wks group
WATER.WASTEWATER.ENERGY

WATER

STORM WATER

WASTE WATER

ENERGY

PROCESS ENGINEERING

MECHANICAL ENGINEERING

AUTO-MATION

MUNICIPAL-ITIES

INDUSTRY

Water Supply Business Unit
Technologies and Products

CONSULTING & PLANNING

PROCESS ENGINEERING

MECHANICAL ENGINEERING

AUTOMATION

PRODUCT DEVELOPMENT

MANUFACTURING OF PRODUCT COMPONENTS

OPTIMISATION

INSTALLATION

COMMISSIONING

TRAINING

MAINTENANCE & SERVICE

TURNKEY PLANT CONSTRUCTION

CONSTRUCTION WORK

BUSINESS UNIT

WATER SUPPLY

PRODUCTS, SYSTEMS AND PLANTS FOR WATER TREATMENT AND STORAGE

TECHNOLOGIES

- **2** UV disinfection
- **3** Ion exchanger
- **4** Open filtration and pressure filtration
- **5** Ultra-filtration/nano-filtration membrane filtration
- **6** Dosing technology
- **7** Chemical deacidification
- **8** Mechanical deacidification

PRODUCTS

- **9** Solids injector

- **10** Inlet and intake screens

- **11** Static mixer

- **12** Sludge water observation system

- **14** Sampling stand

- **16** Clean water removal (decanting)

- **17** Air filter system

We turn raw water into drinking water. Our know-how, based on tried and tested, innovative cleaning and treatment processes and products ensures clean and safe water.

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AUTO-MATION

UV DESINFECTION

Installation of UV units for chemical-free disinfection of drinking water

TECHNOLOGY | PROCESS

- Drinking water is irradiated with targeted and measured UV light
- Any germs still left in the water are made harmless.

APPLICATION

- Water purification plants
- Clean water tanks

PROCESS ENGINEERING COMPONENTS

- UV unit
- Link to EI&C
- Piping made of stainless steel or steel-Rilsan
- Turnkey erection of the plant is possible

ADVANTAGES

- Ecological and effective disinfection
- Reduction in chemical use
- Well-accepted by consumers
- Reliable and safe

ION EXCHANGER

Installation and commissioning of ion exchangers for the removal of heavy metals in water purification plants, charging and converting resins from Na-form to Ca-form

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TECHNOLOGY | PROCESS

- Raw water contaminated with heavy metal flows through the ion exchanger, the heavy metal ions (e.g. nickel or uranium) are taken up by the resin, the resin discharges calcium ions.
- The resins are delivered in their regenerated form and after they have been poured into the exchanger they are converted into their Ca-form by wks group.

APPLICATION

- In the treatment of drinking and raw water contaminated with heavy metals

PROCESS ENGINEERING COMPONENTS

- Technical design
- Installation of ion exchanger
- Charging and conversion of resins into Ca-form
- Link to EI&C
- Piping made of stainless steel or steel-Rilsan
- Turnkey erection of plants is possible

ADVANTAGES

- More economical use of supplies
- Reduction in chemical use
- Reliable and safe
- Improvement in drinking water quality

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OPEN FILTRATION AND PRESSURE FILTRATION

Filter units are often the main component of water treatment plants and fulfil various treatment functions

TECHNOLOGY | PROCESS

- Slow/fast filters
- Pressure filters
- Single and multi-layer filters
- Multi-stage filters
- Gravel filters, deacidification filters, activated charcoal filters

ADVANTAGES

- More economical use of supplies
- Tried and tested, robust process
- Long operating times, easy operation
- Reduced use of chemicals
- Reliable and safe

ULTRA-/NANO-/MEMBRANE FILTRATION

Effective cleaning or softening of different qualities of water from different sources

TECHNOLOGY | PROCESS

- Membrane filtration processes are physically acting separation processes that remove particulate and partially dissolved constituents from water.
- Water is pressed through membranes; resulting in all particulate and partially dissolved constituents being separated out.

APPLICATION

- Drinking water treatment
- Wastewater treatment

PROCESS ENGINEERING COMPONENTS

- Technical design
- Installation, commissioning and cleaning
- Link to EI&C and automation
- Piping made of PVC-U, PE, stainless steel or steel-Rilsan
- Turnkey erection of the plant is possible

ADVANTAGES

- More economical use of supplies
- Compact
- Reliable and safe
- Improvement in discharge quality

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DOSING TECHNOLOGY

Effective dosing technology in accordance with water purification plant requirements

TECHNOLOGY | PROCESS

- Flocculant dosing units for reducing phosphate in wastewater treatment plants
- Sodium hydroxide solution dilution units
- Dosing stations for $KMnO_4$, NaOH, chlorine bleach solution
- Lifting units for tanks

ADVANTAGES

- More economical use of supplies
- Reduction in chemical use
- Reliable and safe
- Improvement in discharge qualities

APPLICATION

- Drinking water treatment
- Wastewater treatment

PROCESS ENGINEERING COMPONENTS

- Technical design
- Testing of material compatibilities
- Installation and commissioning
- Link to EI&C
- Piping made of PVC-U, PE or stainless steel
- Turnkey erection of the plant is possible

CHEMICAL DEACIDIFICATION

Chemical deacidification is carried out by means of a filtration process using filter material that is consumed during the process, e.g. Juraperle (calcium carbonate)

TECHNOLOGY | PROCESS

- Calcite-dissolving water is passed through filters containing consumable filter material such as Juraperle.
- The filter material is delivered in special silo vehicles or in sacks, is stored in silos and is loaded into the filters by injection.
- Reloading of the filter material can be automated.

APPLICATION

- Drinking water treatment
- Calcite-dissolving water deacidification

PROCESS ENGINEERING COMPONENTS

- Technical design
- Installation, commissioning
- Link to EI&C and automation
- Piping made of stainless steel or steel-Rilsan
- Turnkey erection of the plant is possible

ADVANTAGES

- More economical use of supplies
- Fewer personnel required
- Reliable and safe
- Improvement in discharge quality

WATER

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MECHANICAL DEACIDIFICATION

Mechanical deacidification is achieved by blowing air through flatbed aerators

TECHNOLOGY | PROCESS

- Calcite-dissolving water is aerated by fine bubbles, thereby removing CO_2 and increasing the pH value slightly.
- The necessary supply and exhaust air is filtered (removal of insects, protected from frost).

APPLICATION

- Drinking water treatment
- Calcite-dissolving water

PROCESS ENGINEERING COMPONENTS

- Technical design
- Installation, commissioning
- Link to EI&C and automation
- Piping made of PE, stainless steel or steel-Rilsan
- Turnkey erection of the plant is possible

ADVANTAGES

- More economical use of supplies
- Fewer personnel required
- Reduced chemical usage
- Increase in operational reliability
- Improved quality of discharge

SOLIDS INJECTOR W-FI 50/1000

Tank and injector for dosing material into the water stream

APPLICATION

Re-filling used-up filter material into deacidification filters. Can be used in:

- Water purification plants
- Drinking water treatment plants

PRODUCT DESCRIPTION

The apparatus consists of a filter material silo and a solids dosing unit with mechanically and hydraulically coordinated components for dosing of solids (e.g. shell limestone) into the water stream. A covered hopper is connected to a rotary valve feeder under a silo. The solids are pumped by means of a jet pump. The cover is equipped with perspex covered monitoring opening. A purging device ensures the solids are completely discharged.

DESIGN FEATURES

- Hopper element made of stainless steel
- Ring water pipe for rinsing out the limestone
- Hopper cover with plexiglass for visual inspection
- Connections for gate valve and rotary valve feeder
- The dosed materials are mixed into the water flow by means of a jet pump
- Installation on adjustable feet
- Sizes:
  Connection to solids pump DN 50/65
  Diameter at top 1,000 mm

ADVANTAGES

- Easy dosing of the solid quantity
- Safe and clean handling
- Refilling of the filter material can be automated
- Visual inspection through plexiglass pane
- Easy access for maintenance work
- Reduced investment and operating costs

SOLIDS INJECTOR W-FI 50/1000

INLET AND INTAKE SCREEN W-ZE 100/4000

Inlet and intake screens for retaining fine and coarse materials from the water streams | Perforated pipes for uniform removal of water

APPLICATION

- Filtration units
- Water chambers
- Pipe systems

PRODUCT DESCRIPTION

- Screen element for retaining the particles present in the water flowing into filter units, water chambers and pipe systems
- Perforated pipe for uniform water inlet and discharge in water chambers.

DESIGN FEATURES

- Type:
  - cylindrical perforated stainless steel cage
  - perforated piping
- Individual screen/hole sizes from 5 to 50 mm possible
- Vertical or horizontal installation
- With or without flange mounting

ADVANTAGES

- Improved safety and reliability of downstream treatment
- Easy, robust design
- Easy installation
- High capacity
- Long life
- Maintenance free

STATIC MIXER W-SM 20/100

Intensive mixing of chemicals into the water stream

APPLICATION

- Water purificatiaon plants
- Drinking water treatment
- Industrial plants

PRODUCT DESCRIPTION

The mixer is installed directly in the pipe, downstream of the chemical injection point. The mixer consists of an FF-piece (double flange fitting) made of PVC-U with a perforated spiral. The arrangement and design of the spiral ensures intensive mixing of the chemical.

DESIGN FEATURES

- Colourless pipe section with perforated spiral is fitted between two flanges
- The mixer spiral can be removed for cleaning
- Sizes DN 20 to 100 with length 100 to 800 mm

ADVANTAGES

- Simple, effective solution
- Intensive mixing of the chemical in the water stream
- Low flow resistance
- Visual inspection possible
- Easy to clean
- Cost-effective in comparison to similar products
- Easy adjustment to the existing configuration as a substitute solution or as an add-on

SLUDGE WATER OBSERVATION SYSTEM W-SB 150

Tank for visual inspection of sludge water

APPLICATION

- Water purification plants
- Drinking water treatment plants

PRODUCT DESCRIPTION

Stainless steel tank installed downstream or between filters with inspection openings:

- for transmission
- for visual inspection
- for sampling

The sludge water produced by backflushing of the filter and for checking the function of automatic air valves. Integration of several filter discharge pipes of varying dimensions is possible.

DESIGN FEATURES

- Tank made of stainless steel
- Completely enclosed design with air supply and ventilation connection
- The pipes to be joined in are connected with fixed flanges
- Inspection opening with inspection cover
- Connection dimension of discharge pipe from 150 to 500 mm

ADVANTAGES

- Reliable and safe
- Convenient inspection of the sludge water
- Easy access for maintenance

SLUDGE WATER OBSERVATION SYSTEM W-SB 150

SAMPLING STAND W-PR 1

Stand for easy sampling of water

APPLICATION

- Water purifications plants
- Drinking water treatment plants
- Laboratories
- Industrial firms

PRODUCT DESCRIPTION

Stand made of stainless-steel for sampling of water fed in via sampling pipes. Designed to maintain driest possible conditions for the installation of analytical measuring equipment and accessories.

DESIGN FEATURES

- Stand made of stainless-steel
- Bolted/anchor fixing or with frame
- Inlet and outlet pipes made of stainless-steel
- Inlet pipes of various dimensions available
- Number of taps customisable (1–15)
- Funnel-shaped basin bottom
- Sheet metal walls functioning as splash-guards
- Sampling valves can be flame-cleaned, with extended discharge section to ensure laminar, bubble-free flow
- Insertable stainless-steel sheet into basin when sampling vessels required to stand in an upright position

ADVANTAGES

- Simple, reliable, functional and safe
- Durable (stainless-steel)
- Clear layout
- Spacious layout for easy sampling

SAMPLING STAND W-PR 1

DECANTER W-KA 50/4500

Removal of clean water from sedimentation tanks

APPLICATION

Removal of clean water (decanting) from collection tanks used for back-flushing filters in:

- Water purification plants
- Drinking water treatment plants
- Industrial firms

ADVANTAGES

- Simple functional solution
- Robust equipment
- Automation via discharge valve possible

PRODUCT DESCRIPTION

The floating clean water removal device (decanter) located in the sludge water tank is of simply stainless-steel with a downpipe. Intake of clean water into the decanter occurs on two sides of the float, beneath the water's surface.

DESIGN FEATURES

- Float and discharge pipe made of stainless-steel
- Pivot-joint at the downflow area
- Mechanically adjustable and lockable
- Downflow control possible via flow measurement
- Sizes DN 50 to 500 with lengths 3,000 to 6,000 mm

AIR FILTER SYSTEM W-LF 1

Effective cleaning of the supply air for blowers & fans in water purification plants
Air supply and ventilation systems for covered tanks and water storage containers

APPLICATION

- Water purification plants
- Drinking water treatment plants
- Industrial firms

PRODUCT DESCRIPTION

The supply air is cleaned by an array of several replaceable standard filters mounted in a stainless-steel housing connected to the blower.

Filter contamination monitoring is integrated into the ventilation system thanks to a differential pressure measurement.

The system also allows for the discharge of condensate via a siphon.

This system ensures reliable ventilation of covered tanks, water storage containers and similar equipment and constant performance.

DESIGN FEATURES

- Exchangeable filters, contamination monitoring and condensate discharge pipes are integrated into the air filter system
- Integration into standard pipe systems
- Automated solution for filter replacement
- Side maintenance opening
- Available in 6 different sizes

ADVANTAGES

- Compact air filter system with monitoring of dirt/contaminants
- Integrated condensate discharge
- Adjustment of blower output
- Streamlined design
- Easy maintenance

AIR FILTER SYSTEM W-LF 1

Innovative products, integrated technologies and intelligently networked systems for municipalities and industries

wks Technik GmbH
Gasanstaltstrasse 10
D-01237 Dresden
Tel.: +49 (0)351 25 08 85-100
Fax: +49 (0)351 25 08 85-200
Email: technik@wksgroup.de

wks Technik GmbH
Niederlassung Thüringen
Gewerbepark U.N.O.
Steinbrüchenstrasse 11
D-99428 Grammetal
Tel.: +49 (0)3643 47 70-100
Fax: +49 (0)3643 47 70-199
Email: technik@wksgroup.de

wks Automation GmbH
Gasanstaltstrasse 10
D-01237 Dresden
Tel.: +49 (0)351 25 08 85-600
Fax: +49 (0)351 25 08 85-990
Email: automation@wksgroup.de

wks International GmbH
Gasanstaltstrasse 10
D-01237 Dresden
Tel.: +49 (0)351 25 08 85-100
Fax: +49 (0)351 25 08 85-200
Email: international@wksgroup.de

wksgroup.de

Group memberships/partnerships

SIEMENS DWA DVGW Member of German Water Partnership