



In the Funke Pipe2Pipe®, the core layer consists of up to 100% PVC-U recycled material.

Funke Plant2Pipe®

Sustainability redefined

**80 %**

CO₂ savings
in the Plant2Pipe
pipe

Funke Plant2Pipe®

Funke Plant2Pipe® goes one step further and relies on up to 100 % bio-attributed 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 HS® Sewer Pipe, a reduction in CO₂eq of up to 80 % is possible.

Replacing fossil raw materials

For the production of bio-attributed PVC-U, plant-based raw materials are used to replace petroleum. This means that fossil resources are substituted with a renewable alternative that does not compete with food production. Pipes labelled with Funke Plant2Pipe® are equal to high-quality HS® sewer pipes in terms of quality, workability and durability.

In addition to using recyclate, bio-based PVC-U is the uncompromising alternative with low environmental impact while still using new material. Against this backdrop, Funke offers these new alternatives to clients, planners and network operators. After all, the new construction and renovation measures implemented by customers should last for many years and also offer future generations a safe and functioning underground infrastructure.



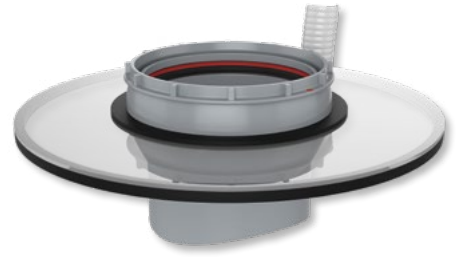
Funke Plant2Pipe® offers sustainability plus. The pipe uses 100 % bio-attributed PVC-U.

Funke Renovation Sockets DN/OD 160 and DN/OD 200

Unique installation and function

The Funke Renovation Sockets DN/OD 160 and DN/OD 200 are the ideal solution for repairing or retrofitting sewer connection pipes into collectors made of materials such as concrete or vitrified clay when openings are broken or dimensionally unstable.

When fitted correctly, the Renovation Socket ensures a press fit connection. It is available in two nominal sizes: The DN/OD 160 Renovation Socket is suitable for openings up to a maximum of 260 mm, with a minimum required opening size of 200 mm. The DN/OD 200 version can accommodate openings with a



maximum diameter of 310 mm and a minimum of 250 mm.



Typical damage pattern: Broken and dimensionally unstable openings.



Proper installation: The tool is not included in the scope of delivery.



A special casting resin ensures a water-tight connection.

CONNEX Liner Connection System

Press fit solutions from Funke



CONNEX Liner Connection System



The CONNEX Liner Connection System is designed for integrating sewer connection pipes into main pipes that have been rehabilitated using a liner (GRP liner or needle felt liner). The DN/OD 160 version (162 mm bore hole) can be used in main pipes of DN 200, DN 250, and DN 300, the DN/OD 160 version (200 mm bore hole) is suitable for main pipes from DN 400 to DN 1500. As a liner connection, the DN/OD 200 version (200 mm bore hole) can be used in main pipes from DN 250 to DN 1500.

Press fit, tension-free, tight

Installation is carried out externally through a working window cut into the main pipe/existing pipe using an appropriate tool, such as an angle grinder. A secure connection to the liner is then created by applying

Funke's two-component sealing compound, which compensates for structural irregularities in the liner (≤ 2 mm). The liner connection allows for an angular deviation from 0° to 11° , making it flexible and easy to install while ensuring a tension-free installation.



Installing the CONNEX Liner Connection System: The sealing compound is introduced through an opening in the spacer ring.

Funke Repair Branch and Repair Pipe

Offset-free transitions included



Repair branches and repair pipes are solutions for repairing damaged channels made of vitrified clay or concrete and for retrofitting house connection pipes. The plastic pipes have exactly the same inner diameter as vitrified clay or concrete pipes. This eliminates any offsets at the transitions, providing a

smooth renovation process, especially when using a pipe liner – which is a significant advantage.

Branch DN/ID 200, 250, 300, 400, 500

The Repair Branch (45° and 90°) allows sewer connections to be retrofitted to channels made of concrete or vitrified clay. For this, the Repair Branch is integrated

into the existing pipeline section using VPC® Pipe Couplings. Any gaps between the Repair Branch and the pipe ends can be sealed with the Repair Pipe.

Repair Pipes DN/ID 200 to 500

With the Funke Repair Pipe, damaged sections of rigid wastewater pipes can be renewed in the simplest way possible: after removing the concrete or vitrified clay pipe needing replacement, the Repair Pipe is precisely integrated into the pipeline using the VPC® Pipe Coupling. Due to the same inner diameters, offset-free transitions are created. The repair pipe is available in effective lengths of 1.0 m, 1.5 m and 3.0 m.



VPC® Delta Ring and VPC® Delta Pipe Coupling

Custom connection technology

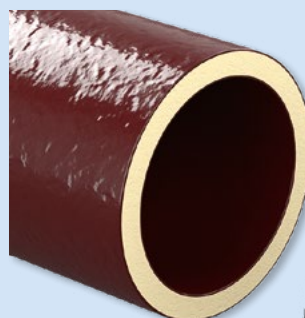
Whether an existing pipe string needs to be resized, or an oversized main channel must be reduced, sewer rehabilitations with nominal diameter changes are not uncommon. Often, there are even two or more nominal diameter differences between the old system and the newly connected main pipeline. When the pipes are made of different materials with construction-specific, significantly varying outer diameters, it has previously been difficult to find a technically advanced and reliable solution for the connection.

Custom-made at the factory

The VPC® Delta-Ring offers an optimal solution. Made from a highly resistant elastomer, this product is specifically designed to allow

wastewater pipes with a round inner diameter ranging from DN 100 to DN 1000 to be connected seamlessly, regardless of materials and nominal diameters. The VPC® Delta-Ring is "customised" in the factory for the specific construction site situation. Only informa-

tion on the pipe types, internal and external diameters and wall thicknesses is required for this. To create a smooth transition according to DIN EN 476, the VPC® Delta Ring is adapted to the larger of the two nominal diameters in outer diameter and factory-fitted with a defined opening for the pipe with the smaller nominal size.



The VPC® Delta Ring also compensates for larger differences in nominal width in an extremely space-saving manner.



Funke Quick Coupling

Installed components can be quickly and safely removed without entry

The Funke Quick Coupling makes it possible to remove installations from a kerb gully or chamber quickly and conveniently without entry. The advantages are plentiful. For example, the Quick Coupling simplifies camera inspection or pipe flushing. Immersion pipes or throttle elements can be removed in no time at all to insert a camera or a flushing nozzle into the kerb gully.

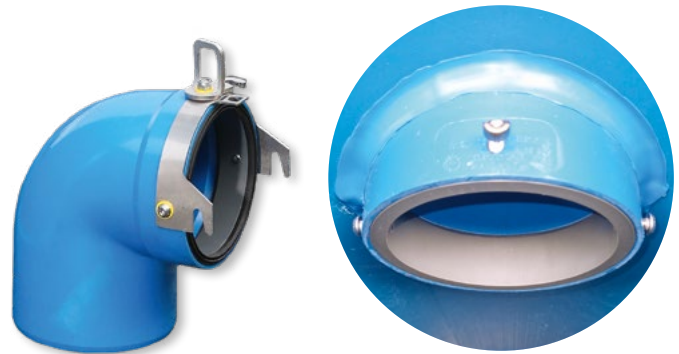
The requirements for products used for wastewater disposal or stormwater treatment are becoming increasingly complex. For example, when it comes to additional installations such as filters or immersion pipes in kerb gullies or chambers. Added to this are rising safety standards and constantly increasing 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 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 throttle element can, for example, be removed from the road surface, ser-



The so-called "loose side" (left) is equipped with the Funke Quick Coupling, while the fixed side (right) is pre-assembled at the factory.

viced and then quickly and easily reinserted. Depending on requirements, it can be fitted with a locking mechanism. If components such as the Funke CompactClean (also see page 11) are installed using Quick Coupling, the weight of the Funke CompactClean prevents the Quick Coupling from coming loose.

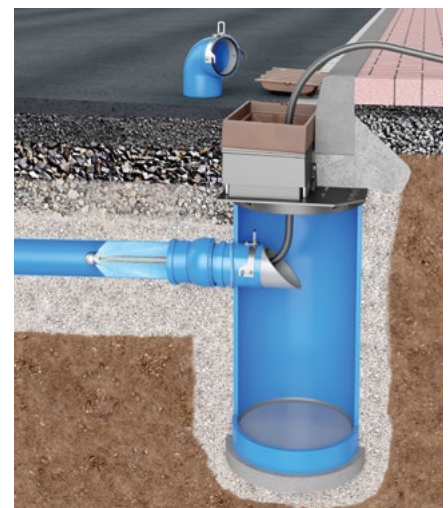
On the other hand, it is advisable to fit smaller components such as throttle elements or immersion pipes with a locking mechanism to prevent them from coming loose due to buoyancy forces or turbulence. A quick coupling for removing chamber installations from deeper wastewater shafts is in preparation.



Installed components can be quickly removed and reinserted.



The fastening is unlocked with a 45° turn.



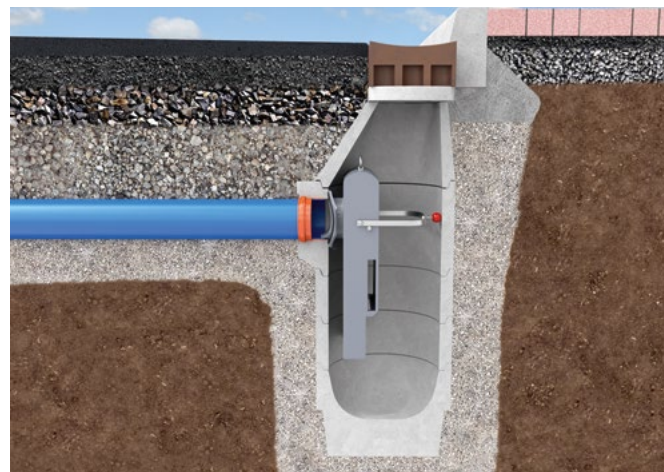
Funke Kerb Gully during a flushing process

Funke CompactClean®

Treat stormwater runoff in the kerb gully



Installation with Quick Coupling Funke CompactClean® cleans stormwater runoff directly in the kerb gully.



The CompactClean is fixed in concrete Kerb Gullies using a specially developed clamping connection system.

With the new Funke CompactClean®, stormwater runoff can be treated directly in kerb gullies. Retention values of 77 % (SS total) are achieved for material intrusions and 57 % for material intrusions $< 63 \mu\text{m}$ (SS63). The compact design enables the suction and flushing of wet silt traps with a built-in filter. The two new connection systems also allows quick installation and removal. For heavy rainfall events, the Funke CompactClean® has an emergency overflow to ensure adequate drainage of roadways even in extreme weather conditions. The maximum size of the stormwater catchment area is 250 m^2 . An integrated immersion pipe serves as an odour trap and ensures better retention of floating sediments.

Additional good retention of microplastics

The way it works is simple: the stormwater enriched with solids and dissolved sediments flows into the CompactClean-equipped kerb gully. The first larger sediments settle in the wet silt trap. The stormwater passes through a substrate layer of the Funke CompactClean®, which retains finer solids and binds dissolved solids. The water purified decentrally in this way is discharged via the connection. Tests carried out in accordance with the test procedure of the German Institute of Structural Engineering (DIBt) have shown that 95 % of plastic particles between $63 \mu\text{m}$ und 1 mm are retained.



A video showing the Funke CompactClean® functioning with the Funke Clamp Connection can be found here:



Facts

Stormwater runoff in kerb gullies is polluted due to material intrusion from vegetation, passers-by, residents and vehicles. It must therefore be treated appropriately before being discharged into waterbodies. In addition to the Federal Water Act (WHG), the State Water Act (LWG) and municipal bylaws, there are technical regulations and guidelines such as handout DWA-A 102 / BWK-A 3, Part 1 and Part 2, for the discharge of stormwater runoff from residential areas into surface waters. In accordance with DWA-A 102, the retention of SS 63 (suspended solids $< 63 \mu\text{m}$) serves as a guiding parameter for proof of sufficient treatment. The separation of solids also entails a proportionate retention of the pollutants (e.g. heavy metals, PAHs) attached to the solids.

Effectively treat stormwater runoff

New substrates from Funke



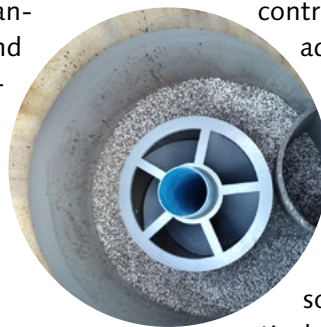
01. D-Rainclean®
02. UrbanClean
03. AreaClean
04. SpurClean
05. LakeClean
06. AgriClean
07. MarinaClean
08. RailClean

Stormwater runoff is effectively cleaned of pollutants as it flows through the D-Rainclean® Substrate.

Funke Kunststoffe responded early to the pressures on waterbodies caused by diffuse emission sources and the associated environmental impacts. For example, the D-Rainclean® Substrate has been successfully used in various applications to eliminate and retain pollutants from stormwater runoff for many years now. At the same time, it served as the basis for developing new formulations with specialised ingredients for additional applications. These include UrbanClean, AreaClean, SpurClean, LakeClean and AgriClean. In addition to these are MarinaClean and RailClean.

Runoff from impervious surfaces is enriched with a wide variety of organic and inorganic pollutants, depending on the type of surface use and construction, for example organic trace substances. They can occur in dissolved form or bound to particles, potentially harming the environment and living organisms depending on their concentration. Mineral oil hydrocarbons (MOH) enter stormwater runoff through exhaust emissions and leaks from fuel or engine oil. Similarly, polycyclic aromatic hydrocarbons (PAHs), which are produced during the combustion of fuels,

also end up in runoff. Heavy metals such as copper, zinc or lead appear in both particulate and dissolved forms, originating from road traffic or the degradation of metal surfaces, such as metal roofs or gutters, which contribute to stormwater contamination. In addition, suspended solids should be mentioned, whose concentration in rainwater is indicated by the sum parameter SS63. These are filterable suspended solids with a grain size of $\leq 63 \mu\text{m}$ (SS63). A significant portion of pollutants, such as PAHs or heavy metals, adhere to these suspended solids. The Funke substrates help to effectively retain a variety of pollutants, thereby protecting both waterbodies and groundwater.



More information on Funke substrates can be found here:

