

Energy efficiency/measuring, regulating & analysis technology

01 close – to optimum overall efficiency

Aeration technology and load cycles working in unison provide for maximum efficiency when operating wastewater treatment plants – this is now possible thanks to a new machinery control system by AERZEN. On average, more than 70 percent of the operating expenses of a treatment plant are energy costs for supplying air to the aeration tanks. According to the manufacture, AERZEN's unique combination of blower, turbo and hybrid technology is the best, i. e. the most efficient, solution currently on the market. Its performance has now been lastingly improved yet again – with AERsmart, a new compound control system. This achieves unprecedented overall efficiency, very close to the optimum, as well as creating additional savings of up to 15 per cent. The AERsmart (illustration) also impresses with a new set of control algorithms for analyzing the energy efficiency and consumption of wastewater treatment plants in accordance with DWA regulations. As an intelligent interface, it has already become a landmark component for "Water 4.0".



AERsmart compound control system

Energy efficiency / measuring, control and analysis systems



LT-US-ATEX process monitor

Process monitors with their own ultrasound sensor

These self-contained process monitors have digital and analogue input ports for connecting external sensors, e. g. for measuring pressure, flow, liquid levels, tilt, temperature and position. All measured values are evaluated and stored locally. If measurements drop below or exceed the freely-programmable limit values, the process monitors transmit the measurement data and alarms to the control centre, meaning that the operator is always informed of the current plant status. Any SIM card can be used, including multi-network SIMs with VPN tunnels. The explosion-protected model, "LT-US-ATEX" (illustration) has an integrated ultrasound sensor for monitoring the catchment and relief behaviour of drainage systems in accordance with the German regulations on self-monitoring of waste-water systems (SüVO Abw). This device is even able to adapt its measurement and reporting interval to suit the current system status. Other applications for these process monitors include monitoring of water meters (DMA) and regulating valves (PMA), level measurement, accident alarms and flood protection.

IT services



Integrated communal infrastructure management

Bundle resources, increase efficiency and minimise costs – all this can be achieved using an integrated infrastructure management system. The concept behind this system is quite simple: all facilities and assets are managed together instead of individually. In order to implement this concept, a common information base is needed – such as the infrastructure information system designed by BARTHAUER Software GmbH. This offers operators a comprehensive tool for planning, managing, operating and updating infrastructure objects. The data of above-ground and underground infrastructure elements are maintained and updated centrally. In this way, the data can be made available to different departments and authorities by assigning appropriate access permissions to them. The open database structure also allows future linking of other specialised applications to the system, should these become necessary due to statutory requirements and standards.

Construction services / NO DIG BERLIN



Tie-down rails with integrated LED lighting

Tie-down rails with integrated LED lighting

These new tie-down rails with integrated LED lights (illustration) which need very little energy ensure excellent illumination of the entire vehicle interior. Here, too, bott relies on the widely-used airline tie-down rails and thus on an open system architecture. The actual bott vario vehicle fittings are also mounted on the vehicle walls using rails with the popular airline profile. In this way, the exhibitor is able to integrate additional tie-down points into vehicle side-walls. When a van fitted with this system is later sold, the new owner can continue to use the tie-down rails even if the bott vario vehicle furniture is removed. The new case shelf system with fully-extendable drawers is not only suitable for secure storage of the bott system cases in bott-vario interiors, but also for cases by other manufacturers. One major advantage: the case is drawn out of the rack like a drawer, so the cover can be opened without the case being taken off the shelf board.

Flood Management

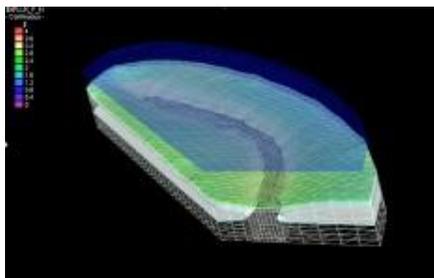


Leaflet on security of the drinking water supply

Emergency potable water supply and enhanced risk analysis method

In accordance with the Emergency Water Control Act, the Federal Government maintains more than 5,200 emergency potable-water wells in major cities and urban areas. At this year's fair, the concept of these wells is explained using an emergency potable water supply model, in this case for the city of Cologne, as an example. The complete equipment for an autonomous emergency well that can be operated even after a total black-out is being shown as well. This includes a pump, generator set and manifold standpipe together with the required electrical and hydraulic connections. The exhibitor is also presenting a risk analysis method that has been adapted for public water supply systems and provides valuable assistance to providers in municipalities, helping them assess their vulnerability to untypical and extraordinary hazards. The development of emergency concepts and the planning of emergency-supply resources in the field of water supply is a further important topic addressed by this exhibitor.

IT services



Surface flood discharge resulting from groundwater flows

Detailed analysis of impact on groundwater

At WASSER BERLIN INTERNATIONAL 2017, the DHI WASY group will be presenting its newly-developed interfacing of FEFLOW groundwater simulation software with the MIKE21 hydrodynamics model. Using this coupling approach, the effects of various measures such as planned re-naturation (restoring river meanders) or structural changes (e. g. weirs and bridges) on groundwater can be analysed in detail (illustration). In addition, the results of integrated models of 3D ground-water flow processes and 2D hydrodynamic processes can be used as a basis for planning flood-protection measures. Exhibition visitors are able to acquire first insights into this technology and will have the opportunity to discuss their current projects and innovative solutions for hydrodynamic applications with the exhibition stand's team.

Flood Management



The DMC system prevents dam failures.

Around the clock information on levee stability

At WASSER BERLIN INTERNATIONAL 2017, Landindustrie Sneek will be presenting the DMC system for active dike and levee monitoring and the prevention of dike failures. The dike control and monitoring system supplies information on the stability of dikes and levees (illustration) 24 hours a day. Impending failure mechanisms such as macro or micro-instability and piping can be prevented by DMC lowering the water pressures on the respective dams or levees. The system's main advantages are cost reduction in dike management and simple and quick installation without interfering with the surroundings. The DMC system was awarded the Water Innovation Prize in 2012 on the basis of criteria such as quality, innovativeness, sustainability and ease of application. This new system has already been implemented in many significant projects, e. g. as a full-scale trial in IJdijk, in primary seawalls at Colijnplaat and Ommelanderzeedijk and in a river levee at Veessen.

ackflow prevention thanks to secure connection between frame and cone

Many towns are affected by flooding. When water overflows from underground drains, it can lift off manhole covers which, in extreme cases, may come to rest next to the manholes instead of on top of them. This poses a great danger to traffic and pedestrians alike. INFRATOP R78 PKS (illustration) with a flange frame offers a solution for towns which are regularly subject to flooding. This is a regular riser or shaft cover, except that the frame can be connected to the riser cone, ensuring secure and reliable connection of the frame to the cone. Nothing changes for the exhibitor's customers with regard to handling, since the covers are the same as all other in the INFRATOP series, except that they can withstand a pressure of at least 0.5 bar. INFRATOP covers can be supplied with various frames: SELFLEVEL frames for asphalt paving as well as standard frames, stone paving frames and flange frames. Apart from standard cast iron parts, the manufacturers also offer versions made of galvanised steel, stainless steel, aluminium and composite materials.



INFRATOP R78 PKS manhole / riser cover

Water extraction

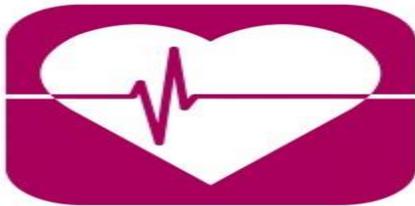


Accutiger slide-gate valve power wrench

Valve control made easy

The multipurpose mobile battery-operated slide-gate valve wrenches by elomat make valve control easy and offer numerous other benefits as well. For example, they are extremely light and powerful and can be put into operation quickly. A wide range of suitable accessories and various support options are available. The machines are equipped with the latest XR-Li-Ion-battery technology and feature an electronic torque shut-off. An added advantage is their compact size, so they take up very little space in the service van. The Accupanther Model 600 Nm is suitable for underground slide valves as well as underground and above-ground hydrants, while the Accutiger Model 1.000 Nm (illustration) can be used for both under- and above-ground valves. The Acculöwe Model 1.200 Nm was designed for use in under- and above-ground fittings as well as for continuous sleeveless stems of up to 85 mm in diameter. All three devices are designed for 20 V and 15 Ah.

Energy efficiency / measuring, control and analysis systems



Heartbeat Technology – reliable and flexible repeat tests

The intelligent alternative solution for safety applications. There is a wide demand for fast and simple tests and inspections, preferably of a high quality and designed not to interrupt plant operation. This is exactly what Endress+Hauser's Heartbeat Technology is offering for flow and filling level measuring equipment. Processes, auxiliary circuits and protection systems have to be tested and inspected regularly, and Heartbeat Technology offers the unique option of testing sensors without having to remove them. A maximum fault detection level and well-documented results allow for considerably longer test and inspection intervals. The advantages are numerous: for the diagnosis functions – process and plant diagnostic messages in accordance with NE 107 with clear instructions; for the verification process – unambiguous and safe "pass / failed" measuring device evaluation and test documentation; for the monitoring functions – early detection of changes (trends), systematic faults and process effects.

Quality assurance/ Science/ Research



ETV – success thanks to credibility

Verification service for new water treatment technologies

Environmental technology verification (ETV) of new water technologies is a new service being offered by this exhibitor as part of an EU Pilot Programme (EU ETV). This institute, located in Katowice, is offering a credible and scientifically sound method of proving that innovative water technologies meet the specified performance requirements, thus allowing successful marketing of these technologies. The institute's staff can validate the claimed innovative, unique features of a technology under inspection. This can improve market opportunities, in particular if the method's performance is better than relevant regulations or standards require. The ETV test requirements applied by the exhibitor are registered and published by the European Commission. As these are recognised not only in the EU but also worldwide, they can help the technology penetrate new markets by demonstrating how it compares with competitors' products.

Energy efficiency / measuring, control and analysis systems



Tracerjet gas tracing method

Locate pipeline water leaks accurately without shutting down operations

The "Tracerjet" tracer gas method (illustration) works even with plastic pipes as well as with extremely long and large diameter pipes. The method involves injecting an authority-approved, detectable gas containing approx. 5 % hydrogen into the network section that is to be inspected.

The proportion of injected gas depends on the current water pressure and is between 5 and 8 % of the water flow rate. This amount is easily soluble in water and causes no problems in ongoing water distribution operation. Even if the leak is at the most inconvenient point, namely the lowest point of the pipeline, the water-gas mixture will still leak there. After leaving the pipe, the gas separates from the water due to pressure reduction, just as in a carbonated-water bottle when opened. To detect the gas and therefore the leak, the ground surface is subjected to vacuum inspection using a light-weight mobile vacuum probe. A high-sensitivity hydrogen detector samples the vacuumed gas and shows the exact location of the leakage.

Water distribution



Rehabilitation of tank 2 of the elevated water reservoir in Hewingsen

Delivery and removal of construction material through a window

Rehabilitation of drinking-water storage tanks is one of Fritz Wiedemann & Sohn GmbH's specialist fields. The company's most recent project: rehabilitation of tank 2 of the elevated reservoir in Hewingsen/Möhnesee (illustration). This more than 60-year-old structure had started to show signs of age and required extensive state-of-the-art rehabilitation. The damaged lining of the water tank, which holds 4,500 m³, was removed completely and the underlying surface was covered using pure mineral mortar with micro-silica additives - blue on the walls and white on the ceiling. The highly-qualified personnel working on the rehabilitation measures found themselves faced with a serious logistic challenge: materials, equipment and rubble had to be transported to and from the tank through a window 4.5 m above ground level. After 9 months of work, tank 2 was put back into service at the beginning of 2016 and has been supplying fresh potable water to the area's inhabitants ever since.

Energy efficiency / regulating and analysis technology + IT services



Fluid-flow simulation (on the left) and mounting of collectors in the RPS

Monitoring of water components

The RPS® tubular diffusive sampler (illustration) allows the use of collector materials for monitoring the components of water taken from a controlled sample flow. In the RPS®, the fluid dynamics of the sampling process using diffusive samplers are optimised and the process is calibrated in advance. This results in distinctly improved sensitivity and reproducibility of measurements from ground-water sampling stations, wells, pipeline networks or surface water. The cumulative sampling results allow the collection of both qualitative and quantitative data on water components. Deployment of an RPS® can also replace complex sampling for a momentary determination of water quality in the case of trace element concentrations or sporadic contamination. The "GCI-MW" web application being shown at the exhibition stand is a tool that allows users to evaluate water analysis results in aggregated form for any desired periods, check them for limit values and document everything in the form of a report – all with a few simple mouse-clicks.

Water distribution



LDA-S, battery-powered gate valve wrench

Peak performance throughout the entire service lifetime

The LDA-S, LDE-S and LEW-S torque wrenches by Gedore Torque Solutions are available with either electric mains power or battery power and have no wear-susceptible friction clutch. Electronically-controlled step-free torque setting and a gentle motor start prevent the gate valve spindle from being twisting off by sudden jerky motions. In addition, there is a smooth electronic shut-down in order to prevent excessive torqueing, and robust planetary gearing ensures a very long service life and high break-away torques. The battery-powered torque wrench LDA-S (illustration) achieves a huge break-away torque of up to 900 Nm. Other versions with 500 Nm and 700 Nm are also available, depending on the drive type. This tried-and-proven technology allows users to work at any location, at any time and for as long as is required. The exhibitor uses lithium-ion accumulator batteries in his products, meaning that peak performance is always achieved without any speed or torque reductions.

Geonex drilling system to be launched on the central European market in 2017

The first Geonex drilling equipment to be set up in central Europe is scheduled for 2017. The machinery will be available either for rental or in cooperation with a special company, allowing fast mobility of deployment. This drilling technology allows users to complete difficult drilling projects in hard rock and/or mixed ground conditions for diameters ranging from 140 to 813 mm and lengths of up to 100 m, while fully meeting time deadlines, costs and quality requirements. In November 2016, the Geonex drilling system (illustration) was deployed in the alpine area for the first time ever in Zermatt (Switzerland) and helped in making this difficult project a success. The system comprises a combination of drill head and ring bits powered by a pneumatic in-hole hammer and rotary drive. The protective steel tubing is pulled along by the hammer and auger conveyors move the spoil out of the drilled hole. The system requires neither a levelled starting trench nor a target trench.



Water extraction



Smart Digital XL dosing pump

Enormous adjustment range and high dosage accuracy

Dosing additives is a core task in many applications, for example in water processing and waste-water treatment. For such purposes, Grundfos provides dosing pumps with a special drive concept: stepping motor technology. Alternative variants with variable-speed stepping motors or servo motors are also available. The exhibitor is now extending its range of products by the "Smart Digital XL" pump (illustration) with a high dosage accuracy of ± 1.5 percent throughout the enormous adjustment range of 1:800. This pump ensures extremely accurate dosing, even for tiny quantities. Dosage rates between 0.075 l/h and 200 l/h can be achieved with only three different pump sizes (60-10, 120-7, 200-4). Thanks to a multi-voltage power supply and multiple approval certificates, the Smart Digital XL can be used anywhere in the world.

Water extraction



Stainless-steel wire-wrapped screen coated with HAGULIT®

High filter capacity and excellent regenerability

Constructing a new well, together with all the necessary drilling work and high-quality lining material, such as stainless steel, is an expensive business. This is not all, the old well has to be shut down, too, and therefore it is often easier to renew this by regenerating it and inserting new piping. Up to now, corrosion-free PVC piping was often used for this purpose since it avoids corrosion induced by the lining materials. However, the reduction in cross-section, combined with the smaller inflow area of PVC filter pipes led to considerable loss in both productivity and regenerability. Now, a wire-wrapped stainless steel screen coated with HAGULIT® combines high throughput and good regeneration capability thanks to the corrosion resistance of the HAGULIT® coating. An initial pilot project using this solution was successfully concluded in 2016.

Water Treatment



MINIMESH RPD HIFLO-S high-performance filter fabric.

Three-dimensional pore geometry

MINIMESH® RPD HIFLO-S opens up new dimensions in filtration, as the exhibitor points out. A new weaving technology developed by Haver & Boecker creates pores with a three-dimensional geometry (illustration). RPD HIFLO-S has characteristics that make industrial filtration processes faster, safer and more efficient. The pore size can be precisely defined before production. Such “precision pores” help to achieve very high separation precision and good shape stability. The pore sizes can be calibrated within a range of 5 µm to 40 mm, as required, within one single production lot. The main qualities of this newly-developed high-performance filter cloth made of woven wire fabric include a flow that is double that of comparable cloths of the same pore size, excellent separation precision and stability, corrosion and temperature resistance of the special materials used, along with ideal contamination retention and purging characteristics.

Construction services / NO DIG BERLIN

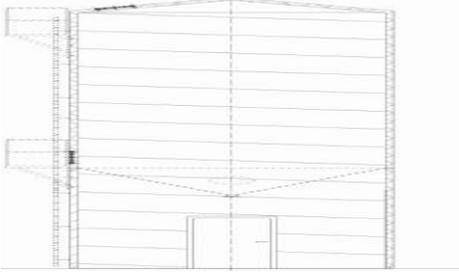


AVNS 350 XB being operated in conjunction with the E-Power Pipe method

Tunnelling technology for small diameters and long sections

With the development of its new AVNS machine technology, Herrenknecht AG now supplies the long-awaited tunnelling technology that is able to combine longer sections and smaller diameters. The first AVNS 350 XB has been successfully built and tested. It creates a tunnel bore diameter of 505 mm and is designed for sections exceeding 1000 m. The most outstanding innovative feature is a new power supply system in the machine and integration of a jet pump used as a discharge pump. In pipe jacking for diameters of 250 mm and over, sections of more than 1000 m can be bored using AVNS technology, depending on the site geology. Also, pipeline diameters of 18 - 30 inches can be handled by applying the Direct Pipe ® method in conjunction with AVNS. In a pilot project starting in February 2017, the machine will be used in conjunction with the E-Power Pipe method (illustration) to lay conduit pipes for underground power cables.

Water extraction



HydroSystemTower

Water tank, small waterworks or pressure interrupter

The installation room is located in the lower section of the tower, below the actual tank. This is where the piping and systems, including control units and switchgear assemblies, are installed. The installation room is accessed via a secure, thermally insulated door. In order to avoid condensation on the inner surfaces, a room air dehumidifier with dew point sensor is installed. The HydroSystemTower® (illustration) is a versatile all-rounder: It can be configured as a simple water tank, as a pressure boosting station, as a small waterworks with water treatment system, or as a pressure interrupter. The HydroSystemTower® is fully assembled at the factory, then transported to the installation site, where it is mounted on the base provided by the user, connected up and commissioned. The diameter of the outer shell, with thermal insulation, is 4.20 m for all models. The tower is available in standard heights up to 15 m. Duplex steels are used throughout for all models.

Construction services / NO DIG BERLIN



MiniLite with NANO L

High-performance inspection and restoration systems

IBAK will be presenting its wide range of inspection and restoration systems in Hall 1.2 at WASSER BERLIN INTERNATIONAL 2017. The sewage pipe inspection specialist will be showcasing not only ORION, the pipe inspection all-rounder, but also ORPHEUS 2, a high-resolution pan-and-tilt camera with excellent illumination capabilities for larger pipe dimensions and precise laser technology for measuring defects. The company, which is located in the north German city of Kiel, will also be presenting its MiniLite camera system for the house inspection sector. In combination with NANO L (illustration), the most flexible and smallest pan-and-tilt camera in IBAK's product portfolio, this system can be used in pipes with very small diameters. In the sewer rehabilitation sector, the exhibitor will be presenting MicroGator, the most flexible and powerful electrically-driven cutting and grinding robot currently on the market. A number of other products from Hunger's large portfolio will also be on show.

Wastewater treatment / technology

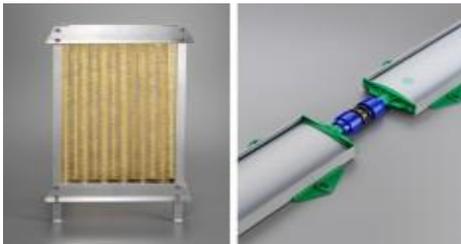


ALPHAMETER system for measuring exuded gases

High-efficiency aeration control

At WASSER BERLIN INTERNATIONAL 2017, INVENT will be presenting the Alphameter, a device for energy-efficient control of oxygen-injection into an aeration tank, along with the "THINK Fluid Dynamix" service, providing fluid-dynamic simulations for water and waste-water treatment plants. The ALPHAMETER system for measuring exuded gases (illustration) is used for continuous monitoring of the current oxygen consumption rate of the activated sludge in one or two tank zones, with an off-gas collection hood floating on each of the zones. Direct determination of the current air requirements of the biological processes allows a novel, highly-efficient method of controlling of the aeration system. THINK Fluid Dynamix specialises in the application of numerical methods such as computational fluid dynamics (CFD). With the aid of its high-resolution, realistic flow simulations, THINK Fluid Dynamix can already reliably calculate all relevant process parameters of the water and waste-water treatment systems during the development phase.

Wastewater treatment / technology



Cleartec® BioCurlz textile fixed bed system (left) and JetFlex SD strip diffuser

Maximum efficiency combined with long service life

Jäger Umwelt-Technik GmbH combines many years of experience in the sewage treatment field with clever, innovative ideas. The company's core competencies lie in the production of ventilation systems for biological sewage clarification and in the Cleartec® textile fixed-bed system (illustration) for improving the performance of municipal and industrial wastewater treatment. Its product portfolio in the field of ventilation solutions has now been extended by the JetFlex® SD strip diffuser (illustration). The high-tensile micro-perforated polyurethane membrane combines long service life with maximum performance. Cleartec® combines the advantages of the structured surface and the flexibility of the textile material with tried and tested biofilm sewage treatment processes. In this way, the use of Cleartec® in conventional aerated basins can increase capacity by up 100 per cent without having a negative effect on downstream clarification processes.

Water extraction



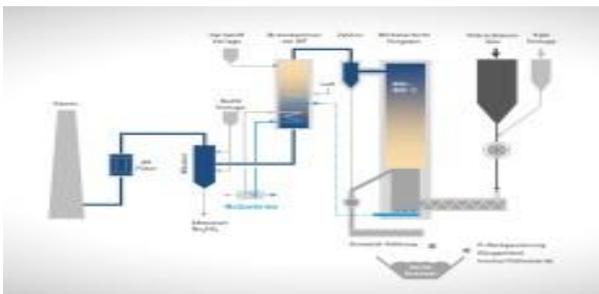
Kaeser DBS screw blower

Screw blowers for a blast

Screw blowers with a power consumption from 15 kW and 8 - 22 m³/min volume flow, and high-performance construction site compressors – these are the two highlights that compressed air system specialist Kaeser Kompressoren will be presenting at WASSER BERLIN INTERNATIONAL 2017. Like its “big brothers”, EBS and FBS, the company’s new DBS screw blower (illustration) shines due to its outstandingly high efficiency. In comparison to conventional rotary piston blowers, the new Kaeser screw blowers are considerably more efficient and offer high energy advantages over a lot of the screw blowers and turbo-blowers currently on the market. These benefits are partially achieved due to the use of Sigma rotary blower technology – a technology which has already proved its value in the screw compressor segment. The innovative slip-free direct drive with speed transmission integrated into the block also contributes to this superior performance.

Compact heat generation module

SÜLZLE KOPF SynGas is an expert in generating energy using sewage sludge and optimising the energy balance of wastewater treatment plants. Following the amendment of German sludge treatment regulations, even treatment plants with a relatively low sludge output will be facing the challenge of thermal utilisation of the sludge. The exhibitor has developed a heat generation module (illustration) for this purpose. Its design is based on experience gained from more than 40,000 operating hours in plants in Balingen and Mannheim. It is suitable for sludge quantities between 750 t/a and 15,000 t/a dry matter. The plant is pre-fabricated at the works and is housed in containers. This guarantees short installation and commissioning times at the operating site and also makes the module highly economical. The plant is available with or without an ORC (organic Rankine cycle), depending on the required energy output mix. The SÜLZLE group, to which the two sludge processing specialists SÜLZLE KLEIN and SÜLZLE KOPF SynGas belong – will be presenting its comprehensive expertise in Hall 3.2.



Compact KOPF SynGas heat generation module

Water treatment

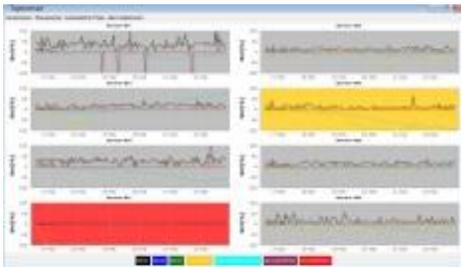


LEGIO.ball Dental

Germ-free water in dental units

Bacterial colonisation in the operating water systems of dental treatment units can only be prevented by suitable hygiene management. The germs "typically found in water" such as legionella, pseudomonas, staphylococci and streptococci, as well as fungi, repeatedly develop in dental unit feed water. The LEGIO.ball (illustration) serves as a barrier that filters any contaminated feed water from the public water network, i. e. it prevents bacteria and sediments entering the dental unit, therefore removing some of the biofilm nutrients as well. LEGIO.ball's advantages include high flow rates, even at low water pressures, a long service life of up to four months, easy installation and fast filter replacement without the aid of tools. An anti-bacterial drain attachment is available as an option.

Energy efficiency / measuring, control and analysis systems



New alarm software of the LBS (LimCo Biosensor System)

Extremely sensitive and reliable toximeter

At this year's exhibition, LimCo International will be presenting the new LBS (illustration), a continuous-flow biomonitoring system for on-line monitoring of the potential toxicity of potable water, river and lake water and waste water. Thanks to a large number of measuring channels, the device can be used as a multi-species biomonitor with simultaneous utilisation of several different indicator species. A new feature is the ability to use even the tiniest microscopic crustacean species and ground-water indicator species as highly-sensitive indicators for chemical pollution peaks, e. g. after chemical spills or bio-terrorism. The alarm algorithms and the electronics are also new, but are still based on the quadropolar impedance transformation developed by LimCo in 1994. This method has been extensively studied and the sensitivity and signal quality have now been optimised. This has resulted in an extremely sensitive and reliable toximeter.

Wastewater treatment / technology

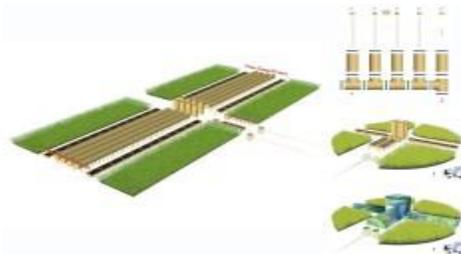


VENTLIT INDUSTRIAL

Highly effective air treatment systems to combat harmful emissions

The VENTLIT INDUSTRIAL series is designed for odour removal from air exhaust systems in public utilities and production facilities, including wastewater treatment plants. VENTLIT INDUSTRIAL's operating principle is based on photo induced oxidation and catalytic sorption processes that ensure a high degree of air purification for many pollutants such as hydrogen sulphide, mercaptans, ammonia and VOCs. Depending on odour composition and concentration, the VENTLIT systems use either a single-stage or two-stage treatment process. The VENTLIT INDUSTRIAL series is available in several configurations with unit capacities between 2000 m³/h and 12000 m³/h for both single- and two-stage treatment processes. VENTLIT is designed as a fully-automatic container unit (illustration) with its own fan. VENTLIT systems can be installed outdoors and operate at a very wide temperature range of between -45 and +45 °C.

Wastewater treatment / technology

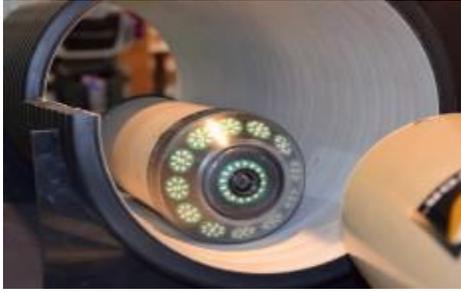


Complete waste-water treatment plant made of large-diameter GRP pipes

The world's first fibreglass piping system for sewage treatment plants

After implementing the world's first fibreglass-pipe rainwater catchment tank to be located in an open body of water, LURI.watersystems.GmbH has now gone one step further: sewage treatment plants using large-diameter GRP (glass-fibre reinforced plastic) piping, completely pre-assembled in the factory (illustration). In comparison to concrete, as used in conventional plants, GRP has some essential advantages as a material: faster planning and construction, lower building and operating costs and no biogenic sulphide-induced corrosion. Using this material, sewage and waste water treatment plants can be planned and constructed within a year. The system uses large-diameter pipes of up to DN 3500 which are produced in the factory to meet the requirements of aerobic or anaerobic treatment technology, modified to suit the respective purpose and then equipped with the required electronic instrumentation and control systems. These plants can be installed above-ground or in an open body of water, therefore eliminating excavation work.

Energy efficiency / measuring, control and analysis systems



MTA Pipe-Inspector

Wireless video inspection of pipelines and integrated leak location

The MTA Pipe-Inspector® enables seamless visual and acoustic inspection of all kinds of transport pipelines during on-going operation. It uses a wireless method, making the seamless optical inspection of pipeline sections of up to 50 km possible for the first time ever. The MTA Pipe-Inspector, which is battery-powered, travels in the media stream being transported by the pipeline and can go around right-angled bends. It can be used in pipe diameters ranging from DN 100 to DN 3000. MTA Pipe-Inspector can also be used for locating leaks in non-metallic pipelines. Leak noises are recorded at the location where they are generated, i. e. directly at the leak, irrespective of the pipe diameter and material. The MTA Pipe-Inspector can also be used to locate high points and air trapped in the pipeline. Its applications typically include waste-water, fresh-water, hydroelectric and industrial pipeline inspection.

WASsERLEBEN



Spree-Wald-Werkstatt

Getting to know sustainable life patterns for the future

The "Spree-Wald-Werkstatt" (Spree River and forest workshop – see illustration) is currently the largest project of the Brandenburg Nature Protection Youth Association ("Naturschutzjugend Brandenburg" - NAJU). In 2015, NAJU set up its environmental education facility on a 10-hectare patch of woods in the lower "Spreewald" region, right on the banks of Lake Neuendorf. Here, children and young people are able to engage in further training and voluntary work, gain social competences and, above all, learn with all their senses about protection of the environment and nature. NAJU offers young people space and support for the implementation of their own projects, during which they are introduced to sustainable and viable life patterns that are in harmony with nature. Interested trade-fair visitors can obtain more information on the "Spree-Wald-Werkstatt" and other NAJU projects such as the nationwide environmental education competition "Erlebter Frühling" (experience spring) at the public "WASsERLEB" show in Hall 6.2.

Water treatment



NEMO, TORNADO and Taskmaster and M.Ovas grinders/macerators

New installation options in tight spaces

At WASSER BERLIN INTERNATIONAL 2017, NETZSCH Pumpen & Systeme GmbH will be showcasing its range of displacement pumps and accessories for water processing and waste-water treatment. Both the compact TORNADO rotary lobe pumps (centre of illustration) and the tried and tested NEMO progressive cavity pumps (left side of illustration), when equipped with the NETZSCH grinder and macerator systems (right side of illustration), can be used to convey not only abrasive and viscous media but also liquid media containing solid matter. A mobile version of the TORNADO rotary lobe pump is also available for use during floods, providing helpers with an efficient and flexible on-site solution. Visitors to the stand will also be able to inform themselves on state-of-the-art "Full Service in Place" (FSIP) technology, allowing pump servicing without special tools – and in half the normal time. Furthermore, in the NEMO pump, the long service times normally required for stator replacement are eliminated. These pumps also open up new installation options where space is limited.

Energy efficiency / measuring, control and analysis systems

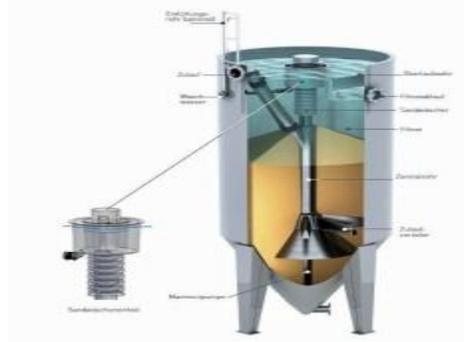


OFR flow sensor

Radar flow metering for Ex-zone 1

This measuring equipment manufacturer from Eppingen in Germany has now obtained TÜV Nord's approval for its OFR flow sensor (illustration) in EX-zone 1 environments. In addition to ATEX approval, mainly required in Europe, the company has also gained approval in accordance with the IECEx standard, this being required above all in English-speaking countries. This means that the device can now be used for contactless flow metering in waste-water and sewer conduits. The flow sensors have IP 68 intrusion protection, making them especially suitable for use in rough environments. As an accessory to the radar sensor, NIVUS also offers a modular stainless steel mount to facilitate installation. The basic model is adequate for installing the radar sensor and an extension is available for installation of a level sensor with protection class IP 68. The manufacturer also offers an optional casing enclosing both sensors inside a compact shell.

Water Treatment



DynaSand® sand filter system

Ideal in combination with microplastics and trace chemical elimination

DynaSand® (illustration) by Nordic Water is the world's leading continuous-flow sand filter system, as the exhibitor points out. The filter was developed in the 1970s by the Swedish Axel Johnson Institute, a direct predecessor of Nordic Water, and has been continuously improved ever since. More than 30,000 installed filters of this kind are proof of their excellent performance. They are equally suitable for eliminating solids as for reducing nitrate and phosphate content (in communal and industrial treatment plants with outflow concentrations of < 0.1 mg/l) and can also be used for eliminating trace chemicals and microplastics. Other application areas are drinking water and process water extraction, as a preparatory stage of desalination plants, for recycling water such as white-water in the paper industry or sintering-water recirculation in steel production, or for the pre-treatment of river water.

Water extraction



8-inch synchronous permanent-magnet submersible motor pump

Energy-efficient pump systems with synchronous permanent-magnet submersible motors

This energy-efficient pump system designed by oddesse Pumpen- und Motorenfabrik GmbH helps water supply companies save energy costs and at the same time make a substantial contribution to protecting the environment. The systems comprise a submersible motor pump with permanent-magnet motor (illustration), a frequency converter and sine-wave filter and have already been successfully put into use by several of the exhibitor's customers. Thanks to the permanent-magnet technology and the carefully matched components, the system's overall efficiency can be increased by up to 9 per cent and energy costs can be reduced by as much as 30 per cent. A substantial reduction of the motor's inherent temperature by as much as 29 K helps to extend the service life of these synchronous permanent-magnet submersible motors considerably. The motors are currently available in 6, 8 and 10 inch versions with a power range of up to 350 kW in both 50 und 60 Hz models.

Construction services / NO DIG



Rock drilling rig

Rock drilling rig with "on board" pump

Prime Drilling's rock drilling rigs (illustration) of the 400 to 1,500 kN pull-force category are powerful machines in which a water-cooled diesel engine powers all driving, tooling and drilling functions. Both feed and pull-back of the hydraulically-powered rotary head bit are driven by a rack and pinion (R&P) system which enables careful control, meaning that these HDD rigs can be used for drilling in the most difficult geological formations. This manufacturer's rock drilling rigs can be equipped with a fully-automatic drill pipe magazine or with a semi-automatic drill pipe delivery system. The "on-board" pump is a special feature of these compact rigs, saving space and providing flexibility both during transportation and on-site. Prime Drilling, as the exhibitor points out, is the only manufacturer for whose products any known location system can be used with a double stand.

Water Treatment



PRAMO® operations management system in use

PRAMOS – the mobile operations management system

PRAMOS® is a comprehensive, integrated and mobile operations management system. It provides users with all the data they need to fulfil their tasks - in digital form and with mobile access anywhere and at any time. Digitised customer-specific data are imported via a standardised data interface, e. g. in XML, OPC or CSV format, consolidated in an object-oriented database with the aid of a special server service and then made available for the front-end system, i. e. the mobile terminal devices (illustration). Wherever process plants or systems have to be started up, operated, inspected regularly, serviced and maintained, PRAMOS® makes a valuable contribution to operation reliability and cost optimisation. PRAMOS® assists plant owners/operators throughout the entire service life of the plant.

Water distribution



AWADUKT FLEX-CONNECT pipe coupling

Universal pipe coupling

In view of the many different materials involved, a universal and above all economical solution is needed when new and existing pipelines have to be connected together as part of the rehabilitation of waste-water canal pipelines. REHAU's AWADUKT FLEX-CONNECT pipe coupling (illustration) not only promises a fast and simple solution to this problem, it brings considerable savings as well. With only 9 product variants spanning diameters from DN 110 to DN 695, AWADUKT FLEX-CONNECT pipeline coupling is suitable for all applications. Whether they are made of concrete, ceramics, PVC, PP or cast iron, whether they have fluted, ribbed or smooth surfaces, all pipelines can be joined together in next to no time. This reduces costly idle times on the construction site. At WASSER BERLIN INTERNATIONAL, REHAU will also be highlighting its AWASCHACHT drain shaft family, together with sustainable systems for rain water management.

Water Treatment



Akdolit® MnFS filter material used in the Hennesee waterworks of Hochsauerlandwasser GmbH

Short running-in times and reliable manganese removal

Water resources containing dissolved iron and manganese compounds are increasingly being used for potable water supplies. In line with this development, the demand for special de-manganisation filters is on the increase. Up to now, failure to trigger off the manganese removal process during the start-up phase, making the addition of oxidizing agent absolutely essential, was more than a rare occurrence and it was this situation that led to the development of "Akdolit® MnFS". The product does not require a running-in period and in water with pH values of around 0.7 ensures reliable manganese removal, also in conjunction with iron removal, without additional process initiation. Akdolit® MnFS is a grainy filter material based on manganese dioxide and a silicate compound that meets all the requirements of relevant standards. The biological catalytic oxidation of manganese and iron occurs directly on the MnO₂ grains.

IT services



Software GW-Base 9 and GW-Web 9

Manage, evaluate and publish water data

The new GW-Base 9 software (illustration) is able to capture and manage all data involved in the operation of water monitoring projects, for example water table levels, withdrawal, discharge, analysis, geological and climate data and data on the measurement station structure. A comprehensive set of data management, project planning, evaluation, cartography and reporting as well as document management functions allow users to handle a wide variety of projects, irrespective of whether these refer to an industrial facility, ground-water rehabilitation or a landfill site. The new GW-Web 9 (illustration) version can be used to publish all GW-Base managed data on the Internet. This allows users to exchange data online with their partners, to inform specific user groups or to provide selected information specifically for the general public. The system is conceived for a wide variety of application sectors ranging from universities, engineering companies and water supply utilities, right up to mining companies.

Construction services / NO DIG BERLIN



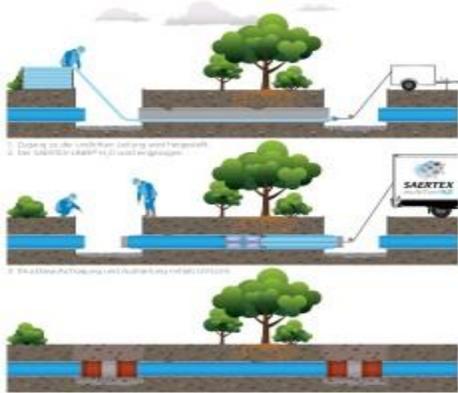
Primus Line being drawn into a pipeline

Flexible trenchless system for pipeline rehabilitation

Primus Line® (illustration) is an unusual solution for trenchless rehabilitation of pressure pipes used for various media, such as water, gas and oil. The process is based on a flexible Kevlar®-reinforced liner and specially-developed connection fittings. Customers benefit greatly from the large entry length of up to 2,500 m in one single section as well as from the ability to traverse bends of up to 45 degrees. Primus Line® is not bonded to the existing pipes and is self-supporting.

A free annular space remains between the Primus Line® and the existing piping. Small access pits, short rehabilitation times and a low environmental impact make Primus Line® the ideal technology for rehabilitating defective pipelines in sensitive environments. Developed by experienced engineers, this system is suitable for the most varied application requirements. It has already proven its value in a great number of projects.

Water distribution



SAERTEX-LINER H2O installation process

Economical and fast rehabilitation of potable-water pipelines

SAERTEX-LINER® H2O is a FRP liner cured using ultraviolet light and can be used for trenchless rehabilitation of potable-water pipelines of diameters between DN 200 and the current maximum DN 1000. This technology can presently be used to rehabilitate water pipeline sections of up to 320 m in length within no time, longer lengths may be possible in the future. All that is needed is a small access pit through which the FRP liner is pulled into the defective pipeline using a winch (illustration). The FRP liner is impregnated under closely controlled conditions in the company's own ISO 9001 certified factory, ensuring consistently good quality. Tried and proven UV technology is used to cure the SAERTEX-LINER® H2O and all important parameters are documented digitally during the ongoing process. As a result, the entire production process is transparent and traceable at all times. Currently the system has been approved for use in Germany, Poland, USA, Russia, Brazil, along with many other countries.

Water distribution



Easy-lock shaft top that can be positioned using a road roller.

Flange frames for fast and flush installation

When installing covers and tops on shafts and drains, time is an important factor. Even more important is precise installation to match the road surface level. Now, Schachtguss-HT GmbH has developed the "EASY LOCK EWF" programme (illustration) to meet this requirement. All frames in this product line have a flange so that road rollers can pass over the covers and tops during installation. This saves an enormous amount of time and also leads to more precise installation. The EASY LOCK frames of the shaft tops and manholes can be fitted with all class D400 covers as specified in EN 124 as well as covers conforming to DIN 1229. A 300 mm high frame has been developed for special installation depths. The tops of all sizes have gratings with a clip-lock and hinges on both sides and can be lifted out of the frame. Since the frames only have a flange on three sides, they can be installed directly against the kerbstone edge.

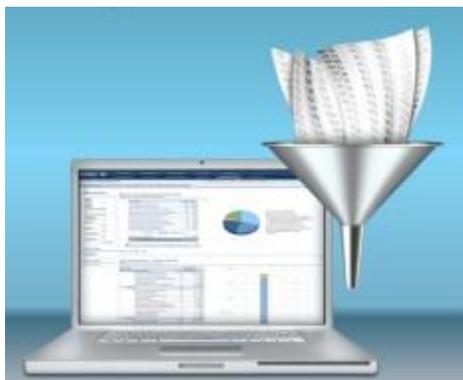
Innovation Plaza - Energy efficiency / measuring, control and analysis technology



Detection of water contaminants at trace level concentrations

This exhibitor from Darmstadt in Germany manufactures high-sensitivity LC-MS/MS and high-resolution mass spectrometry (HRMS) equipment for efficient routine water quality inspections. The "SCIEX X500R QTOF" now provides scientists with quick, dependable and easy-to-operate access to HRMS for detecting a wide variety of known and unknown water contaminants at trace-level concentrations. The compact X500R unit is equipped with the new SCIEX OS software and a highly intuitive user interface as well as methods, lists of compounds and verified MS/MS libraries. The outstanding feature of SCIEX QTRAP® systems such as the latest 6500+ system is that they provide high-sensitivity LC-MS/MS for simultaneous quantification and detection of several types of compound in one single injection and with very little sample preparation. The system is able to analyse pesticides, cosmetics, pharmacological products and other suspected contamination in water samples.

IT services



Development of new integrated solution models

After intensive preparation work, SIV AG has set up a separate water and wastewater management branch. The company's objectives include the development of new, integrated solution models encompassing the entire water cycle, the creation of value-added chains of a totally new quality and the ability to consistently use valuable data across all system and organisational boundaries. In this project, the exhibitor can fall back on the bundled know-how of an entire industry. This includes, for instance, the system pricing model developed by water utility company Rheinisch-Westfälischen Wasserwerksgesellschaft mbH and Prof. Dr. Mark Oelmann of MOcons GmbH & Co. KG, a system that has meanwhile been successfully introduced in more than 20 tariff regions. This interesting procedure concept can circumvent the threatening price and cost spirals that result from reduced demand and demographic change, and can lead to changes in the water charges structure.

Water distribution



Seamless elbow with DVGW certification

Extremely resistant and complying with minimum wall thickness requirements

After many years of research, STAR is now the first and only manufacturer able to produce seamless elbows with DVGW certification (illustration) that conform to the minimum wall thickness specifications according to DIN EN 12201-3 and DIN EN 1555-3, have " $r = 1.5 \times d$ " dimensions and are able to withstand the severest of loads. Products with the DVGW mark ensure users that they have chosen high-quality items corresponding in all aspects to generally acknowledged rules and to the latest state of the art. Standards DIN EN 12201 and DIN EN 1555 specify quality standards for PE plastic tubing and pipe systems for gas and water distribution and pressurised drainage and waste-water pipelines. They cover all dimensions, weld lengths, tolerances and material properties. One of the specified parameters is the wall thickness of seamless elbows. The suffix "-3" indicates that not only the pipe corresponds to the said standards, but the entire fitting as well.

Energy efficiency / measuring, control and analysis technology



AMI SAC254 monitoring unit

Monitoring water quality by means of UV absorption

With its AMI SAC254 (illustration), SWAN is offering an instrument for continuous measurement of UV absorption in order to monitor organic concentrations in potable water treatment. Monitoring of organic concentrations in the feed water makes it possible to show long-term changes and at the same time detect critical developments at an early stage. In this way, the severity of effects of unexpected water contamination, for example with agricultural herbicides or with organic traces of solvents from textiles and industrial waste can be decreased. The dynamic measurement method used by AMI SAC254 combines reliability with application-oriented operation in order to provide the measurement data required to safeguard water quality. Its low maintenance requirements and simple installation are direct results of the tried and proven device concept.

Wastewater treatment / technology



Low-energy, space-saving plant for mobile dewatering of pond sediments

Low space and energy requirements for draining ponds and riverbed silt

As a provider of technical solutions for sludge treatment, SÜLZLE KLEIN GmbH concentrates on machinery and plants for thickening, draining and drying sewage sludge and other suspensions. This year, the company's focus at WASSER BERLIN INTERNATIONAL will be on the use of starch-based flocculants and a new mobile plant (illustration) for drain pond and riverbed silt and sludge in a system that saves both space and electrical energy. This innovative plant evolved from a cooperative project with UWT Swiss and stands out due to its high throughput, low space requirements and low operating cost. The SÜLZLE group, to which the two sludge processing specialists SÜLZLE KLEIN and SÜLZLE KOPF SynGas belong – is presenting its wide-ranging expertise at joint stand 213 in Hall 3.2.

Energy efficiency / measuring, control and analysis systems

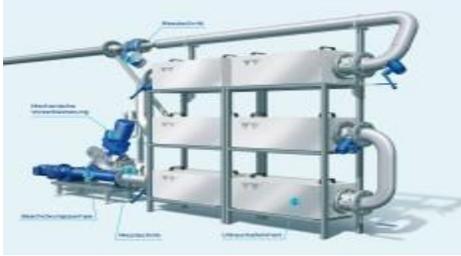


Radar sensor VEGAPULS WL S 61 for the water and waste-water industry

Economical, easily integrated radar solution

Due to a wide range of installation options, VEGA's new VEGAPULS WL S 61 (illustration) liquid-level sensor for the water and waste-water sectors offers an economical radar-based solution and can be easily integrated into existing infrastructures. Radar technology has many advantages and has proved to be a successful solution in many areas of application. Not only is it resistant to temperature changes, wind, fog and rain – it does not require signal propagation time compensation for temperature variations, either. Another major advantage is its measuring accuracy of ± 5 mm. A totally new feature is wireless operation via Bluetooth and smartphone, tablet or PC using PACTware and a Bluetooth USB adapter – making commissioning and diagnostics even easier. In using this new device, clients benefit from the exhibitor's many years of experience. Almost 40,000 radar sensors are already in use in the water and waste-water industry all around the globe.

Wastewater treatment / technology



DisintegrationUltrasoundSystem (DesiUS)

Save operating costs with ultrasound disintegration

The DesiUS ultrasound disintegration systems (illustration) offer energy-efficient and robust cell rupture technology with excellent efficiency for the treatment of biogenic slurry such as surplus sludge in sewage treatment plants. The ultrasonic oscillations create a homogenous and highly efficient cavitation field through which the sludge is then passed. The shear forces of the resulting continuous cavitation implosions tear the biological cells apart, break down the floc structure and open up the cell structure. This results in substantial acceleration of the degradation process, which in turn leads to increased biogas yield and reduction of the amount of substrate that has to be disposed of. The viscosity is also reduced considerably and the dewatering properties of the digested sludge are improved. The DesiUS can also be used to combat organisms such as *Microthrix Parvicella*, for example.

Water extraction and water distribution

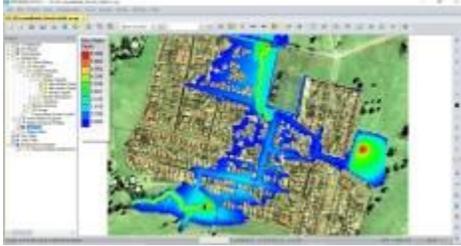


EWE FLEXORIPP underground water-meter installation box

Cut-to-length installation box with high stability

EWE-Armaturen is presenting a new water-meter installation box at WATER BERLIN INTERNATIONAL 2017. This company, with headquarters in Brunswick (Braunschweig), Germany, has been marketing shafts and installation boxes of this kind since 1977 and its first proprietary development was launched in 1993. The company's 40-plus years of experience in designing and marketing in this sector is now benefitting the fourth generation of the EWE underground water-meter box. The fact that the integral box can be cut to length, the great stability of the carcass thanks to innovative rib technology and the possibility of exchanging and retrofitting all interior components - which are all lead free - are innovative highlights in water-meter installation box design. A further special feature is adaptability of the box's load-bearing capability thanks to the various cover options. As its predecessor models, the new "FLEXORIPP" underground water-meter installation box is available for water-meter models Qn 2,5 and Qn 6 or the corresponding designs in accordance with MID.

Flood Management



xpSwmm modelling software

Designing sustainable and nature-compatible drainage solutions

At WASSER BERLIN INTERNATIONAL 2017, XP solutions will be presenting the new tools and functions of its product portfolio. As the exhibitor points out, XP Solutions is one of the world's leading software suppliers for drainage system solutions and flood models, with offices in Europe, Australia, South-East Asia and the USA. These software models are used for planning, design, simulation and modelling purposes. It is important to understand how precipitation water drains away and what then happens in drainage systems and natural bodies of water as well as on the ground surface. The combination of all these phenomena can be simulated as 1D/2D analyses in xpSwmm. The company is also pleased to present its new development, xpDrainage2017, an innovative tool for designing sustainable and near nature drainage solutions, in which all work steps and calculations can be carried out via a user interface with CAD integration.