DOSING PUMPS, MEASUREMENT & CONTROL AND DISINFECTION SYSTEMS

Universal products for industrial, municipal and building services applications

be
think
innovate

GRUNDFOS

The full range from one single source

Grundfos offers a comprehensive range of dosing pumps and systems, disinfection solutions, accessories, measurement and controls.

The Grundfos dosing and disinfection product range covers everything from disinfection of drinking water to water treatment in highly sensitive industrial processes. With one of the most extensive product ranges in the market, we are a natural partner for products and solutions within the municipal, industrial and building services industries.

Grundfos also offers innovative solutions in water supply and waste water disposal, chemical and process engineering, food and beverage industry and heating and cooling technology. You can always rely on Grundfos as a competent partner for all applications.

Dosing pumps

Grundfos offers a wide range of dosing pumps. Our innovative drive concepts cover a large performance range with only a few models, and our dosing pumps offer many advantages such as smooth continuous dosing and universal connections to existing process control systems. Digital Dosing™, an optimised dosing head design and 100% stroke length enable you to smoothly dose degassing liquids. With optional integrated flow intelligence features, malfunctions in your dosing process will be detected and displayed, and our AutoFlowAdapt or AutoCal features ensure automatic compensation and recalibration during the dosing process.

Digital Dosing™ – accuracy through superior technology

Traditional dosing pumps regulate the dosed quantity by adjusting stroke length and/or frequency. However, reducing the stroke length adversely affects dosing accuracy. In cases where the dosing pump cannot operate at 100% stroke length, valves will suffer from reduced performance leading to inefficient dosing. Digital Dosing™ offers obvious advantages against solenoid pumps: using a stepper motor, the volume dosed is altered by the discharge stroke speed while continuously utilising 100% of the stroke length, leading to optimum dosing accuracy and better handling of degassing liquids.

Dosing stations and pump accessories

Dosing is precision work and one of the main tasks in chemical and process engineering as well as in water treatment. Dosing stations are easy to install and deliver cost-efficiency and process optimisation, accurately dosing liquids such as coagulants or neutralising agents. Grundfos also offers a wide range of accessories to suit your application.

Disinfection

Grundfos offers a variety of chemical disinfection systems to ensure appropriate disinfection for your applications. For sustainable disinfection, our Selcoperm system generates sodium hypochlorite onsite using only salt, water and electricity. Our Oxiperm system offers a wide range of possibilities for the production and dosing of chlorine dioxide, while our Vaccuperm system offers disinfection using chlorine gas.

Measurement and control

Grundfos offers measurement and control equipment for disinfectants, pH, ORP, conductivity as preassembled compact backboard mounted systems or tank immersed sensors.

Digital dosing pumps

SMART Digital diaphragm dosing pumps up to 200 l/h

Covering flow rates up to 200 litres an hour, and output pressure ratings up to 16 bar, the SMART Digital range delivers reliable, safe, and cost-effective dosing in any application across a wide selection of businesses including water treatment, with industry-leading user friendliness and flexibility. And the advanced monitoring and self-analysis features offered by several control variants provide intelligent process control that looks beyond the pump and keeps an eye on the entire system for you.

A complete package with two pump sizes

The SMART Digital range includes the original SMART Digital DDA, DDC, and DDE pumps which cover flows up to 30 l/h, and the SMART Digital XL DDA and DDE pumps which cover flows up to 200 l/h. All pumps can be supplied with a wide selection of accessories such as installation kits, signal cables, and dosing tanks that make it even easier to customise the pumps to any application.

Service and maintenance friendly

SMART Digital pumps have very long service and maintenance intervals, significantly lowering pump life-cycle cost and contributing to disruption-free, reliable dosing performance. And when service is needed, our tailor-made service kits ensure optimal service that keeps pumps running in top condition for years.

DDA: high-end solution for complex and demanding applications

- AutoFlowAdapt: automatically adapts measured flow to attain target flow
- Auto-deaeration during pump standby
- Flexible Fieldbus control
- Turn-down ratio 1:3000 with constant 100% stroke length

DDC: optimal price-performance ratio

- Two SlowMode steps (25% and 50%), calibration mode, service display
- External stop, dual-level tank control, 2 relay outputs

DDE: a cost-effective Digital Dosing™ solution

- Control options: manual control 0.1-100 %, pulse in % of stroke volume, and analogue control (DDE XL)
- External stop, empty tank control

General-purpose high-performance dosing pumps

DME: digital diaphragm dosing pumps up to 940 l/h

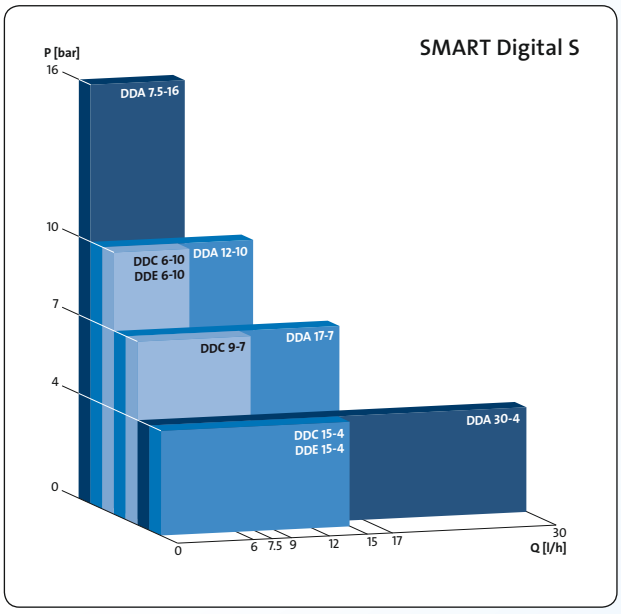
Dosing is precision work, and Digital Dosing™ represents state-of-the-art technology. Grundfos DME Digital Dosing™ pumps combine perfect precision with user-friendliness, covering large dosing quantities up to 940 l/h with few variants.

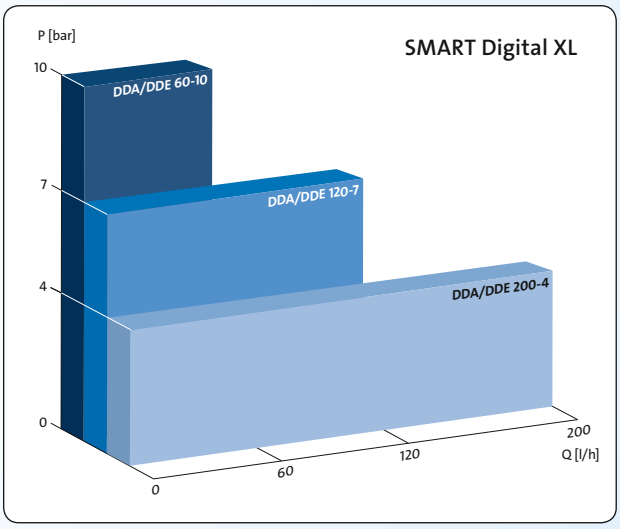
DME: precise and easy setting

- Two pump variants: 375 l/h at 10 bar, or 940 l/h at 4 bar
- Turn-down ratio 1:800 with constant 100% stroke length
- Adjustable slow mode for dosing high viscosity liquids (up to 3000 mPas)

DME4

Flow rates and pressure, SMART Digital





Application areas

Chemical treatment and conditioning of water

- Disinfection and pH adjustment
- Drinking water, process water and wastewater
- Food and beverage, Clean-In-Place
- Ultrafiltration and reverse osmosis
- Pulp and paper, boiler feed water
- Swimming pool water, cooling towers
- Coagulation, flocculation, precipitation
- Chemical industry, car wash, irrigation

Mechanical diaphragm dosing pumps

DMX: mechanical diaphragm dosing pumps “Pre-selected Range” up to 765 l/h

DMX pre-selected range is the fast lane to reliable, tough and well-proven DMX dosing pumps up to 765 l/h. The DMX pre-selected range in the product portfolio of mechanical diaphragm dosing pumps covers the most common applications with a wide performance range from 16 l/h (12 bar) to 765 l/h (3 bar) and a variety of accessories. DMX pre-selected products can be chosen easily and delivered quickly. If necessary, they can be replaced simply and quickly.

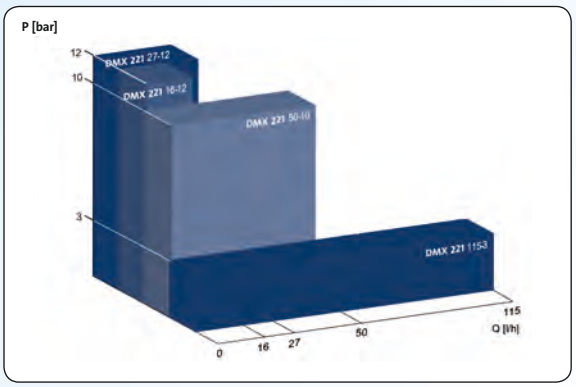
DMX: mechanical diaphragm dosing pumps “Standard Range” up to 2 x 4000 l/h

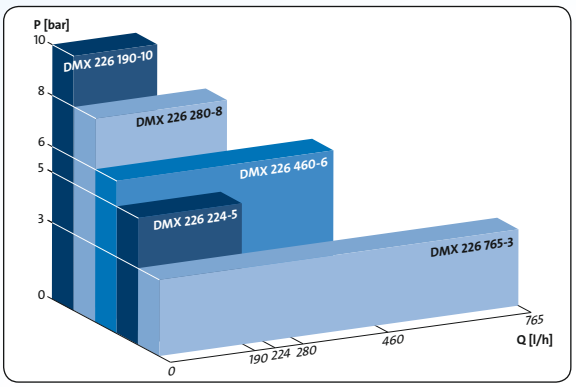
The Grundfos DMX range has proven its worth in dosing applications worldwide. With their robust diaphragm-based design and high-quality motors, DMX pumps require minimum maintenance and are the best choice for many dosing applications. The DMX range is highly versatile: it covers a wide flow range and offers a variety of dosing head sizes, materials and accessories.

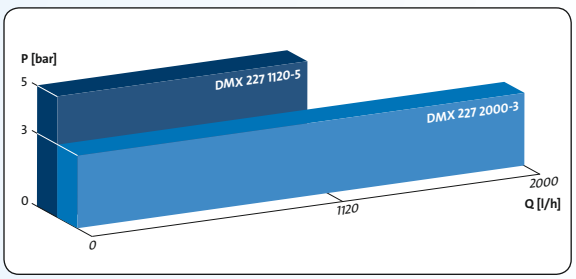
DMX: robust design for minimum maintenance

- Capacity from 0.4 to 2 x 4000 l/h and up to 10 bar
- Double-head versions increase flexibility or dosing flow rate
- Available with ATEX design – certified for EX classified zones

Flow rates and pressure, DMX (50 Hz)







DMX 221 DMX 226

Application areas

Disinfection, coagulation, flocculation, pH correction, etc. in:

- Drinking water treatment
- Waste water treatment
- Pulp and paper industry
- Textile industry
- Cleaning water treatment
- Food & Beverage industry, dairies
- Cooling tower water treatment
- Low-pressure boiler feed water treatment

Hydraulic piston diaphragm dosing pumps

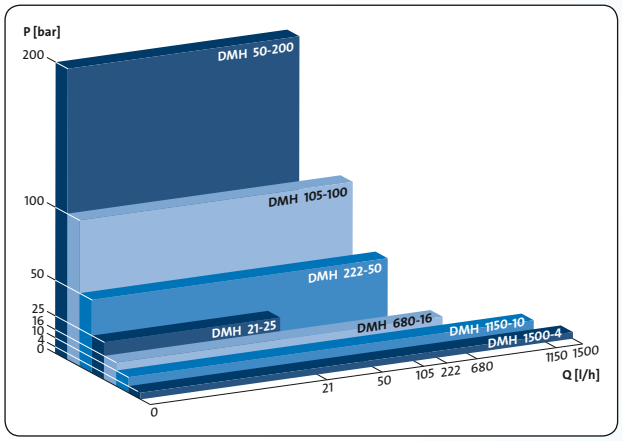
DMH: hydraulic piston diaphragm dosing pumps up to 2 x 1500 l/h and up to 200 bar

The Grundfos DMH range is a series of extremely strong, robust pumps for applications requiring reliable dosing and high-pressure capability, such as process engineering. The range is highly versatile: it covers a wide flow range and offers a variety of dosing head sizes, materials and accessories.

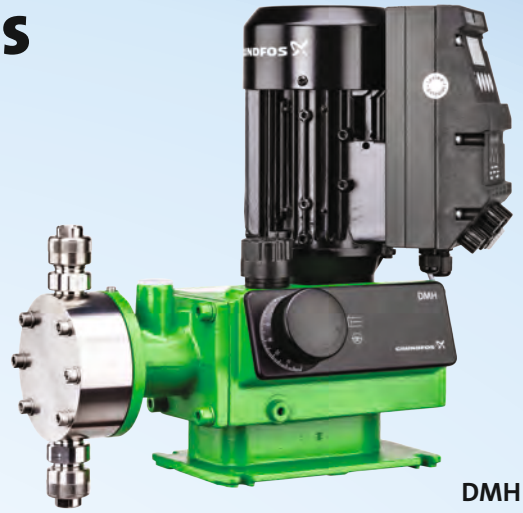
DMH: long lifetime in high-pressure applications

- Capacity from 0.15 to 2 x 1500 l/h and up to 200 bar; available in simplex and duplex versions
- Integrated pressure relief valve and active diaphragm protection system
- Available with ATEX design – certified for EX classified zones and API 675 certificate
- Double diaphragm design and breakage monitoring for max. safety

Flow rates and pressure, DMH (50 Hz)

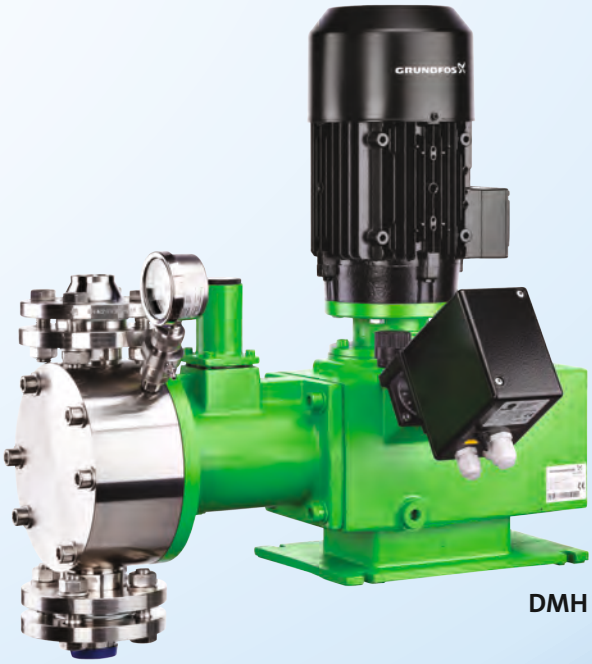


Application areas
– Power plants
– High pressure boiler feed water treatment
– Petrochemical industry, refinery
– Treatment of process water
– Drinking water treatment
– EX zones / dosing of flammable liquids



DMH 251

DMH 255



DMH 257

Dosing pump accessories

Grundfos offers a comprehensive range of accessories covering every requirement when dosing with Grundfos pumps. The range includes:

- Dosing tanks
- Foot valves & suction lances
- Multifunction valves
- Pressure loading valves
- Pressure relief valves
- Injection units
- Hoses
- Connectors
- Cables & plugs
- Hand mixers & electric mixers
- Pulsation dampeners
- Adaptors

Multifunction valve

Mixer

Suction lance

Tank

Pulsation dampeners

Dosing tank and skid systems

DTS: cost-effective dosing tank stations

The cost-effective dosing tank stations for storing and dosing liquid chemicals can be configured by means of a type key and can be flexibly applied to perform various dosing tasks. Made from high-quality materials, DTS units can be employed universally and are easy to install.

Application areas
– Dosing of biocides and inhibitors in cooling water
– Dosing of alkalis and acids for pH control
– Dosing of coagulants (such as ferric (II/III) chloride) for waste water treatment
– Dosing of hypochlorite, dosing of cleaning agents and disinfectants (CIP, cleaning machines)

Complete dosing skids tailored to your application

The complete chemical feed systems are designed to make dosing technology available as a complete package with all necessary pipework, valves and dosing pumps. With more than 30 years of experience designing and fabricating chemical dosing skids, we can deliver standardised packaged systems or build custom systems to your specifications.

Flexibility by design

- Various dimensions, connection locations and installation options
- Choice of materials and accessories in the system envelope
- Filters, electrical controls, containment systems and optional measurement and control instruments

DTS

Dosing skid

Vaccuperm chlorine gas systems

Chlorine – the no. 1 disinfectant worldwide

Chlorine has been used to treat drinking water for more than 100 years and it is the most widely used disinfectant worldwide. When dissolved in water, the actual disinfectant – hypochlorous acid (HClO) – is produced.

Our Vaccuperm gas dosing systems work in accordance with the tried-and-tested full-vacuum principle, which regulates the addition of gaseous chlorine reliably and precisely. The systems are available as compact units of up to 4 kg/h for installation on cylinders and as fully automatic high-performance systems of up to 200 kg/h.

Optional Conex® DIA-G gas warning system to monitor ambient air for admissible gas concentration, and DID measurement and control system to measure and control the residual free chlorine in the water.

Vaccuperm: chlorine gas dosing systems

- Systems for direct installation on chlorine gas cylinders or drums or for installation in header lines
- Fully automated systems (wall or floor mounted)
- Precise regulation and dosing of gaseous chlorine
- Simple handling and user-friendly design
- Complete range of accessories available on request: injectors, automatic changeover units, evaporators, liquid traps, gas warning systems

Application areas
– Municipal waterworks
– Independent water suppliers
– Industrial waste water plants
– Cooling towers
– Swimming pools

VGS

VGA-117

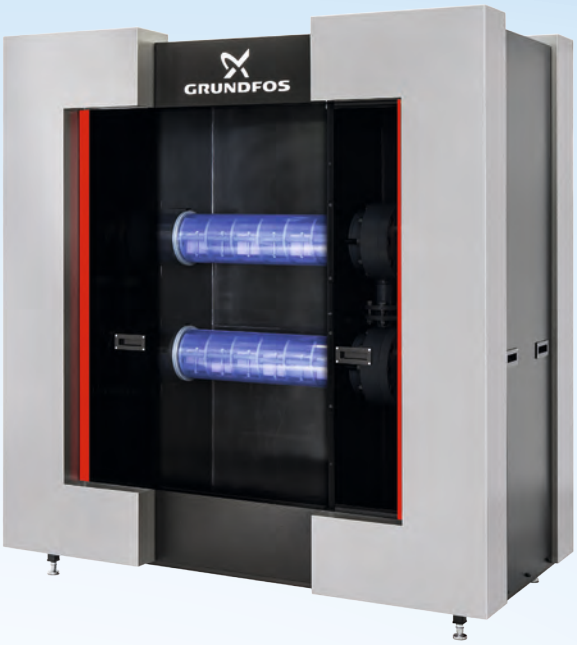
VGA-146

VGA-113

VGA-111

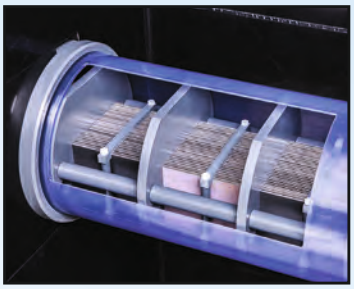
Grundfos disinfection solutions at a glance

System	Page	Features	How you benefit
Vaccuperm	10	– Reliable full-vacuum method with chlorine gas – Very straightforward handling and operation	– Reliable disinfection process – You save time and therefore running costs
Selcoperm	11	– Generates chlorine onsite – Requires only salt, water and electricity	– You save on transportation and storage costs – Low-cost generation of your disinfectant
Oxiperm	12	– Little installation work – Stable product solution, can be stored for several days	– Always the optimum solution for your specific application – Reduced taste & lower THM formation of Cl_2



Selcoperm SES 5000-45000

- Capacities from 5 to 45 kg/h
- Salt consumption 3 - 3.5 kg per kg of Cl_2
- Power consumption 5 - 5.4 kWh (AC) per kg of Cl_2
- Sodium hypochlorite concentration 8 – 8.5 g/l



Selcoperm electrolysis system

Electrolytic production and dosing of sodium hypochlorite solution

The Selcoperm electrolysers use electricity to produce sodium hypochlorite through electrolysis directly from a solution of common salt. Onsite production of the disinfectant solution gives you maximum safety at minimum cost: no transportation is required, and storage and handling are easy.

Peaks in demand can be handled effortlessly because the disinfectant generated can easily be stored in buffer tanks for long periods of time. The disinfectant is dosed from the buffer tank directly into the piping system using a dosing pump.

Selcoperm: safe onsite generation solution

- Only water, common salt and electricity are needed
- Fresh disinfectant solution (hypochlorite) is always available
- Simple handling and user-friendly design
- Low maintenance and long service life due to robust components

Application areas
– Municipal waterworks
– Independent water suppliers
– Industrial waste water plants and process water
– Cooling towers
– Swimming pools

Selcoperm SES 125-2000

- Comprises electrolysis cell, degassing column, brine dosing pump and softener
- Salt consumption 4-4.5 kg per kg of Cl_2
- Power consumption 5.5-6.5 kWh (AC) per kg of Cl_2

Oxiperm Pro

Oxiperm ISIA

Oxiperm 164

Oxiperm® chlorine dioxide systems

Chlorine dioxide – effective against legionella and biofilm

Chlorine dioxide is an extremely long-lasting and effective disinfectant. Even relatively small quantities of chlorine dioxide display high disinfecting properties against all critical and chlorine-resistant germs, almost regardless of pH value. Chlorine dioxide can be used to successfully reduce the formation of biofilm in water pipes, which removes the life source for harmful germs such as legionella.

Ideal application areas for Oxiperm include combating germs and pathogens, such as legionella in building installations, disinfecting cooling water systems, and disinfecting drinking water in water plants or industrial processes.

Oxiperm®: compact, effective and cost-effective disinfection

- Compact system to be installed on confined spaces
- On-site preparation of chlorine dioxide
- Complete chemical reaction within a minimum of time
- Low operating costs and low consumption of chemicals

Application areas
– Fighting legionella in hotels, hospitals, old people's homes, fountains, swimming pools and sports facilities
– Industrial process water like brewing water, bottle washing and CIP systems
– Cooling towers
– Municipal waterworks
– Independent water suppliers

Measuring and control solutions

Monitoring of typical water quality parameters as well as precise control of disinfectant addition or pH adjustment is essential for many water treatment processes. Grundfos offers two ranges: The DIT hand-held photometer, and the online measuring and control system DID for full integration with digital communication and data logging.

DID – fully digital pre-assembled compact measuring station

The new Grundfos by S::CAN DID systems are the perfect combination of S::CAN's state-of-the-art digital sensor technology and Grundfos experience in PID controlling of dosing and disinfection processes. DID systems are designed to match Grundfos dosing pumps, gas dosing systems and systems for the generation and dosing of chlorine dioxide and hypochlorite.

DID systems are available as compact systems with bypass flow cell or as kits for applications with tank-immersed sensors. The DID is easy to set up due to the pre-assembled and pre-calibrated configurations. Installation is easy due to the Fieldbus-based communication with both system control and sensors. The control unit CU382 included in DID offers a wide variety of set up options for the freely assignable digital and analog in- and outputs as well as for the controller functions.

DID systems feature the following:

- Automatic setting of water flow and detection of missing water flow in systems with flow cell
- Probe carrier included in systems for tank installation
- 7.5 m cable included in systems for tank installation
- Probe guard included in systems for tank installation
- Temperature compensation included for all sensors
- Designed for extra-long maintenance intervals (0.5 to 1 year)
- Pre-calibrated sensors (pH, ORP, conductivity)
- One sensor variant per parameter for all applications and measuring ranges (pH, ORP, conductivity sensors)
- Diaphragm-covered amperometric sensor principle (free and total chlorine, ClO_2, H_2O_2 and PAA)
- Lowered pH dependency for free-chlorine sensors

DIT hand photometer: professional analysis tool

Total reliability and precision are always needed to control water quality for chemical water treatment.
Our portable, optoelectronic DIT measuring device offers very high measuring accuracy and reproducibility for up to 14 parameters including chlorine (free, combined, total), chlorine dioxide and pH. It is perfect for calibration of the disinfectant sensors used in DID.

Application areas
– Drinking water treatment: pH control for dosing acids and alkalis, monitoring & control of residual chlorine
– Industrial process water and waste water treatment (effluent disinfection): pH control for dosing acids and alkalis and control of chlorine, chlorine dioxide or ozone
– Food and beverages: disinfection in filling tanks and CIP applications.
– Swimming pool water treatment: pH control for dosing acids and alkalis, monitoring & control of residual chlorine

DID

DIT

Polydos fully automatic preparation systems

Compact and modular preparation system

Grundfos preparation systems are designed for granulates and liquid concentrates. It comes in several variants to suit your application:

- Polydos 412E is a fully automatic three-chamber polyelectrolyte preparation system for concentrated liquid and dry polymers
- Polydos 420E is a fully automatic two-chamber preparation system for liquid concentrated polymer only
- KD 440 is a fully automatic one-chamber preparation system for different products such as aluminium sulphate, polyelectrolyte, lime milk and activated carbon
- Polydos 460E is a fully automatic two-chamber preparation system for liquid concentrated polymer

Polydos: flexibility to suit your application

- Compact, yet flexible installation of fully integrated system including material handling, preparation and maturing and solution dosing
- Configured according to the required polymer consumption and the desired concentration
- Our VFI vortex water sensor ensures an exact concentration thanks to a proportional dosing of the polyelectrolyte
- Customisation of systems to match the application
- Additionally to our Polydos unit we can propose powder handling of big-bags solution, granulates/powders/liquids conveying solution. Dosing of preparate solution can be done with Grundfos Polydos 520 dosing station, and also with additional Polydos P510 post dilution

Application areas
– Drinking water treatment
– Wastewater treatment industrial / municipal
– Energy generation, biogas plants
– Paper industry
– Chemical industry
– Food industry

Polydos 420E

KD440

Polydos 412E

Sustainable water treatment projects

Your powerful partner

From planning to reliable delivery, installation and start-up, our team combines technical engineering expertise with intercultural competencies and many years of experience.

We are your one-stop partner for water treatment solutions that require complex engineering and in-depth process know-how. Our portfolio includes the entire spectrum of disinfection technologies and chemical treatment of water. Our reliable, proven methods in research, development and production ensure outstanding solutions.

We can assist you with both smaller custom solutions and the planning of complex water treatment systems, converting our state of the art dosing & disinfection products into uniquely tailored systems that match your requirements.

Disinfection technologies

- Electrochlorination
- Chlorine gas
- Chlorine dioxide

Chemical treatment

- Flocculation
- Coagulation
- pH correction

Applications

- Drinking water
- Wastewater
- Process water
- Cooling water
- Boiler feed water

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