

Funke

The Funke Kunststoffe GmbH magazine



info

IFAT 2018

Funke Filtration Chamber:

Great efficiency, small workload!

D-Raintank 3000:

A storage capacity that's hard to top!

VPC® Pipe Coupling:

A potentially record-breaking range of nominal diameters!



Funke at IFAT 2018:

Innovative, sustainable, impressive!



www.funkegruppe.com

May | 2018 |

Foreword

From 14 – 18 May, the Messe München Trade Fair Grounds in Munich, Germany, will once more be dedicated to the IFAT, the world's leading trade fair for water, sewage, waste and raw materials management. This year, more than 3,000 exhibitors from all over the world will once again be presenting their products and services across 230,000 m² of exhibition area. Visitors who are interested in the fields of water and wastewater will be focusing particularly on new developments that will make working on their pipeline infrastructure efficient, sustainable and safe.

This provides the perfect opportunity for Funke Kunststoffe GmbH to make good yet again on its reputation as a leading developer of versatile, pioneering, complete solutions from homes to sewer pipes. The company is particularly active in the fields of sewer connections and rainwater management, focusing on products such as pipe connections and chambers. It has expanded its range in these areas, introducing useful further developments for the tried-and-tested cornerstones of its portfolio. Examples of this include the VPC® Pipe Coupling XXL, an extremely effective Filtration Chamber, the pioneering D-Rain-tank 3000 system, the Funke Profile Pipe DN 1000/SN 8, the new FHS Coupling, the new 1000 Plastic Chamber, the BMS-Adapter®, the Renovation Socket, and the Pipe Liner Lateral Connection System CONNEX.

All this – and even a little more – will be waiting for you at our trade fair stand: booth 205/304 in hall B3. Our highly motivated Funke team is looking forward to showing you our new products and the wide range of applications they can be used for. For a sneak preview, simply keep reading this edition of Funke info!

We hope you enjoy the magazine!

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Photos: @Mr Twister/shutterstock.com (page 4, top),
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photo.com (page 20, background)

Printed by: H. Rademann GmbH Print + Business Partner

Funke Kunststoffe GmbH: Hamm's civil engineering



New

D-Raintank 3000



Update

Funke BI-Adapter®
DN 150–1000



New

Funke Profile Pipe
DN 1000



Update

Funke BSM-Adapter®
DN 250–500



The market demands cost-effective (sewer) construction solutions that can be realised using technically sophisticated, affordable and ecologically optimised products. This is where the strengths of PVC-U as a material comes to the fore. Versatile, durable, safe, hygienic, light on raw materials – these are just a few of the terms used to describe the product's outstanding properties. And we could go on: impact-resistant, chemically resistant, recyclable, efficient. Funke Kunststoffe uses these benefits to continuously develop a varied range of products, from plastic pipe and wastewater drainage systems through to modern rainwater infiltration and ground reinforcement systems, as well as a number of other specialist products.

Trade fair news and developments

The newest developments will be presented to a wide audience for the first time at the IFAT trade fair in Munich, Germany. Examples of what is in store include the VPC® Pipe Coupling XXL, which is designed for

professionals make their mark



New

Funke Filtration Chamber
DN 1000



Update

**Funke Repair Junction/
Repair Pipe**
DN/ID 200–500

Update



VPC® Pipe Coupling XXL
DN 1000–2400



New

**Funke
FHS Coupling**
DN 40–110

New

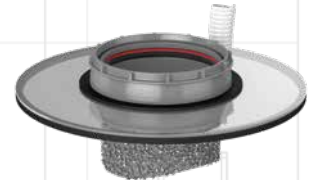
**Funke
Plastic Chamber**
DN 1000



Update

**Pipe Liner Lateral
Connection System
CONNEX**

Update



Funke Renovation Socket
DN/OD 160 and 200

pipes with outer diameters of 1000 mm to 2400 mm; the new Funke Filtration Chamber, which effectively removes pollutants from road and roof precipitation water runoff; and the pioneering D-Raintank 3000 system which, once professionally installed, can store precipitation water and disperse it gradually into the surrounding soil in a three-dimensional pattern.

These exciting products will be joined by the Funke FHS Coupling, which can be used to repair non-pressurised pipelines both inside and outside of buildings; the new, monolithic Funke plastic chamber DN 1000, which has a lower intrinsic weight than conventional chamber structures for easier on-site handling; a new BSM-Adapter® with a wider nominal diameter range for level invert pipe transitions to chambers and pipe sleeves made of rigid

materials such as clay and concrete; and a new generation of Funke Repair Junctions and Repair Pipes.

Finally, the multitude of high-performance, versatile products provided by Funke's R&D department is rounded off by a new Funke BI-Adapter®, which is now compatible with pipes up to DN 1000; an updated Renovation Socket for old and broken lateral sewer connections in need of renovation; and the new Pipe Liner Lateral Connection System CONNEX, which can be used to establish reliable, professional and cost-effective connections to renovated main sewer pipes with tube liners (GRP, needle-felt or synthetic fibre).



Funke Filtration Chamber

Great efficiency – small workload



600 m² catchment area



The Funke Filtration Chamber is designed for effective precipitation water treatment in the tightest of spaces. As it passes through, more than 90% of the sediment – including both dissolved and undissolved pollutants – is retained within the chamber's various filtering sections.

Monolithic design

The Funke Filtration Chamber, which is DIBt-certified, has a monolithic design manufactured using a Funke DN 1000 Profile Pipe. The chamber's main components include a tangential inlet, a vertical spiral lamella structure, a flow separator, a filter unit, and a circumferential fully slotted pipe. The Funke Filtration Chamber is suitable for a catchment area of up to 600 m² (German Centre of Competence for Construction/DIBt).

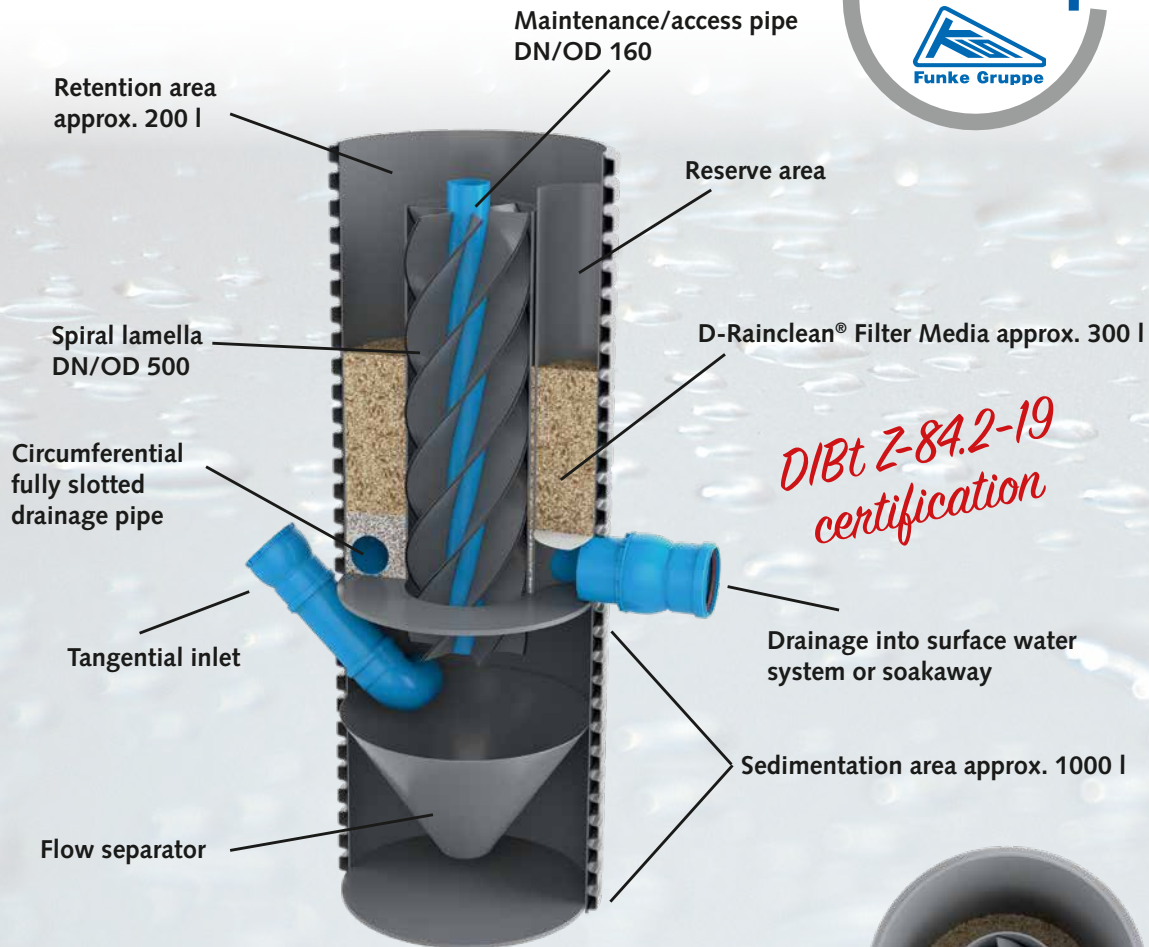
Including its cover plate, the system has a total height of 3.2 m. The height offset between the inlet and outlet is approx. 1.0 m; the outlet

level is approx. 2.0 m. The filter unit consists of the tried-and-tested D-Rainclean® filter media. The rainwater is diverted using a circumferential fully slotted pipe held inside a special gravel layer.

Extensive treatment

The rainwater flows into the filtration chamber via the inlet on the side. Especially at the flow rates caused by high water volumes, the water flowing into the chamber can take on a rotary motion; this causes some of the sediment to sink slowly to the ground, where it is channelled to the bottom of the chamber by the conical flow separator.

The hydrostatic pressure ensures that the spiral lamella structure inside the filtration chamber channels the rainwater upwards. The spiral lamella structure multiplies the distance travelled by the particles contained in the rainwater. In turn, this helps to ensure that the majority of the



Substance	Inlet load/ concentration	Outlet load/ concentration	Efficiency
FAS	30 kg	1.25 kg	95,8 %
Petroleum hydrocarbons	408 g	2.97 g	> 99 %
Zinc	6.250 µg/l	303 µg/l	95 %
Copper	720 µg/l	5 µg/l	> 99 %

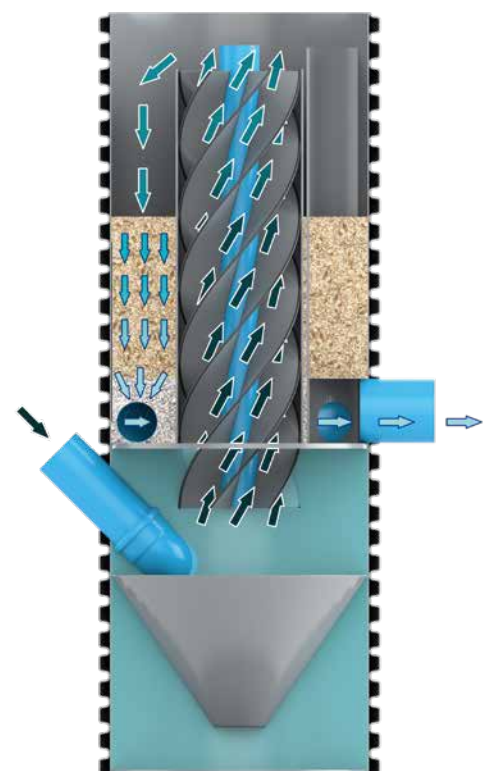
Results of tests carried out in accordance with the DIBt approval principles

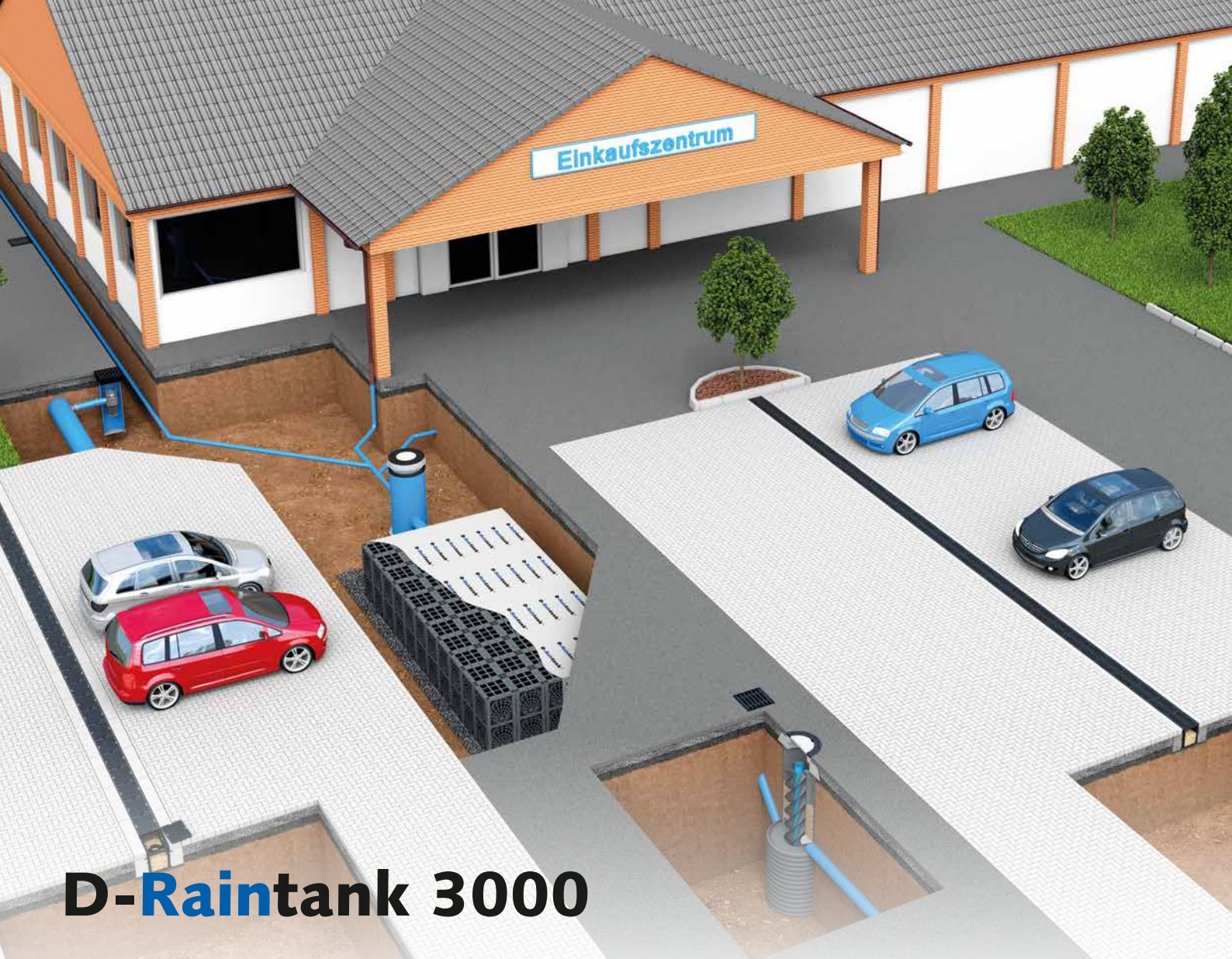
decentralised – efficient – low-maintenance

sediment in the rainwater is retained and sinks down through the vertical lamella structure before the water load reaches the filter media area.

Organic and inorganic pollutants dissolved in the water are retained at this point, then the water is gradually channelled back out of the chamber

body via a circumferential fully slotted drainage pipe.





D-Raintank 3000

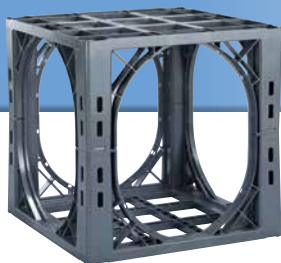
A storage capacity that's hard to top!



The D-Raintank 3000 is also a system for dealing with rainwater in an ecologically sustainable way. Once professionally installed, it stores precipitation water and gradually disperses it to the surrounding soil in a three-dimensional pattern. The low maintenance system is suitable for drainage of roofs, yards, storage areas, roads and commercial areas, and can also be combined with a trough or a Filtration Chamber. It can also be used for overflow infiltration in a rainwater harvesting system.

Optimum transfer of load

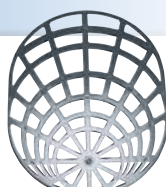
The dimensions of the grey elements of the D-Raintank 3000 system are 600 x 600 x 600 mm (L x W x H). Excellent loading capacity is ensured thanks to the structurally optimised design and the deployment of a highly resilient PVC-U material, which has a modulus of elasticity greater than 3000 N/mm². They are made up of two semi-nacelles, each of which consists of a grid plate with four load-dissipating columns. This design (< 10 kg/element) ensures an excellent transfer of force to the surrounding soil. The positioning and



*D-Raintank 3000
ditch element*



2-way/4-way connector



Side panel



Rainwater management takes on a new dimension

securing of the individual infiltration ditch elements, each of which can be flooded three-dimensionally and which can be stacked three elements high, is ensured using blue connectors.

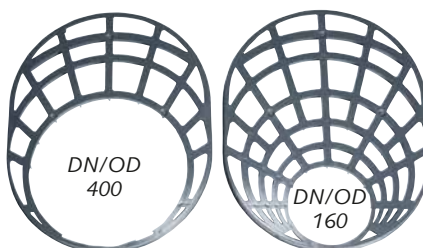
Void capacity: 97%

The void capacity of this system is 97%, whereas a conventional gravel-based infiltration ditch only provides a capacity of around 30 – 35%. Of particular note is how easy the prefabricated elements are to handle on site. They are simple to install, and can be arranged flexibly in case space is limited. The outside of the ditch structure is fitted with specially patterned side panels. On the inside, however, no such panels are required. This allows camera movement and inspection in all directions

without any gaps. DN/OD 160 to 400 pipes can be connected to the side plates

If necessary, the system's D-Raintank elements can be fitted with jetting pipes with a nominal diameter in the DN/OD 200 – 400 range. The inspection block can be positioned at any point in order to allow inspection of the tank.

Connection panels for pipes



D-Raintank inspection block



Inlet DN/OD 400



Inlet DN/OD 160



Installing the jetting pipe

Inspection tank

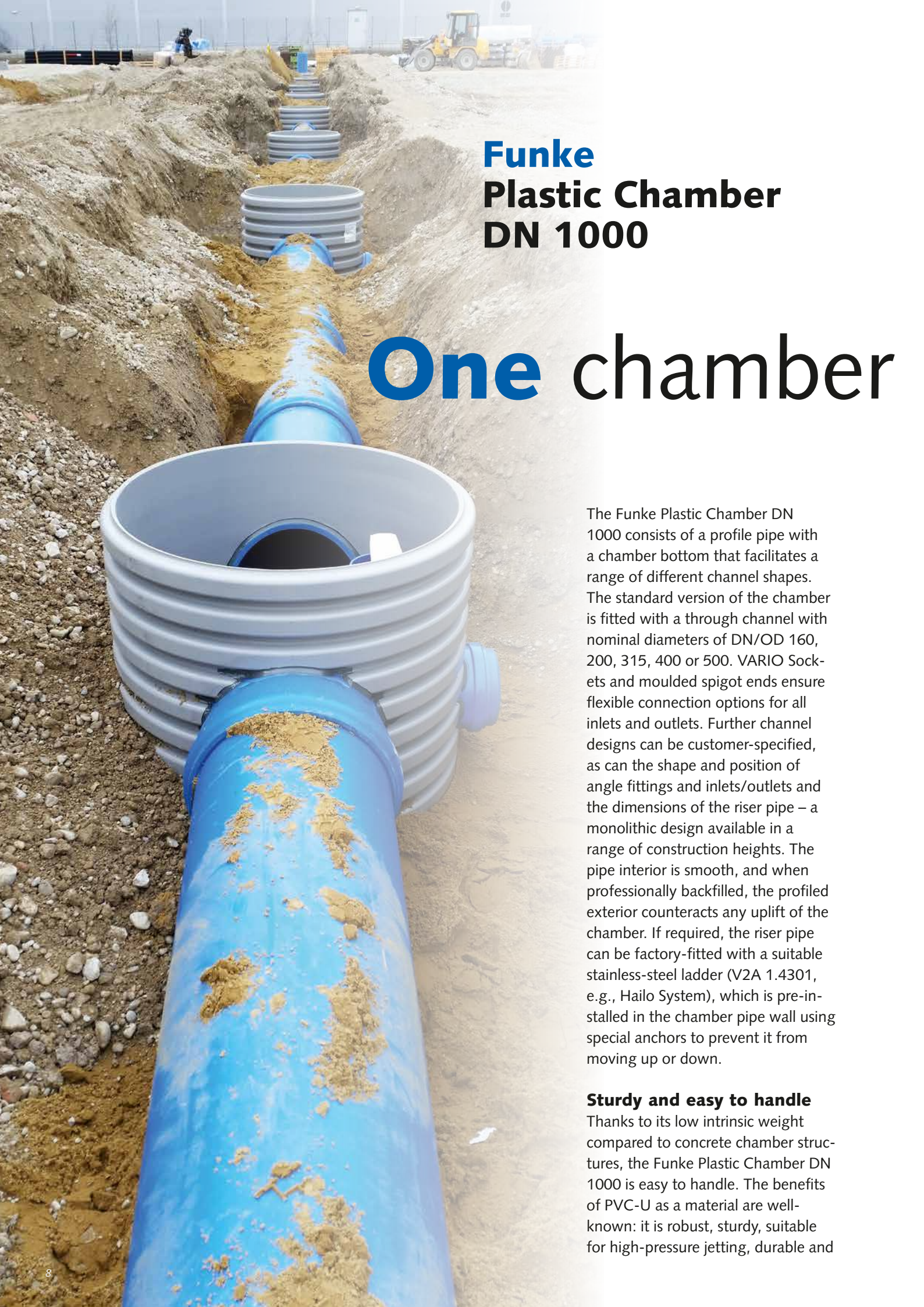


Positioning the connector



Positioning the tank





Funke Plastic Chamber DN 1000

One chamber

The Funke Plastic Chamber DN 1000 consists of a profile pipe with a chamber bottom that facilitates a range of different channel shapes. The standard version of the chamber is fitted with a through channel with nominal diameters of DN/OD 160, 200, 315, 400 or 500. VARIO Sockets and moulded spigot ends ensure flexible connection options for all inlets and outlets. Further channel designs can be customer-specified, as can the shape and position of angle fittings and inlets/outlets and the dimensions of the riser pipe – a monolithic design available in a range of construction heights. The pipe interior is smooth, and when professionally backfilled, the profiled exterior counteracts any uplift of the chamber. If required, the riser pipe can be factory-fitted with a suitable stainless-steel ladder (V2A 1.4301, e.g., Hailo System), which is pre-installed in the chamber pipe wall using special anchors to prevent it from moving up or down.

Sturdy and easy to handle

Thanks to its low intrinsic weight compared to concrete chamber structures, the Funke Plastic Chamber DN 1000 is easy to handle. The benefits of PVC-U as a material are well-known: it is robust, sturdy, suitable for high-pressure jetting, durable and



Combi-Chamber



– many possibilities



light – versatile – future-proof

offers a high level of chemical resistance. The chamber is also easy to inspect and maintain during operation.

Versatile use

The Funke Plastic Chamber DN 1000 is available for a huge range of different applications. The Flow Control Chamber can be used whenever the flow of precipitation water needs to be controlled as it is channelled into the storm sewer system. This is the case after it has been through a rainwater treatment facility or an infiltration ditch, for example. The flow control element inside the chamber can be delivered pre-set on request. The inspection chamber provides a very simple means of carrying out all the necessary maintenance tasks, such as camera movement, jetting, cleaning, etc. The Funke Plastic

Chamber is also available as a (rain-water) treatment chamber. The Combi-Chamber allows drain water and rainwater to be channelled through a chamber separately. While the drain water flows through the channel to the chamber bottom, the rainwater flows through outlets with a nominal diameter of DN/OD 400 in the side walls of the chamber. The tangential pipe connected to the chamber body can be accessed via a cleaning hatch on the inside of the chamber. Several different opening sizes are available for this hatch.





New VPC® Pipe Coupling XXL

A potential record-

The VPC® Pipe Coupling XXL is designed for pipes with outer diameters of 1000 mm to 2400 mm. The VPC® Pipe Coupling XXL allows pipes that have the same nominal diameter but are made of different materials to be joined to one another seamlessly and reliably – even if they have very different outer diameters due to their design. This includes corrugated, ribbed, clay, GRP and other smooth-walled pipes.

Reductions of up to 50 mm

The Funke VPC® Pipe Coupling XXL comprises a reducible, elastomer-rubber seal collar, a centrally reducible plastic mounting cage, and two stainless-steel bands for force dis-

persal that allow separate, infinitely variable diameter adjustment on both sides. The design of the VPC® Pipe Coupling XXL facilitates reductions of max. ≤ 50 mm. The reduction is performed separately on both sides, and is centred evenly. The transmission of force to the stainless-steel bands is ensured by a hybrid tensioning system. The tensioning elements are easily accessible, and the screw connection is made from just one position.

Large yet sturdy

Plastic sleeve profiles ensure that the component remains robust and prevent any collapsing or bending of the collar during fitting. A

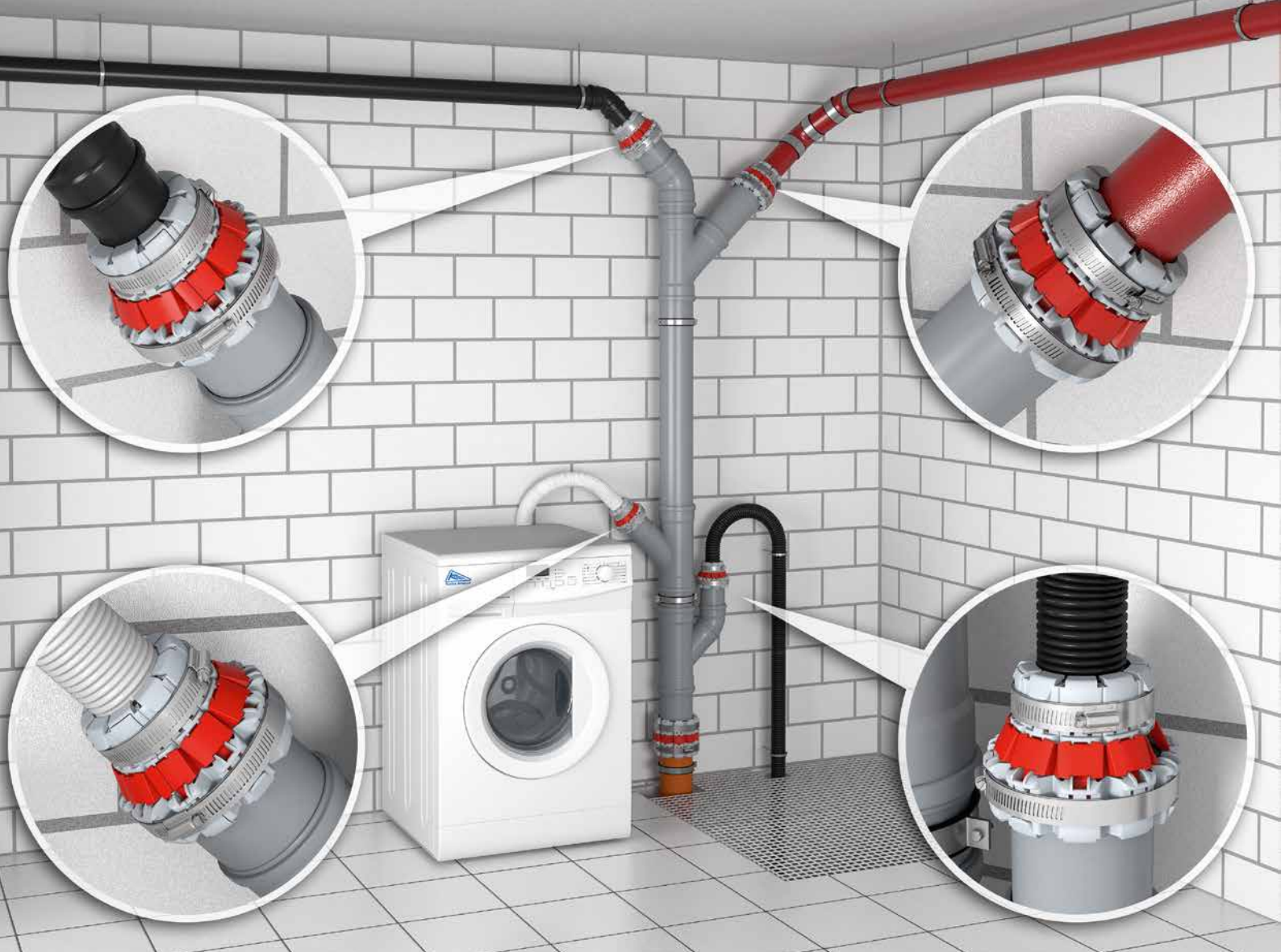


breaker!

multi-double-sealing profile with an unusually large width of 380 mm (insertion depth of 190 mm on each side) forms the basis for a professional, tight and secure connection between the pipes.

VPC® hybrid tensioning system





Funke **FHS** Coupling 40–110 mm

Always well connected



96% of the German population is connected to the country's public sewer system. A huge variety of pipe materials and nominal diameters are used in more than 40 million households throughout the country, carrying an average of more than 120 litres of wastewater per person, per day. Especially when renovating non-pressurised sewage pipes and repairing damage, installation technicians require products that are easy to handle under on-site conditions – such as when they need to connect pipes with different outer diameters and materials, for example.

Funke Kunststoffe GmbH offers a quick, versatile and water-tight solu-

tion to this problem: the Funke FHS Coupling 40–110 mm. The Funke FHS Coupling can be used both inside and outside of buildings.

Versatile use

The newly designed grey-red-grey swivel-hinge coupling is suitable for connecting wastewater pipes with differing outer diameters, materials and surface structures. Depending on the clamping range, this also allows for changes in dimension, e.g. DN 50 with DN 63 for inhouse drainage pipes. The coupling can be installed vertically as well as horizontally, and it is suitable for use both underneath concrete and below ground. It can be used to connect pipes made of any



for pipes inside and outside buildings

Code	Clamping range	Width	Max. reduction
FHS40	40 – 65 mm	85 mm	25 mm
FHS50	50 – 80 mm	85 mm	30 mm
FHS75	75 – 110 mm	85 mm	35 mm

common material, such as cast iron, steel, PP, PE, PVC or clay, as well as other types of smooth or corrugated pipes with nominal diameters ranging from DN/OD 40 to DN/OD 110. The clamping ranges possible for the aforementioned nominal diameters are 40 to 65 mm, 50 to 80 mm and 75 to 110 mm.

Extremely flexible

This three-part swivel joint coupling, which consists of several exterior profiles and one connecting element, is designed for utmost flexibility. When fastened to the pipes that need to be connected, it reduces in diameter as needed. This ensures a seamless fit and an optimum match with given pipe geometries. Once the tensioning bands around the profiles have been

tightened by hand, the swivel joint coupling is force-fitted onto the pipes that need to be connected. The profiled seals provide the necessary water-tightness.





*Secure connection
of different external
diameters*

Funke BI-Adapter® now for pipes up to DN 1000



*with DIBt Z-42.5-546
certification
for DN 150 - 600 designs*



The Funke BI-Adapter® is a solution that allows you to securely connect pipes that are circular on the inside only – concrete pipes with a base or with top reinforcement, for example. The adapter consists of three components: an inner sleeve made from stainless-steel, a sealing EPDM collar and an expansion wedge, which is also made from stainless-steel.



Fast, flexible, water-tight

The EPDM-covered stainless steel barrel is inserted into the pipe. The user then expands it by driving in the wedge, which force-fits it onto the inner wall of the pipe. Several sealing ribs arranged in a ring shape ensure that a tight joint is formed. The VPC® Pipe Coupling included in the deliv-

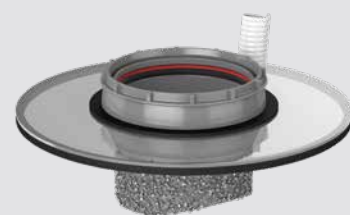


ery is then mounted and fastened on the other end of the BI-Adapter. This makes it possible to connect a pipe with a circular outer geometry. The outer diameter of the pipe that needs to be connected must be within the clamping range of the VPC® Pipe Coupling being used. The Funke BI-Adapter®, which is DIBt-certified, is available for pipes with nominal diameters of DN 150 to DN 1000.



Funke Renovation Socket DN/OD 200 now available

The Funke Renovation Socket is designed for old, worn-out and broken holes inside concrete and clay pipes. Two versions are available: The DN/OD 160 Renovation Socket is ideal for broken areas in pipes measuring max. 260 mm (min. 200 mm); with the DN/OD 200 version, the broken areas must not be larger than max. 310 mm in diameter (min. 250 mm). Thanks to its design, the Renovation Socket allows lasting, reliable integration of sewer connection pipes. It is fitted with a socket that is adjustable from 0° to 11°. The Renovation Socket comprises a collapsible inner shell, a transparent outer shell, and the socket itself. The tool required for



*For old, worn-out and
broken holes*

installation is also available from the manufacturer, and must be ordered separately.

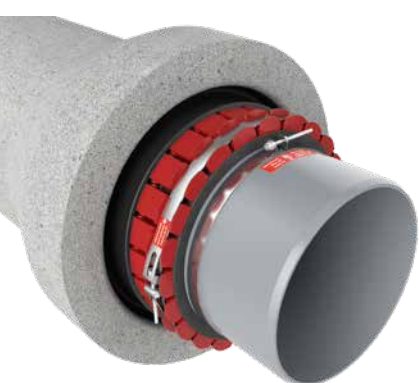




Integration of plastic pipes made easy

Expands nominal diameter range

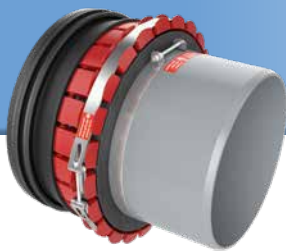
Funke BSM-Adapter® DN 250 – 500



The Funke BSM-Adapter® enables level-invert transitions from pipes to chambers, and from pipes to pipe sockets made of rigid, traditional materials, such as clay and concrete. This year, Funke has expanded the adaptor's nominal diameter range from its previous DN 250 to DN 300 up to a size of DN 500.

Always a level-invert transition

The BSM-Adapter® consists of a body encircled by a row of toggles, which are contracted with the help of a sturdy stainless steel clamp – the seal encircling the device then expands and is compressed into the clay or concrete sleeve. The eccentric arrangement of the toggles ensures that the transition is always on the same level. The adaptor's extremely



large clamping range also means that this system can be used for many different applications. For example, the Funke BSM-Adapter® can be used for transitions to chambers as well as concrete or clay sockets with or without seals.



New Repair Pipe and Repair Junction sizes

The Funke Repair Junction and Repair Pipe are designed for repairing damaged sewer systems made of clay or concrete and integrating new sewer connections. Both components are impressively lightweight and offer outstanding hydraulic properties. The design of the components (identical inside diameter to concrete or clay pipes) keeps the transition between the two materials on the same level, which is essential when adding a pipe liner during renovation work, for example.

Replacement instead of drilling

The Repair Junction (45°, including VARIO Socket) and the Repair Pipe (lengths: 1.5 m and 3.0 m) are currently available in nominal diameters of DN/ID 200 – 500. The Repair Pipe

Identical inside diameters for concrete and clay sewer pipes

makes it extremely easy to replace damaged pipe sections. If a lateral sewer connection needs to be retrofitted into a clay or concrete sewer system at a later date, the Repair Junction is ideal for the job. Since drilling should be avoided for struc-

tural reasons, especially for clay pipes with nominal diameters of ≤ 300 mm, it is generally recommended that such pipes instead be replaced when damaged. 90° junctions can be manufactured upon request.





Pipe Liner Lateral Connection System CONNEX

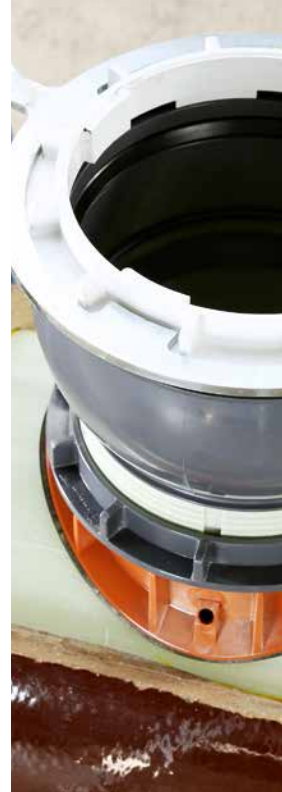
Force-fitted solution



The reintegration of sewer connection lines is still one of the most delicate aspects involved in the retrofitting of sewer pipes with pipe liners. For years now, a range of different procedures and systems have been used. The Pipe Liner Lateral Connection System CONNEX is part of the latest generation of modern, high-performance sewer connections that help to provide reliable, professional and cost-effective connections to main sewer pipes retrofitted with pipe liners (GRP liners or needle-felt tube/synthetic fibre liners).

Three versions

Three versions of the liner connection are available. The DN/OD 160 (162 mm drill hole) version can be used in main sewer pipes sized DN 250 and DN 300, while the DN/OD 160 (200 mm drill hole) version can be connected in main sewer pipes sized DN 400 – 1500. The DN/OD 200 liner connection with a 200 mm drill hole can be used in main sewer pipes sized DN 250 – 1500 and higher. Installation is carried out from the outside using a "working window" cut into the main or existing sewer pipe with a suit-



force-fitted – zero-tension – water-tight



for lined pipes

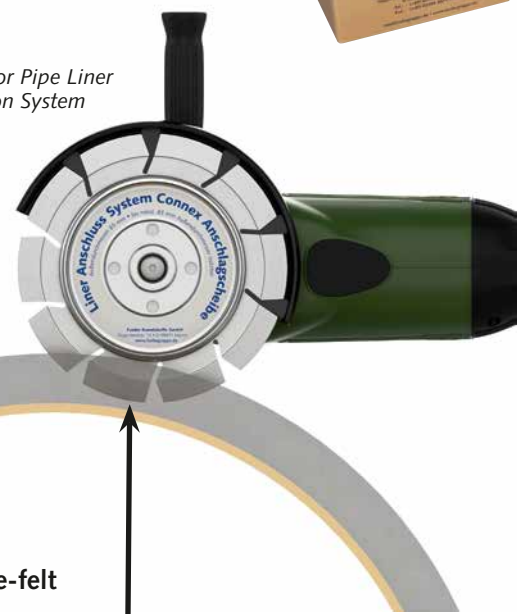
able tool, such as an angle grinder. In order to prevent damage to the liner, Funke recommends using the Funke stop disc. Once the liner has been exposed, the separating films must always be removed. Funke dual-component sealant is then applied in order to create a force-fitted connection to the liner that compensates for any unevenness in the liner due to the design (≤ 2 mm). The packaging of the liner connection is marked in red in order to make it distinguishable from the standard CONNEX-Junction.



Funke stop disc for Pipe Liner Lateral Connection System CONNEX

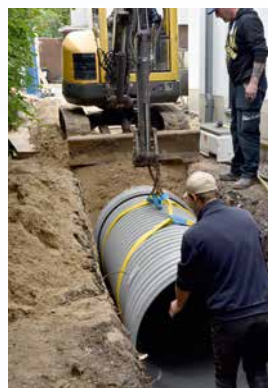
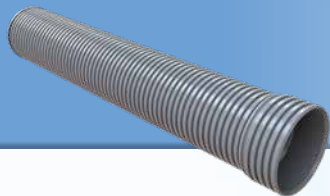
Old pipe wall/wall thickness?

Liner/ GRP or needle-felt



A clearance of approx. 5 mm must be maintained between the cutting wheel and the liner at all times. Up to 15 mm is OK.





Funke Profile Pipe DN 1000/SN8

Durable, robust, sturdy

The Funke Profile Pipe DN 1000 is particularly well-suited to use as a rainwater and mixed-water channel in road drainage systems. It can also be used for other applications, such as storage sewers and rainwater retention systems.

The grey profile pipe is produced in lengths of 1.5 m, 3.0 m and 6.0 m (measurements do not include moulded-on push fit socket). A profile seal ring at the spigot end of the pipe prevents the sewer pipe system from leaking. Fittings such as junctions and bends can also be fabricated to the same nominal diameter as required.

Easy to handle

The Funke Profile Pipe can be laid under road surfaces with SLW-60 (HA-20) loads at a cover height of 1.0 to 6.0 m in accordance with EN 1610. The pipe has a measured ring stiffness of $\geq 8 \text{ kN/m}^2$ (SN 8) in accordance with ISO 9969.

Retrofitted lateral sewer connections can be integrated quickly and easily on site using the DN/OF OD 160 uniTec® Sewer Connection available from Funke.

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