OPTIMISED WATER SOLUTIONS

Pumps and systems for today's water supply and wastewater challenges

be
think
innovate

GRUNDFOS

UNDER-STANDING WATER CHALLENGES

We face many different **water challenges**. Increasingly, we see water replenishment no longer keeping up with **ever-increasing demand**, and distribution systems suffering massive water loss due to leakage. To **retain water** after use, wastewater systems must be built to **collect, transport** and **treat wastewater** before it is returned to the environment, and this requires a huge investment in infrastructure and careful treatment.

At Grundfos, we can see points of similarity in these challenges, and this aids our search for solutions. For example, intelligent solutions protect wells from drawdown, ensure precision water treatment, manage pressure in distribution systems, ensure reliable transport of wastewater and continually optimise processes in wastewater treatment. In short, we understand that pumps are not enough. The whole system needs to work together, across the water cycle.

Meeting challenges head-on

Grundfos develops and implements technologies that meet the challenges facing the water supply and wastewater industry. Owners are experiencing rising energy costs and increasing green taxation, and CO_2 emissions need to be reduced. Pressure is on the industry to lower operating costs for Water Utility business and strengthen the search for optimised water solutions.

Pumps account for no less than 10 % of the world's electricity consumption, so it is essential that pump systems are optimised to their full potential. The long-standing experience that Grundfos has with energy optimisation specifically for pumps is a unique asset.

Optimised water solutions

We design lifecycle costs into solutions to make life easier for everyone, offering transparency and adding value to our customers' business. Grundfos Water Utility is a full-line supplier and all elements of our pump systems embrace a high degree of modularity.

If you are looking for energy-efficient, intelligent solutions and worry-free processes, we offer products and services tailored and optimised for any given water utility application using tried and tested technology, without compromising their superior performance. We optimise pump systems to provide maximum reliability and resource efficiency – and our expertise is part of any delivery.

OUR EXPERTISE IS PART OF EVERY DELIVERY

From design to delivery and service offerings, working with Grundfos means you benefit from our comprehensive engineering skills and project management expertise, including consultancy, local support, long-standing experience and fully integrated intelligent solutions.

For project sales, Grundfos understands the importance of offering full support from A to Z. We manage the entire Supply Chain, and our sales and consultancy activities ensure alignment to your needs for project sales and Engineering-to-Order (ETO) pumps.

Grundfos invests substantially more money in research and development than any other pump manufacturer. We recognise the wide range of customer needs, and design with lifecycle costs in mind to make life easier for everyone. Profitability, innovation, responsibility and high quality are the cornerstones of what we do. Our common goal is to get best efficiency for our customers' systems.

Leave project execution to us

New projects and major refurbishments often require products that require customisation at the factory or delivery outside the usual distribution channels. We are a trusted partner for consultants, contractors and water utilities who are looking for security, flexibility and reliability for their water utility solution from a full-line supplier.

Process-driven engineering and our global Water Utility competency network means we can tailor our products and services to your specific requirements. This ensures an optimised project execution and that deliveries at all stages of the project are timely, correct and within budget.

Product quality from worldwide testing

Grundfos guarantees unsurpassed product quality using stress, vibration, product lifetime, witness and environmental impact testing to meet or even surpass international standards. In addition, we offer Acceptance Grade testing up to Grade 1 at our own facilities, in accordance with the ISO 9906:2012 standard.

Grundfos Product Center

The Grundfos Product Center is a free digital product catalogue and sizing tool, offering one-point access for all product information including pump curves, CAD drawings, and service manuals. Available online and as a desktop (offline) edition, Grundfos Product Center is optimised for viewing on mobile devices such as your smartphone or tablet.

See product-selection.grundfos.com

Predicting fluid flows

Using Computational Fluid Dynamics (CFD), our analysts can simulate and understand fluid flows. This means we can predict hydraulic problems in the system and avoid them before construction.

CFD data allows comparisons between various design alternatives and provides a sound basis for decision-making before the actual investment.

A LITTLE EXTRA
FOR SELECTION, INSTALLATION, OPERATION AND REPLACEMENT

Grundfos delivers products and solutions for the entire water cycle. We lower product lifecycle costs, ensure sustainable water management and build optimised equipment into the application. The measures we take for resource efficiency are from the outset designed for pumps and pump systems, ensuring high reliability, continuous operation and superior performance.

Furthermore, we help you reduce energy consumption and your carbon footprint, and we will even help you dispose of old pump equipment. Our focus is global, and so is our service organisation, ensuring a local partnership wherever your pump installation may be.

Adding value at every step

We deliver service offerings that simplify installation, operation and replacement quickly and professionally. These range from commissioning services tailored to your installation and business needs, worldwide spare parts delivery, and repair and maintenance from either Grundfos or authorised service partners.

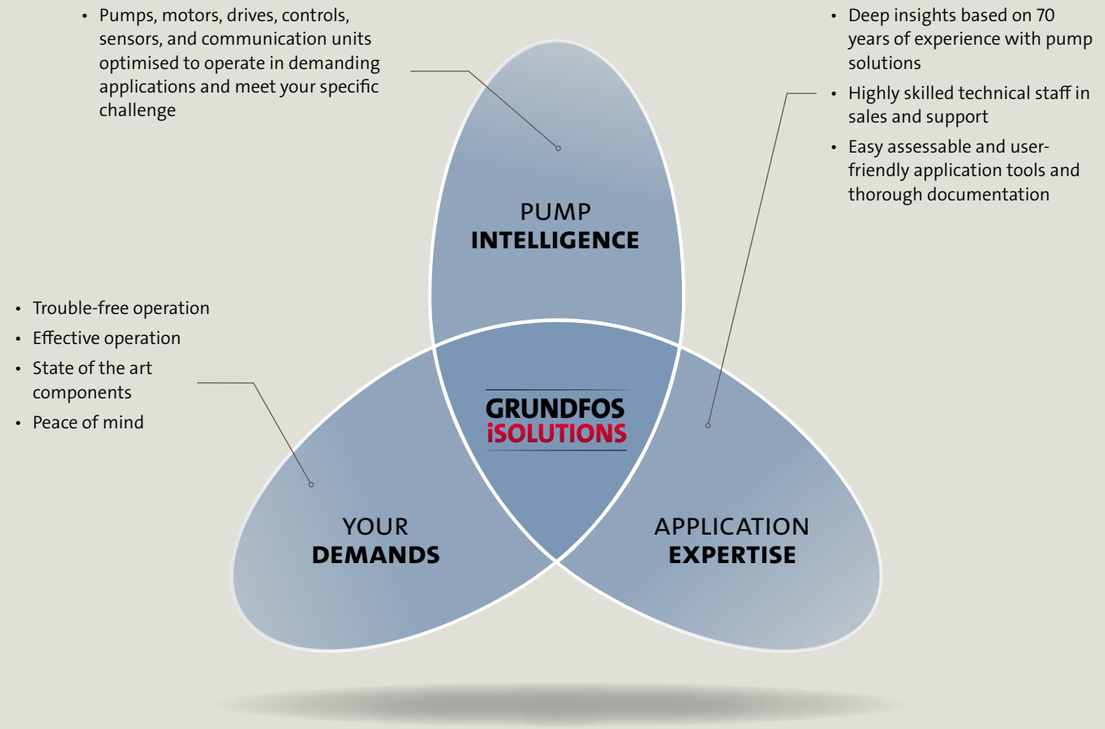
Calculating lifecycle costs (LCC)

Lifecycle cost calculations ensure all costs are included, from the design phase to disposal at the end of the product life, so you know the total costs of a Grundfos solution prior to purchase. LCC calculations are freely available as part of our online selection and design program, available at Grundfos Product Center.

See product-selection.grundfos.com

Grundfos Pump Audit

Grundfos offers a comprehensive auditing service identifying potential energy savings in any pumping system. Pump Audit is a diagnostic tool that not only identifies excessive energy consumption, but also proposes changes for increased system efficiency. Recommendations cover the size and number of pumps, the viability of frequency control, suitable motor protection, and so on.



Grundfos iSOLUTIONS – the system approach to optimisation

Water supply and wastewater systems are critical installations where breakdowns and downtime can have serious consequences. Therefore, you need an intelligent solution that ensures all processes run smoothly and equipment is integrated in a way that reduces engineering and programming costs.

Grundfos iSOLUTIONS optimises the way pumps, drives, controls and protection, measurement and communication units work together as part of one system. For your water supply or wastewater system, the result is energy savings, component savings, better communication, extended customisation and increased user-friendliness.

Remote monitoring and management

Grundfos Remote Management is a cost-effective and straightforward way to monitor and manage pump installations in water supply and wastewater infrastructure and irrigation. It reduces the need for onsite inspections and in the event of an alarm or warning, the relevant people are notified directly.

OPTIMISED SOLUTIONS FOR THE ENTIRE WATER CYCLE

OUR OPTIMISED SOLUTIONS AND SERVICES COMPLEMENT AN UNRIVALLED FOCUS ON RESOURCE EFFICIENCY, DESIGN VERIFICATION AND PROJECT CONSULTANCY AND EXECUTION. THAT IS WHAT YOU GET FROM GRUNDFOS, A FULL-LINE SUPPLIER OF PRODUCTS AND SOLUTIONS FOR ALL WATER UTILITY APPLICATIONS.

RAW WATER INTAKE

DRINKING WATER TREATMENT

WATER DISTRIBUTION

WASTEWATER TRANSPORT & **FLOOD** CONTROL

WASTEWATER TREATMENT

Optimise, treat and pressure manage your water supply

From the raw water intake to the treatment regime and onwards through the distribution network to the end user, a water supply system must be fully integrated. Resource efficiency requires that the pumps, controls, dosing and disinfection solutions and pressure management regime are made for each other. Grundfos does precisely that.

Reliability and modularity for optimised wastewater handling

Collecting, transporting and treating wastewater is about keeping reliability high. Grundfos products and solutions for wastewater transport, flood control and the wastewater treatment plant build on reliability, modularity and energy efficiency from optimised pump systems and modular solutions.

ENSURING STABLE WATER SUPPLY

Sourcing raw water is the first step in any water supply system. Our cost effective, reliable and energy optimised raw water pumping solutions go further than most to bring water to life in a manner that is financially and environmentally sustainable.

In addition to pumps and pump systems optimised for performance and reliability, we supply the tools you need to guarantee the highest possible energy efficiency. We carry out energy audits at the water source, giving you the facts and figures you require to optimise your system for top efficiency and reliable operation.

As a full-line supplier with unsurpassed experience with groundwater, we have a proven track record of applying our extensive knowledge to all water sources and the entire water supply network.

Getting raw water moving

At Grundfos, we have decades of experience manufacturing pumps and motors and developing controller and monitoring systems for pumping solutions. This ensures a perfect match between hydraulics, motors, electrics and all other mechanical components that make up a comprehensive pumping solution, ensuring the highest possible energy efficiency.

Grundfos pioneered the implementation of variable speed drives in pumping operations. Furthermore, we have refined numerous functionalities that cater specifically to pumping conditions.

Experience from a huge installed base of stainless steel submersible pumps and motors is designed into our surface water solutions. Grundfos can supply submersible, end-suction, split-case and propeller shaft pumps that effectively handle surface water, recycled water and seawater.

ISO 9906:2012 Acceptance Grade testing

At our own facility, we test submersible pumps (SP) according to acceptance standard Grade 3B as standard and Grade 1 as optional, with the added option of third-party witness testing. We guarantee that pump performance data is kept for a minimum of 5 years and can be traced using the pump's unique serial number. Acceptance Grade testing is defined in the ISO 9906:2012 standard.

Optimal groundwater intake

Our range of submersible multistage pumps (SP) along with variable speed drives (CUE) is unmatched for well types. State-of-the-art hydraulic design delivers optimal energy efficiency during periods of high demand with high reliability, very long service intervals and low total cost of ownership. Using a variable speed drive ensures more balanced water drawdown, protecting the water source. Grundfos matches the stainless steel build quality of the SP pump to the groundwater conditions. Depending on the corrosion risk, high-grade stainless steel variants are available.

For groundwater-based water supply, the reliability and efficiency of a complete SP system offers perhaps the most favourable lifecycle cost outcome of any submersible pump on the market. An SP system comprises a stainless-steel SP submersible pump, an MS/MMS motor made to match the pump, an MP204 dedicated electronic motor protection unit or a CUE variable speed drive and Grundfos Remote Management.

SP Engineering Manual

The Grundfos SP Engineering Manual covers a wide range of topics and advice for anyone working with one of our most iconic pumps, the SP submersible groundwater pump. Constantly in development since the late 1960's, the numerous product types, sizes, and configuration possibilities available today serve as a testament to the innovative nature of the original SP pumps.

Order or download the handbook from www.grundfos.com

KEEPING DRINKING WATER QUALITY HIGH

Drinking water treatment is technology-driven and heavily regulated, and you need more than a supplier of pumping, dosing and disinfection solutions for each stage of the water treatment cycle. You need a packaged solution for the entire water treatment process.

Grundfos supplies a wide range of disinfection methods suitable for different disinfection tasks and requirements. These include effective chlorine and sodium hypochlorite treatment with required residual effect, and chlorine dioxide treatment for effective legionella and biofilm control.

Prior to dosing and disinfection, we ensure a uniform bulk-flow and oxygenation in the reservoir. We use computer simulations in the design to assess the need for mixing. All necessary mixing and aeration equipment is supplied, in accordance with the design requirements.

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 knowhow, and 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.

SMART Digital Dosing™ solutions redefine dosing

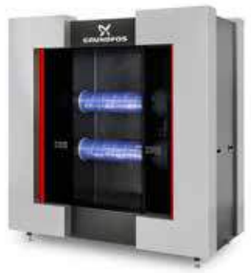
SMART Digital DDA, DDC and DDE diaphragm dosing pumps offer modularity, simplicity and flow intelligence, and contribute to keeping life cycle costs low. Processes where SMART Digital excels include disinfection, pH-adjustment, chemical dosing, cleaning-in-place, biocides, coagulation, precipitation/flocculation, filtration and reverse osmosis.

Water for millions in Paris

A new system from Grundfos is playing a key role in supplying clean drinking water to almost 2 million residents in Paris. Selcoperm disinfects water quickly and safely.

Much of the tap water in Paris is surface water drawn from the Seine. SEDIF (Syndicat des Eaux d'Ile-de-France) is responsible for purifying the water pumped out to residents, ensuring it is fit to drink. A Selcoperm was installed at the water treatment plant in Choisy-le-Roi in the Paris area, and this made the purification work a bit easier, with cost savings as well.

Read more about other cases at www.grundfos.com/cases



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. This means the system is safer than other known chlorine-based disinfection methods and costs are minimal – no transportation is required, and storage and handling are easy.

At the top end of the Selcoperm range, capacities of up 45 kg/h are catered for in a broad range of applications.

In addition to being very reliable, a Selcoperm system sets new standards for energy efficiency, using less energy due to a more efficient electrolysis technology. The system is also scalable and easy to integrate with other systems from Grundfos, ensuring Selcoperm and dosing pumps perform optimally.

MANAGING PRESSURE FROM SOURCE TO TAP

To reduce water loss (non-revenue water – NRW) and cut distribution costs, Grundfos offers pump optimisation and proportional pressure control solutions that increase pump and system efficiency, ensure correct water pressure at the consumer, and deliver peace of mind from high reliability and intelligent surveillance of the water distribution system.

Pressure management is now well recognised as being essential to effective leakage management. We package pumps, intelligent components and system surveillance to build unique pressure management solutions that minimise water losses (NRW), reduce energy consumption and minimise operational costs for leaks and pipe maintenance.

System design using proportional flow

The highly variable flow rates that characterise water distribution networks are an important factor affecting cost-efficiency and water loss. A tendency in system design has been to size pumps based on maximum demand, however far more time is spent pumping at low flows and the efficiency of such a single pump solution will fall quickly as flow decreases.

The optimal solution is to install more smaller pumps in parallel controlled by our multi-pump controller. Grundfos systems can be expected to deliver a hydraulic efficiency of more than 80 %, and the multi-pump controller automatically maintains the best efficiency point by cascade operation and speed control.

To design systems based on this principle, Grundfos uses load profiles based on 24-hour consumption patterns. The load profile gives an overview of how much a pumping system operates at a specific flow rate on a daily basis, and the system can be designed or redesigned accordingly. Compared to traditional set-ups, the design principle we work by lowers the initial capital investment. When converting existing systems, payback time is typically within one to three years.

Grundfos Demand Driven Distribution

At the heart of the system is the Demand Driven Distribution controller, which uniquely can adapt the setpoint automatically to the actual flow required by the system, compensating for excessive system pressure.

Demand Driven Distribution minimises water losses, reduces energy consumption, and minimises operational expenditures for leaks and pipe maintenance. The system caters for all network sizes and ensures reliable, optimised and resource efficient distribution.

Non-revenue water (NRW)

The key issue of reducing and controlling non-revenue water (NRW) in distribution networks is to minimise losses through existing leaks and reduce the risk of new leaks. Pressure management is now well recognised as being essential to effective leakage management; reducing surplus pressure by 50 % can reduce leakage loss by at least 20 %. An important contributing factor behind pipe bursts that increases water losses due to leakage is water hammer, which is also reduced with a pressure management strategy.

In addition to pressure management, the International Water Association (IWA) also recommends active leak control, speed and quality of repairs, and infrastructure management.

Water conditioning

Grundfos supplies solutions for water conditioning in the water distribution network, for example supplying repeater stations for the network for renewing chlorine content.

Reducing commercial losses (NRW) in the developing world

Water utilities are facing many challenges in providing a reliable and sustainable water supply in the developing world. Grundfos AQtap is an intelligent solution for reducing commercial losses (NRW) and increasing sustainability when providing water from public water kiosks.

Through an integrated platform for revenue collection and online management of water kiosks, Grundfos AQtap supports the financial viability and accountability of water service operations.

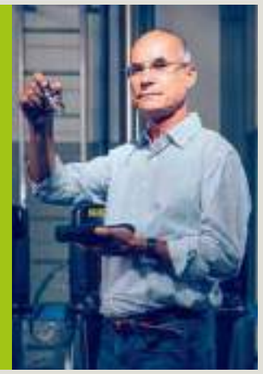
As the water credits are distributed in a closed system, uncertainties are removed from the payment transactions prior to water tapping. The online water management system allows the monitoring of all water transactions and the operational status of each water point.

Reducing overall pressure and increasing efficiency

It was a pressure problem that confronted the water company Padania Acque Gestione with issues of water loss and excessive energy use.

Grundfos found a solution using the Demand Driven Distribution controller to bring down system pressure and increase system efficiency, resulting in energy savings, reduced water loss and stable water supply pressure.

Read more about this and other cases at www.grundfos.com/cases



KEEPING RELIABILITY HIGH AND DOWNTIME LOW

Dependable, energy efficient solutions for your pumping stations and networks are essential for wastewater collection and transport. In an environment with continuous wastewater inflow, downtime is to be avoided at all costs. Your pumps need to work, and risk minimisation needs to be built into the system.

A pumping station is complex, and getting things right at the design stage is important to avoid issues such as blockages, odours, power outages and flooding. Grundfos takes the greatest risk factors out of the equation when designing or refurbishing a wastewater transport network, ensuring cost effective and reliable operation.

We apply our technology and expertise to benefit the operation and reliability of your installation. Our technology-leading wastewater pumps offer the industry's highest total, wire-to-water efficiency. Variable speed drives, wastewater control, and remote monitoring from Grundfos keep you always in complete control of your system.

Our prefabricated pumping stations offer a unique, customised solution where space is critical. We carry out advanced computer modelling of pressurised sewer systems, and for large pumping stations we use Computational Fluid Dynamics (CFD) flow simulation and model testing to optimise the design.

Prefabricated pumping stations

Grundfos offers a full range of functional modular pumping stations – complete with all necessary pumps, piping, valves and level controls. The pump pit, pumps and controls can be combined to suit specific requirements for each individual application.

The Grundfos Pumping Station Creator tool lets you design your own pumping station. The result is a fully documented, CE-marked solution, with all the components designed for perfect compatibility for the entire pumping station.

https://app.grundfos.com/pust/frontpage

Highest efficiency wastewater pumps

To reduce lifecycle costs in the wastewater transport network, Grundfos supplies the SE/SL wastewater pumps with the highest total, wire-to-water efficiency yet seen in the industry. S-**tube** impeller technology ensures no compromise between large free passage and high efficiency, reducing the risk of blockages, maintenance costs and downtime.

Dedicated Controls & Grundfos Remote Management

Dedicated Controls is an intelligent, user-friendly monitoring and control solution. Designed to control up to six pumps in sewage pumping stations, Dedicated Controls can be combined with Grundfos Remote Management or to any SCADA system for monitoring and managing pump installations from a remote location.

Grundfos Remote Management reduces the need for onsite inspections and in the event of an alarm or warning, the relevant people are notified directly. Initial investment is minimal, and a fixed low fee covers data traffic, hosting costs and system support, including back up of all data.

Simplifying pressurised wastewater transfer in Sweden

To meet the challenges of refurbishing a wastewater transport system covering 16 private housing areas, the Kållands Water and Wastewater Association, a homeowners' association, selected Grundfos as supplier and consultant.

Grundfos delivered Prefabricated Pumping Stations for private homes with SEG AUTO*ADAPT* grinder pumps and communication and controls as well as large SLV wastewater pumps at network pumping stations. The system is sufficiently simple for the local homeowners' association to manage, while meeting all municipal requirements.

Read more about this and other cases at www.grundfos.com/cases

FLOOD
CONTROL

RESPONDING TO FLOOD AND STORMWATER RISK

Flood control pumping is characterised by a requirement for high flow and low head. As many flood scenarios are seasonal, flood control pumps may only run occasionally, placing heavy demands on the reliability of the pumping solution.

As part of our dependable, energy-efficient flood control solutions, we supply a complete range of products optimised for high total efficiency and low maintenance costs. Applying our design and flow simulation competencies means we can minimise the pumping station footprint, ensure safe pump operation and reduce the total cost of the pumping station.

Stormwater tanks are an effective way of reducing peak flow and equalising flow rates from stormwater runoffs in the sewer system. Computational Fluid Dynamics (CFD) flow simulation and model testing are used to optimise tank design and our pump and control solutions ensure reliable and automatic operation, regardless of the size. And once the hydraulic load is reduced and capacity is available, you can get stormwater moving again with perfect efficiency and reliability.

Reduce turbulence and increase efficiency

Our range of axial-flow propeller KPL pumps for flood control and other heavy-duty pumping applications offer the Turbulence Optimiser™, an innovative, patented solution for reducing turbulence in the gap between the pump volute and the column pipe, increasing efficiency by up to two percentage points.

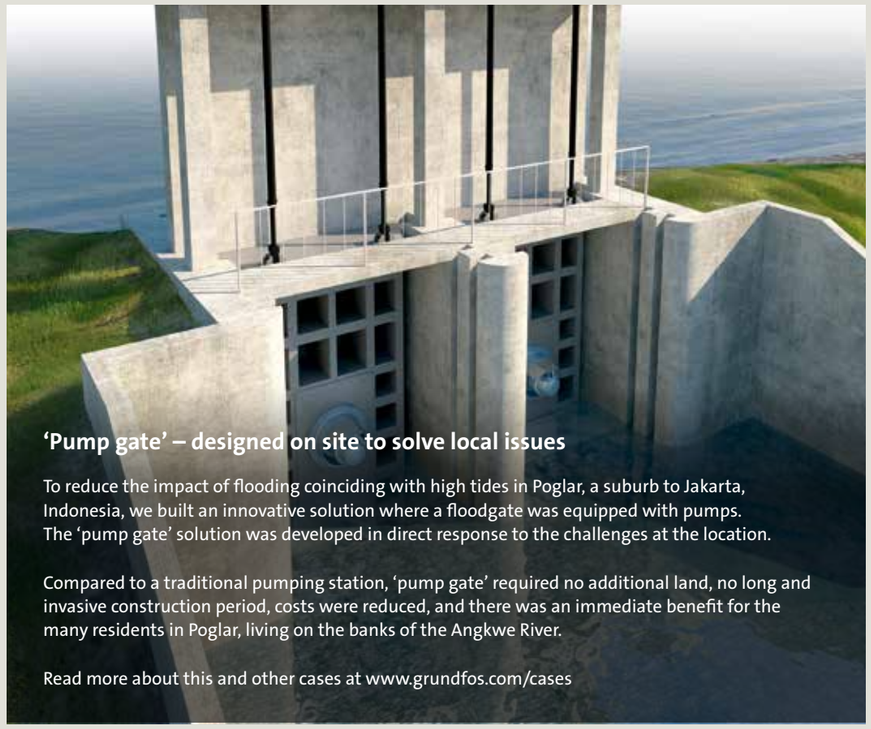
Smart flood Control systems

In a flood control application, control up to six pumps using Grundfos Dedicated Controls. Furthermore, Grundfos PLC solutions lets you optimise pump operation, gates and sensors with just one intelligent unit for the entire system on different platforms. User access to just one control unit with the possibility of remote monitoring and control saves on costs and gives peace of mind.

Handbooks and guidelines available

Grundfos offers consultancy on every aspect of the flood control solution, and this is knowledge we are happy to share.

Our handbooks for the design and optimisation of stormwater tanks and for flood control pumping stations are available for order or download from our website.



‘Pump gate’ – designed on site to solve local issues

To reduce the impact of flooding coinciding with high tides in Poglar, a suburb to Jakarta, Indonesia, we built an innovative solution where a floodgate was equipped with pumps. The ‘pump gate’ solution was developed in direct response to the challenges at the location.

Compared to a traditional pumping station, ‘pump gate’ required no additional land, no long and invasive construction period, costs were reduced, and there was an immediate benefit for the many residents in Poglar, living on the banks of the Angkwe River.

Read more about this and other cases at www.grundfos.com/cases

PEACE OF MIND FROM MODULAR, OPTIMISED SOLUTIONS

The efficient treatment of wastewater requires strong technical competencies. At the same time, wastewater treatment plants are required to meet increasingly stringent demands to reduce their impact on the environment and local communities. Wastewater goes through an increasing number of processes before being discharged into receiving waters, and each new process increases total energy costs.

From solution design and proposal to project execution and handover and run-in, Grundfos offers one point of contact for all phases of the project. We are a trusted partner for design, verification, installation, operation and maintenance. We save you time, energy and costs.

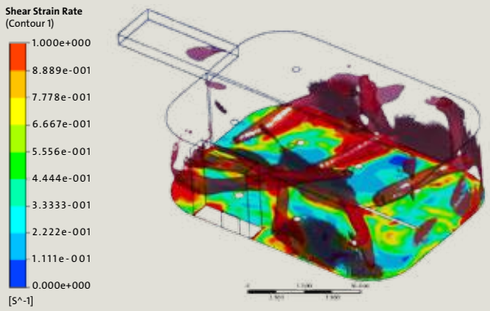
At the design stage, Grundfos works with you to ensure low lifecycle costs and hydraulic stability for mechanical, biological and chemical treatment.

Modular solutions optimised from the design phase

Our contribution starts with the initial identification of needs. Through our design expertise we provide guidance in optimal selection and positioning of equipment. For complex installations this can include CFD flow simulations in the design and specification phase. Our pumping, mixing, dosing and aeration systems are optimised for each other, and we offer pre-engineered and optimised modules for treatment processes.

Biological treatment is the largest and most expensive element at a wastewater treatment plant. In response to flow variations in the tank, variable speed pumps equalise flow and load to the plant so the capacity of the biological process is not exceeded. With our aeration systems, we can further optimise treatment performance, tank layout and minimise operating costs.

If the recommendations of a Grundfos system and energy audit are followed, savings of up to 50 % of the yearly energy consumption are possible.



Optimise tank design for increased efficiency

Correct configuration of submersible wastewater pumps, mixers, flowmakers, ejectors and aerators is assured by using Computational Fluid Dynamics (CFD) simulations to depict accurately fluid flows at any location in the tank.

The result will reveal any bottlenecks, vortexes and areas with high or low velocity of the wastewater.

Integrated dosing and disinfection systems

We ensure that the PLC-controlled, fully automatic systems for dosing chemicals and polyelectrolytes we provide are seamlessly integrated with local regulations and requirements. We can advise on the use of chemicals (either as concentrates or ready-to-use solutions) and also on chemical storage with relevant safety procedures.

Design recommendations for mixing

The Grundfos handbook “Design Recommendations for Mixing” covers the basics of mixing, introduces computational fluid dynamics (CFD) and provides guidelines for installing, measuring and optimising performance.

Combining theory and practical examples, the handbook is for stakeholders ranging from plant managers and personnel to contractors and specifiers. It is both a diagnostic tool and a manual for new-build as well as refurbishment projects.

Order or download the handbook from www.grundfos.com

New propellers result in greater efficiency

New propellers for Grundfos AMG Mixers resulted in greater efficiency and reduced costs for carefully managed biological treatment at the Altenrhein wastewater treatment plant in Switzerland. These new propellers have a much higher thrust-to-power ratio and greater energy efficiency.

Measurements taken before and after the replacement of the propellers showed that the flow velocity stays about the same as before with the old propeller, but the power consumption of the mixers was decreased significantly, increasing the economic efficiency at the wastewater treatment facility.

Read more about this and other cases at www.grundfos.com/cases

OPTIMISED SOLUTIONS FOR THE ENTIRE WATER CYCLE

WHATEVER THE WATER UTILITY APPLICATION, GRUNDFOS HAS A HIGH QUALITY, SUSTAINABLE AND OPTIMISED SOLUTION AVAILABLE.

Find your pump or system online

You can draw on a wide range of expert knowledge, documentation, installation and service information at our online selection and design site, Grundfos Product Center.

See product-selection.grundfos.com

PRODUCT OVERVIEW

MATCHING PUMPS AND PRODUCTS TO APPLICATIONS

OPTIMISED SOLUTIONS FROM GRUNDFOS DRAW ON A COMPREHENSIVE RANGE OF PRODUCTS. THE MATRICES BELOW MATCH OUR WIDE PRODUCT RANGE TO SPECIFIC WATER SUPPLY AND WASTEWATER APPLICATIONS.

RAW WATER INTAKE

	Ground-water	Seawater	Rivers & Lakes	Recycled Water	Transfer
SUBMERSIBLE PUMPS	●	●	●	●	
SINGLE-STAGE STANDARD PUMPS			●	●	●
MULTI-STAGE CENTRIFUGAL PUMPS & SYSTEMS			●	●	●
WASTEWATER PUMPS		●	●	●	●
FLOOD CONTROL PUMPS		●	●	●	
MIXERS					
FLOWMAKERS					
AERATION					
EJECTORS					
PREFABRICATED PUMPING STATIONS					
CONTROLS & MONITORING	●	●	●	●	
DOSING & DISINFECTION					

DRINKING WATER TREATMENT

	Chemical Treatment	Desalination	Flocculation	Sedimen-tation	Filtration	Backwash	Disinfection	Water Reservoirs
SUBMERSIBLE PUMPS								
SINGLE-STAGE STANDARD PUMPS	●	●		●	●	●	●	●
MULTI-STAGE CENTRIFUGAL PUMPS & SYSTEMS	●	●		●	●	●	●	
WASTEWATER PUMPS			●	●				●
FLOOD CONTROL PUMPS								
MIXERS			●					
FLOWMAKERS			●					
AERATION			●					
EJECTORS								
PREFABRICATED PUMPING STATIONS								
CONTROLS & MONITORING	●	●	●	●	●	●	●	●
DOSING & DISINFECTION	●	●	●	●	●	●	●	●

WATER DISTRIBUTION

	Distribution	Local Stations	Boosting	Water Towers
SUBMERSIBLE PUMPS				
SINGLE-STAGE STANDARD PUMPS	●	●	●	●
MULTI-STAGE CENTRIFUGAL PUMPS & SYSTEMS	●	●	●	●
WASTEWATER PUMPS				
FLOOD CONTROL PUMPS				
MIXERS				
FLOWMAKERS				
AERATION				
EJECTORS				
PREFABRICATED PUMPING STATIONS				
CONTROLS & MONITORING	●	●	●	●
DOSING & DISINFECTION	●	●	●	●

WASTEWATER TRANSPORT & FLOOD CONTROL

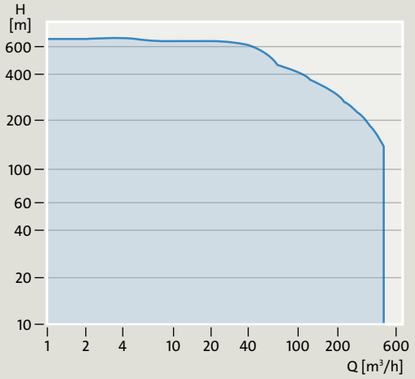
	Pumping from inside building	Main Pumping Station	Pressurised Pumping Station	Network Pumping Station	Flood Control
SUBMERSIBLE PUMPS					
SINGLE-STAGE STANDARD PUMPS					
MULTI-STAGE CENTRIFUGAL PUMPS & SYSTEMS					
WASTEWATER PUMPS	●	●	●	●	●
FLOOD CONTROL PUMPS		●			●
MIXERS		●		●	●
FLOWMAKERS					
AERATION					
EJECTORS					●
PREFABRICATED PUMPING STATIONS	●	●	●	●	●
CONTROLS & MONITORING	●	●	●	●	●
DOSING & DISINFECTION		●	●	●	

WASTEWATER TREATMENT

	Inlet	Primary Treatment	Chemical Treatment	Biological Treatment	Tertiary Treatment	Sludge Treatment
SUBMERSIBLE PUMPS						
SINGLE-STAGE STANDARD PUMPS					●	
MULTI-STAGE CENTRIFUGAL PUMPS & SYSTEMS					●	
WASTEWATER PUMPS	●	●	●	●	●	●
FLOOD CONTROL PUMPS	●			●	●	
MIXERS	●		●	●	●	●
FLOWMAKERS				●		
AERATION		●		●		
EJECTORS		●		●		
PREFABRICATED PUMPING STATIONS	●					
CONTROLS & MONITORING	●		●	●	●	
DOSING & DISINFECTION		●	●	●	●	●

SUBMERSIBLE PUMPS

Grundfos is a global market leader for submersible groundwater pumps, having perfected the match between the pump, motor and protection, with monitoring and controls available for system optimisation. Grundfos is one of the world's largest manufacturers of high-quality submersible motors, and our motors match the optimum duty points for our SP and SQ pumps.



SUBMERSIBLE PUMPS – SP

Complete range of submersible pumps for groundwater applications built to deliver optimum efficiency during periods of high demand, with long product life and easy maintenance.

BENEFITS

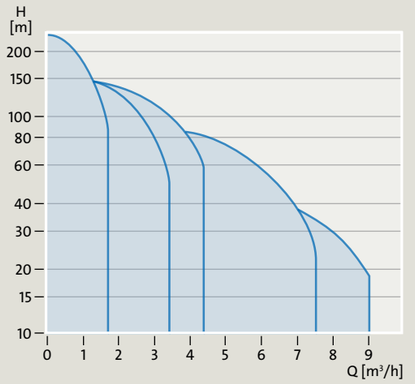
- State-of-the-art hydraulics provide high efficiency and low operating costs
- Made entirely of stainless steel to ensure high reliability and long lifetime, even in corrosive environments
- One supplier of the pump, motor and controls for an optimal pumping system

TECHNICAL DATA

- Motor size: 0.37 kW to 250 kW
- Flow rate (Q): Maximum 470 m³/h
- Head (H): Maximum 670 m
- Liquid temperature: 0 °C to +60 °C
- Discharge diameter: 1" to 6"
- Diameter: 4", 6", 8", 10", 12"

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT



SUBMERSIBLE PUMPS – SQ AND SQE

Compact lightweight, 3" submersible multistage centrifugal pump with a wide performance range for groundwater applications.

BENEFITS

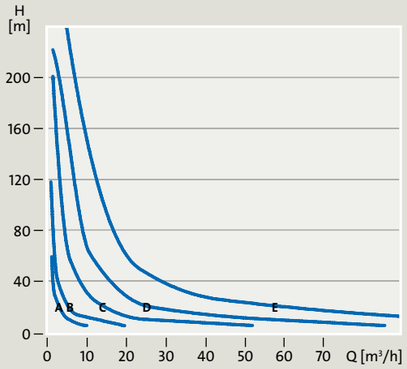
- Built-in electronics provide multiple protection features for reliable water supply at all times
- Permanent magnet motors offer excellent efficiency levels and will supply pump heads up to 180 m at rated flow
- Constant pressure option (SQE) for water supply if connected to the Grundfos CU 301 control box

TECHNICAL DATA

- Motor size: 0.70 kW to 1.85 kW
- Flow rate (Q): Maximum 9 m³/h
- Head (H): Maximum 240 m
- Liquid temperature: 0 °C +40 °C
- Discharge diameter: 1" to 1½"
- Diameter: 3"

APPLICATIONS

- **RAW WATER** INTAKE



SUBMERSIBLE PUMPS – SQFlex

Intelligent Solar submersible pump with high efficiency permanent magnet motor available in both helical and multistage centrifugal hydraulic. A system offering low (or nearly no) operating costs.

BENEFITS

- High efficiency permanent magnet motor with built-in MPPT software and motor protection
- Flexibility to various power sources from AC or DC
- Tank filling system by connecting to CU200 and remote monitoring through GSM by connecting to CIU Flex

TECHNICAL DATA

- Motor size: 1.4 kW
- Flow rate (Q): 18 m³/h
- Head (H): 250 m
- Liquid temperature: 0 °C to +40 °C
- Enclosure class: IP68
- Maximum system pressure: 15 bar

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT

VARIANTS

- Two grades of stainless steel

SINGLE-STAGE STANDARD PUMPS

Grundfos single-stage pumps are available for a wide variety of applications, where reliability and cost-efficiency is required. In water utility, single-stage pumps are generally used in raw water or water supply applications where the requirement is for low head relative to the flow and are available in both a vertical and a horizontal design.

SINGLE-STAGE END-SUCTION STANDARD PUMPS – NB/NBG/NBE/NBGE

Multi-purpose end-suction pumps for reliable and cost-efficient applications such as water supply. Non-self-priming, single-stage, centrifugal volute pumps with axial suction port, radial discharge port and horizontal shaft; these close-coupled pumps' are following the same inlet and outlet dimensions as mentioned in EN733 (For NB), and ISO2858 (for NBG), that are normally used for long coupled pumps.

BENEFITS

- Optimised hydraulics in housing and impeller for unimpeded liquid flow
- O-ring seal between pump housing and cover means no risk of leakage
- Housing, impeller and wear ring in different materials for improved corrosion resistance, no sticking elements

TECHNICAL DATA

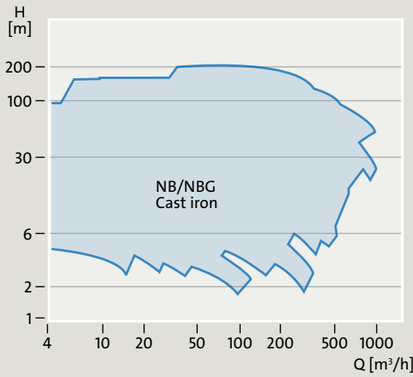
- Motor size: 0.55 to 200 kW
- Flow rate (Q): Up to 1200 m³/h
- Head (H): 210 m
- Liquid temperature: -25 °C to +140 °C
- Discharge diameter: DN32 to DN250
- Free passage: 4 to 34 mm
- Maximum system pressure: 16/25 bar
- Maximum hydraulic efficiency: 88.5 %

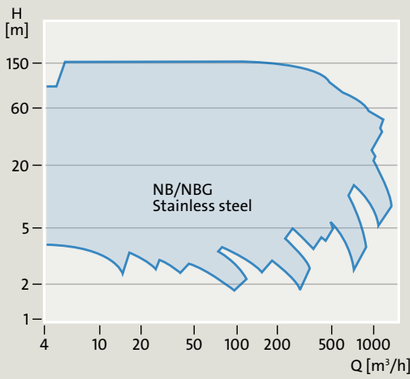
APPLICATIONS

- **RAW WATER** INTAKE
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

VARIANTS

- Available in a number of shaft seal and material variants





SINGLE-STAGE END-SUCTION STANDARD PUMPS – NK/NKG/NKE/NKGE

Multi-purpose end-suction pumps for reliable and cost-efficient applications such as water supply and irrigation. Back pull-out design enables removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework; these long-coupled pumps comply fully with either EN733 or ISO2858.

BENEFITS

- Optimised hydraulics in housing and impeller for unimpeded liquid flow
- O-ring seal between pump housing and cover means no risk of leakage
- Back pull-out design for easy dismantling for service

TECHNICAL DATA

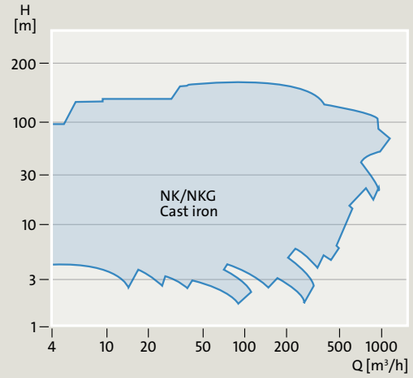
- Motor size: 0.55 to 460 kW
- Flow rate (Q): Up to 1200 m³/h
- Head (H): 210 m
- Liquid temperature: -25 °C to +200 °C
- Discharge diameter: DN32 to DN250
- Free passage: 4 to 34 mm
- Maximum system pressure: 16/25 bar
- Maximum hydraulic efficiency: 88.5 %

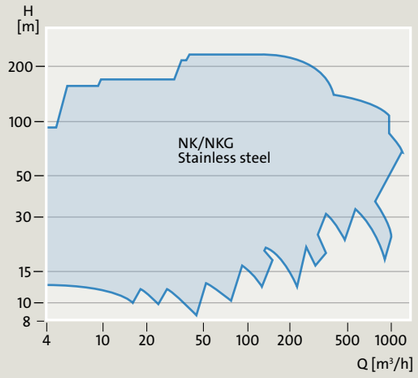
APPLICATIONS

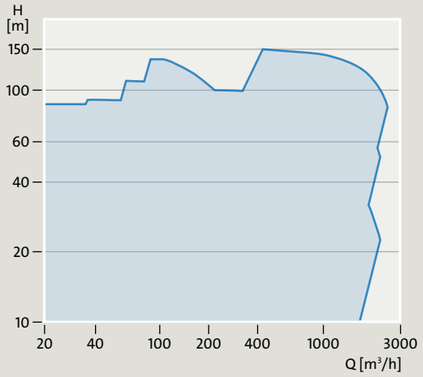
- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

VARIANTS

- Available in Cast iron with multiple impeller material choices
- Available in full stainless steel 1.4408
- Available in full Duplex stainless steel 1.4517
- Available with single and double seal arrangements
- Available with Grease for life or Heavy duty 100,000 hours bearing brackets







HORIZONTAL SPLIT CASE PUMPS – HS

This horizontal split case pump is a single-stage, non-self-priming, between bearing, centrifugal volute pump. The axially split design allows easy removal of the top casing and access to the pump components without disturbing the motor or pipework.

BENEFITS

- High energy efficiency and low life-cycle costs from the easy to service split case design
- Double suction minimises axial load, extending the life of the wear rings, shaft seals and bearings
- Double volute reduces radial forces and minimises noise and vibration

TECHNICAL DATA

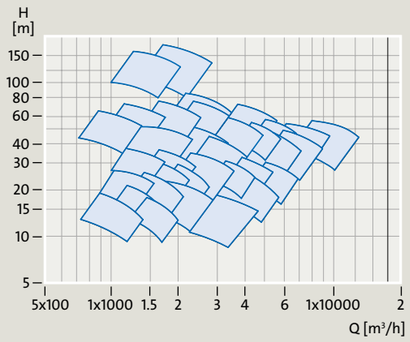
- Motor size: 1.5 to 630 kW
- Flow rate (Q): 2500 m³/h
- Head (H): 148 m
- Liquid temperature: 0 °C to +100 °C
- Discharge diameter: DN 50 to DN 400
- Maximum system pressure: 16 bar
- Maximum hydraulic efficiency: 90 %

VARIANTS

- Available in three configurations – pump with motor and baseframe, pump with baseframe, and bare shaft pump only
- Many product variants available

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION



HORIZONTAL SPLIT CASE PUMPS – LS

This horizontal split case pump is a single-stage, non-self-priming, between bearing, centrifugal volute pump. The axially split design allows easy removal of the top casing and access to the pump components without disturbing the motor or pipework.

BENEFITS

- High energy efficiency and reliable design result in low life-cycle cost
- Low NPSHr
- Double suction minimises axial load, extending the life of the wear rings, shaft seals and bearings
- Double volute reduces radial forces and minimises noise and vibration

TECHNICAL DATA

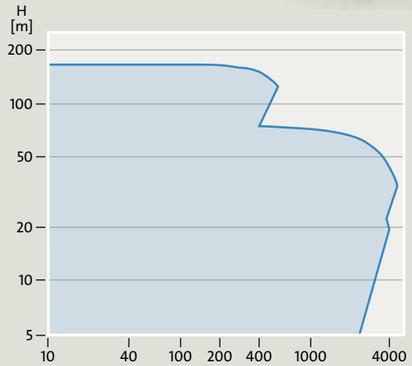
- Motor size: 37 to 2240 kW
- Flow rate (Q): 1,000 to 12,000 m³/h
- Head (H): 8 - 165 m
- Liquid temperature: 0 °C to +100 °C
- Discharge diameter: DN 300 to DN 800
- Maximum system pressure: 10 or 16 bar
- Maximum hydraulic efficiency: 91.5 %

VARIANTS

- Pump with motor on a common base-frame
- Bare shaft pump with baseframe
- Bare shaft pump only
- Pump with motor on separated baseframes
- Bare shaft pump with separated baseframes
- Horisontal and vertical design
- Many variants available and Engineer to order on request

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION



VERTICAL INLINE VOLUTE PUMPS – TP, TPE

Single-stage, in-line centrifugal volute pumps with standard motors and mechanical shaft seals. Compared to end-suction pumps, in-line pumps allow a straight pipework and thus often reduced installation costs and space. TP pumps up to 22 kW are available as TPE pumps with built-in Variable Frequency Drive.

BENEFITS

- Optimised hydraulics for high efficiency
- Reduced power consumption
- High levels of reliability and efficiency from the quiet, highly-efficient IE3 motors (IE4 on request)

TECHNICAL DATA

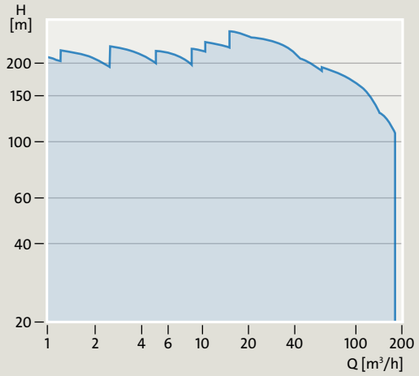
- Motor size: 0.18 to 630 kW
- Flow rate (Q): 4500 m³/h
- Head (H): 168 m
- Liquid temperature: -25 °C to +150 °C
- Discharge diameter: DN 32 to DN 400
- Free passage: 400
- Maximum system pressure: 25 bar
- Maximum hydraulic efficiency: 87 %

APPLICATIONS

- **RAW WATER** INTAKE
- **WATER** DISTRIBUTION

MULTI-STAGE CENTRIFUGAL PUMPS AND SYSTEMS

In water utility applications where a high head relative to the flow is required, Grundfos supplies multistage pumps that can deliver this. Our CR pumps are one of our most recognised and successful products and are at the heart of our pressure boosting systems.



MULTI- STAGE CENTRIFUGAL PUMPS – CR (E)

Modularity for a complete range of pump solutions; from four material variants, thirteen flow sizes (up to almost 50 bar of pressure), a variety of shaft seals, rubber materials, and supply voltages. Pump parts can be optimised and designed for specific requirements.

BENEFITS

- Available with **Grundfos Blueflux** IE3 motor efficiency, reducing energy costs
- Multi-flange fits a variety of standard connections for a more flexible solution
- Uniquely designed cartridge shaft seal increases reliability, reducing downtime

TECHNICAL DATA

- Motor size: 0.37 to 75 kW
- Flow (Q): Maximum 180 m³/h
- Head (H): Maximum 500 m
- Liquid temp.: -40 °C to +180 °C (240° C, Thermal oil)
- Operating pressure: Maximum 50 bar
- Discharge diameter: Up to DIN 150
- Maximum efficiency: 80 %

AVAILABLE MATERIALS

- Cast iron
- Two grades of stainless steel
- All-titanium

APPLICATIONS

- **RAW WATER** INTAKE
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

MULTI- STAGE CENTRIFUGAL PUMPS – CR FLEX

Solar surface pump with the high effieciency and relability multistage CR hydraulic. A system of low (or nearly no) operating costs.

BENEFITS

- Built frequency converter with MPPT software and motor protection
- Compatible to both AC and DC, with 3 x analog input and 2 x digital input
- Uniquely designed cartridge shaft seal offers excellent reliability

TECHNICAL DATA

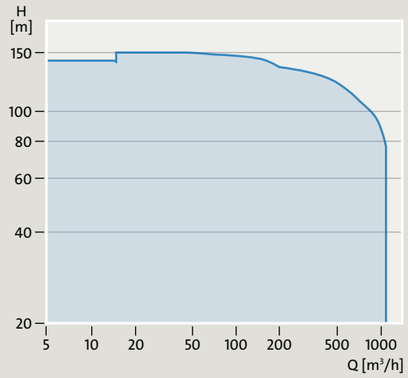
- Motor size: 0.88 kW or 1.73 kW (P1)
- Flow rate (Q): 20 m³/h
- Head (H): 150 m
- Liquid temperature: 0 °C to 40 °C
- Voltage range: 30 to 300 VDC or 1 x 90 to 240 VAC

AVAILABLE MATERIALS

- Cast iron
- Two grades of stainless steel

APPLICATIONS

- **RAW WATER INTAKE**
- **WATER DISTRIBUTION**



HYDRO MPC

Grundfos Hydro MPC systems come as complete units of superior quality, designed to provide boosting wherever additional pressure is needed. They are built on the world's number one multistage centrifugal pumps – the highly renowned CR and CRE pumps. The CR and CRE pumps are known for their reliability, efficiency and adaptability and form the perfect base for the Grundfos booster systems. Every component in our systems is Grundfos made which means that you are guaranteed long lasting technology that requires a minimum of maintenance and provides a maximum of efficiency.

BENEFITS

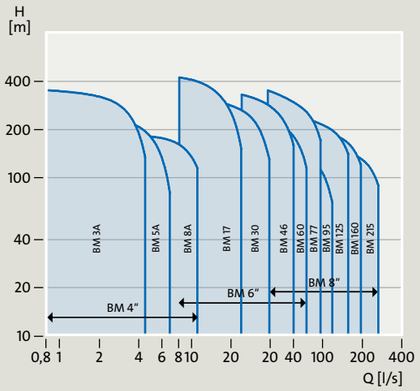
- Intelligent cascade control ensures that the optimum number of pumps required to meet the demand operate at any time
- CR pumps with IE3 motors for the most energy-efficient solution available for constant pressure during changing flow demands
- Grundfos MPC controller handles even the most difficult boosting jobs with ease and accuracy

TECHNICAL DATA

- 2 to 6 pumps
- Motor size: 0.55 to 75 kW
- Flow rate (Q): 1080 m³/h
- Head (H): 146 m
- Liquid temperature: 0 °C to +70 °C
- Discharge diameter: Up to DN 350
- Enclosure class: IP 54
- Maximum system pressure: PN16 (standard) (up to PN 40 on request)
- Maximum hydraulic efficiency: 80 %
- Ambient: 0 °C to +40 °C

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION



BOOSTER MODULES
– BM

High-pressure booster modules for boosting, liquid transfer and circulation in systems under high static pressure and used in reverse osmosis and ultra-filtration applications in water supply, water treatment and industrial plants.

BENEFITS

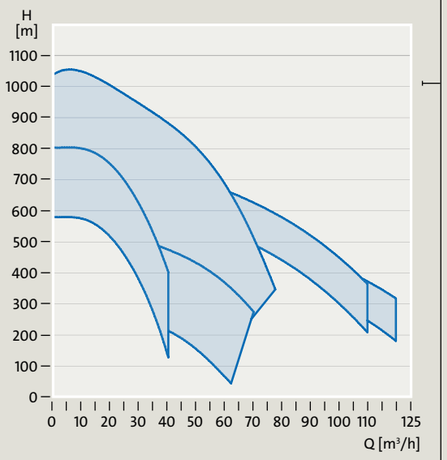
- All stainless steel construction, available in three qualities: SS 304, SS 316, SS 904 L
- Easy to install and low noise
- Compact and modular design that is leakage free

TECHNICAL DATA

- Motor size: 0.75 kW to 92 kW
- Flow rate (Q): Up to 260 m³/h
- Head (H): Up to 800 m (serial connection)
- Liquid temperature: 40 °C
- Discharge diameter: Victaulic connection
- Maximum system pressure: Up to 60 bar.
- Maximum hydraulic efficiency: Up to 80 %

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION



BOOSTER MODULES
– BMS hs.

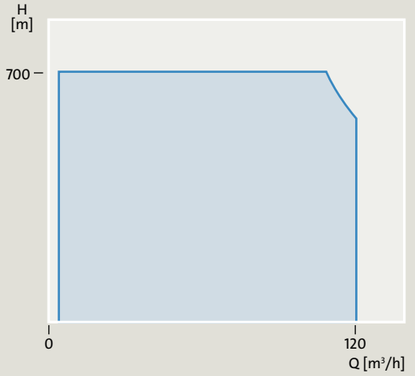
BMS hs is a range of booster systems for reverse osmosis and filtration applications. These booster systems offer higher efficiency than the previous ranges. The reason is a direct-coupled pump which is powered by a permanent-magnet high speed motor (PM) or an asynchronous high-speed motor (AC).
The permanent-magnet motor is supplied with a special designed Emerson drive. The permanent-magnet solution is only suitable for 400 V. The asynchronous motor has to be controlled by a variable-frequency drive, to reach the high speed. The variable-frequency drive must fit motor voltages of 400 V and the mains supply at the installation site. Together with an improved design, this makes both maintenance and service easier than ever, and you have a winning concept.
The BMS hs pump is delivered with a built-in non return valve.

BENEFITS

- Improved design that makes service and maintenance easier than ever, and at the same time increases durability and reliability
- The speed of the motor must be controlled by a variable frequency drive
- The high-speed motor also gives the BMS hs range a smaller footprint and drastically reduces the weight of the pump.

TECHNICAL DATA

- Motor size: Up to 180 kW.
- Flow rate (Q): Up to 115 m³/h
- Head (H): Up to 827 m
- Liquid temp: Up to 40 °C
- Inlet/discharge: 3" Victaulic
- Insulation class (motor): IP 54
- Maximum system pressure: 350 m
- Maximum hydraulic efficiency: Up to 80 %
- Built-in check valve



BOOSTER MODULES
– BMST

Booster module consisting of a BMS hs and a BMT pump, connected in series designed for use in reverse osmosis system where the energy from the resulting high pressure concentrate is recovered by the Pelton turbine built into the BMT pump.

BENEFITS

- Energy savings of up to 34 % compared to conventional systems
- Both pumps have water lubricated axial thrust bearings build in to absorb the axial thrust from the pump.

TECHNICAL DATA

- Motor size: Up to 180 kW
- Flow rate (Q): Up to 120 m³/h
- Head (H): 700 m
- Liquid temperature: Up to 40 °C
- Inlet/ discharge: Victaulic couplings
- Insulation class(motor): IP 55

BOOSTER MODULES – BMSX

The BMSX is a booster system consisting of a BMS hs pump, a BMS hp pump and an isobaric pressure exchanger. The BMSX is designed for sea water and brackish water desalination. Variable frequency drives on both motors ensures optimised operation and efficiency.

BENEFITS

- Capable of delivering 1500 m^3 permeate per day with an energy recovery of up to 60%
- Critical components made of super duplex stainless steel, polymer and ceramic, making the module extremely resistant to its operating environment
- Compact design and very small footprint

TECHNICAL DATA

- Motor size: Up to 180 kW
- Head (H): Up to 82.7 bar
- Liquid temperature: Up to 40 °C
- Inlet/discharge connections: Victaulic couplings
- Insulation class (motor): IP 55

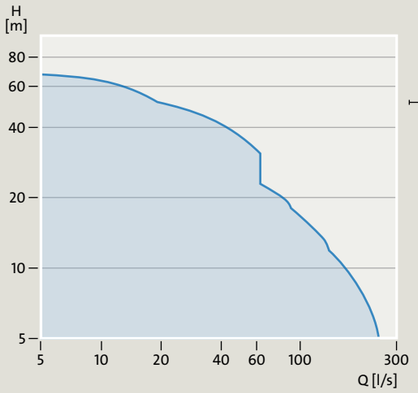
APPLICATIONS:

- **DRINKING WATER** TREATMENT

WASTEWATER PUMPS

Grundfos offers a complete range of wastewater pumps, designed to handle wastewater, process water, and unscreened raw sewage in heavy-duty municipal, utility, and industrial applications.

The SE/SL pumps is build for years of trouble-free operation in the most demanding applications, can be installed submerged or dry, horizontal or vertical, and will in either case be extremely reliable and very easy to service.



SUBMERSIBLE WASTEWATER PUMPS – SE/SL

Designed for the handling of wastewater, process water and unscreened raw sewage. The pumps can be installed submerged and/or dry.

BENEFITS

- SE/SL pumps offer you the best level of reliability due to optimised hydraulics designed with large free passage
- Highest wire-to-water efficiency available, reducing your total costs
- Highest level of service friendliness, making service of the pump trouble-free and time saving
- Plug and pump – all necessary control and protection built into the pump, eliminating complexity (For the SL 0.9-1.5kW AUTO*ADAPT* version)

TECHNICAL DATA

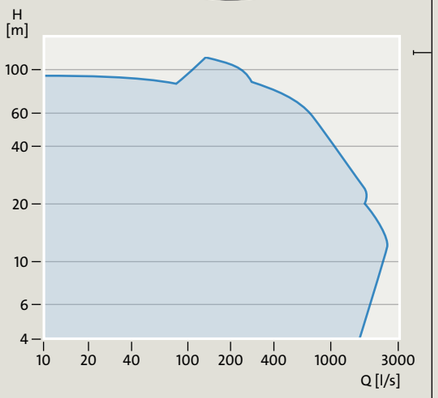
- Motor size: 0.9 to 30 kW
- Flow rate (Q): Maximum 280 l/s (1008 m³/h)
- Head (H): Maximum 71.3 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: DN 65 to DN 300
- Free passage: Up to 160 mm
- Insulation class: H
- Maximum efficiency: 83.7 %
- Maximum system pressure: PN10

AVAILABLE MATERIALS

- Stainless steel impeller (SE, SL)
- Stainless steel variants for standards EN 1.4408 and EN 1.4517/1.4539 (SE)

APPLICATIONS

- **RAW WATER INTAKE**
- **DRINKING WATER** TREATMENT
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



SEWAGE PUMPS – S RANGE

Highly dependable, powerful sewage pumps, designed for handling unscreened raw sewage, acknowledged for their strength, their durability, and for innovative features such as SmartTrim impeller clearance adjustment system and SmartSeal for leakage prevention.

BENEFITS

- High efficiency and excellent non-clogging capabilities with large free passage of 80 to 145 mm
- Patented SmartTrim system for extremely easy impeller adjustment without dismantling the pump, to maintain peak performance and keep lifecycle costs low.
- The SmartSeal auto-coupling gasket provides a completely leak-proof connection between the pump and the base unit of the auto-coupling system

TECHNICAL DATA

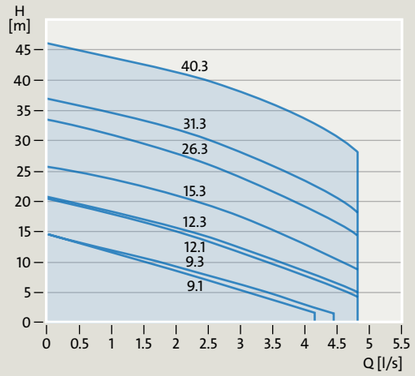
- Motor size: Up to 520 kW
- Flow rate (Q): 2500 l/s (9000 m³/h)
- Head (H): 116 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: 80 to 600
- Free passage: Up to 145 mm
- Insulation class: F (H on request)
- Maximum system pressure: PN 10
- Maximum hydraulic efficiency: 85 %

VARIANTS

- Stainless steel variants to EN 1.4408
- Sensors available for monitoring the pump: bearing and winding temperature, vibrations and water in oil
- A wide range of possibilitiesfor customising to customers requirements

APPLICATIONS

- **RAW WATER** INTAKE
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



GRINDER PUMPS – SEG/SEG AUTO*ADAPT*

Submersible sewage grinder pumps for pressurised wastewater pumping designed to optimise performance in your system. The adaptive intelligence built into the AUTO*ADAPT* versions minimises risk factors and reduces costs for installation, commissioning and maintenance.

BENEFITS

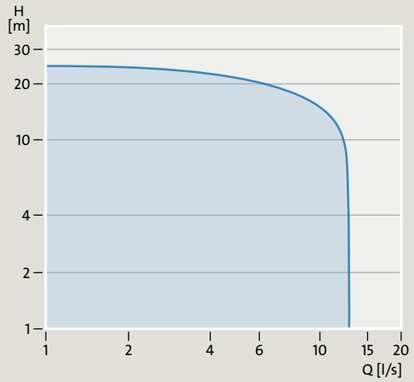
- High discharge pressure enables transfer of wastewater over longer distances
- Plug and pump – all necessary control and protection built into the pump, eliminating complexity (AUTO*ADAPT* version)
- Wear resistant grinder system which grinds solids into small pieces, so they can be pumped away through discharge pipes of a small diameter

TECHNICAL DATA

- Motor size: 0.9 to 4 kW
- Flow rate (Q): 4.75 l/s (17 m³/h)
- Head (H): 45.7 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: DN 40/50
- Insulation class: F
- Free passage: Grinder
- Insulation Class: IP68

APPLICATIONS

- **WASTEWATER** TRANSPORT



DRAINAGE SEWAGE PUMPS – DP AUTO*ADAPT*

Transportable multi-vane, semi-open impeller pumps specifically designed for a range of drainage applications with solids handling up to 10 mm. The pumps are made of wear-resistant materials, such as cast iron and stainless steel to ensure reliable operation. The adaptive intelligence built into the AUTOADAPT versions minimises risk factors and reduces costs for installation, commissioning and maintenance

BENEFITS

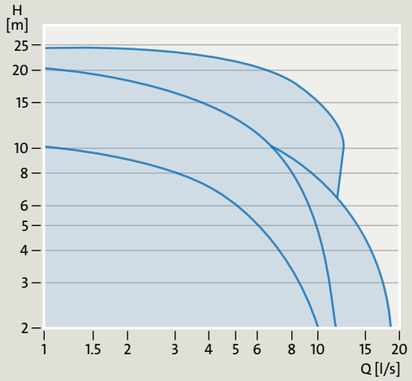
- For use free-standing or for installation on an auto-coupling system with an integrated three-leg stand that keeps the suction inlet clear of the pit bottom
- Patented SmartTrim system for extremely easy impeller adjustment without dismantling the pump, to maintain peak performance; no special tools are required
- Plug and pump – all necessary control and protection built into the pump, eliminating complexity (AUTO*ADAPT* version)

TECHNICAL DATA

- Max flow 12.5 l/s (45 m³/h)
- Max head: 25 m
- Motor size: 0.9 to 2.6 kW
- Discharge diameter: R2” + DN65
- Free passage: 10 mm
- Insulation class: F

APPLICATIONS

- **FLOOD** CONTROL
- **WASTEWATER** TRANSPORT



EFFLUENT SEWAGE PUMPS – EF AUTO*ADAPT*

Suitable for pumping effluent and other liquids such as drainage and surface water with small impurities and solids handling up to 30 mm size, with a rigid or flexible discharge pipe mounted on the discharge port. The adaptive intelligence built into the AUTO*ADAPT* versions minimises risk factors and reduces costs for installation, commissioning and maintenance.

BENEFITS

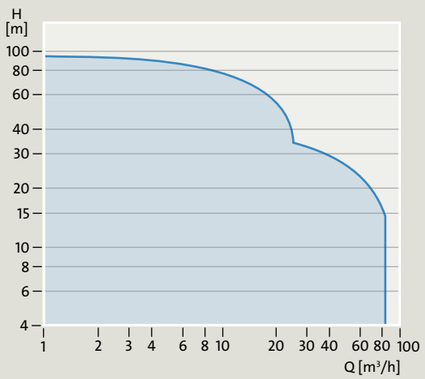
- For use free-standing or for installation on an auto-coupling system with an integrated three-leg stand that keeps the suction inlet clear of the pit bottom
- Patented SmartTrim system for extremely easy impeller adjustment without dismantling the pump, to maintain peak performance; no special tools are required
- Plug and pump – all necessary control and protection built into the pump, eliminating complexity (AUTO*ADAPT* version)

TECHNICAL DATA

- Max flow 12.9 l/s (46 m³/h)
- Max head: 22 m
- Motor size: 0.6 to 1.5 kW
- Discharge diameter: R2”
- Free passage: 30 mm
- Insulation class: F

APPLICATIONS

- **FLOOD** CONTROL
- WASTEWATER TRANSPORT



CONTRACTOR PUMPS – DW

Contractor pumps for construction dewatering in building and infrastructure sites. The aluminium materials for the main parts contribute to a light weight construction.

BENEFITS

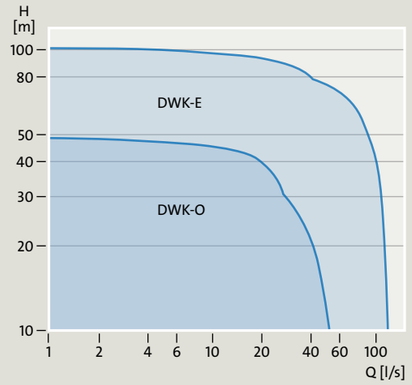
- Rubber lined hydraulic parts and high-chromium stainless steel impeller for extreme high wear resistance
- Integrated level control automatically starts and stops the pump when the built-in electrodes come into contact with water
- Top-discharge with different connection types available for multiple use of the pump, depending on conditions and specific needs

TECHNICAL DATA

- Motor size: 0.7 to 20 kW
- Flow rate (Q): 83 l/s (300 m³/h)
- Head (H): 98 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: 2” to 6”
- Free passage: Strainer
- Insulation class: F
- Maximum hydraulic efficiency: 55 %

APPLICATIONS:

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL



HEAVY-DUTY DEWATERING PUMPS – DWK

Contractor pumps for construction dewatering in building and infrastructure sites, designed with semi-open or enclosed impeller. Made of corrosion-resistant materials such as cast iron and high-chrome stainless steel, for harsh environments.

BENEFITS

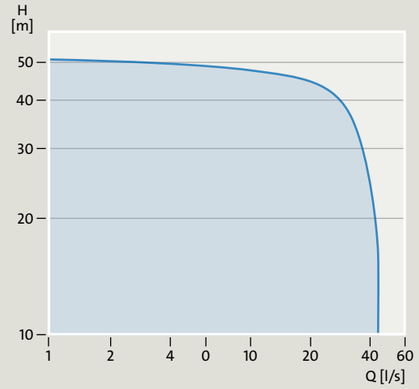
- High reliability and flexibility pumps with protection features for harsh operating environments
- Top-discharge with different connection types available for multiple use of the pump, depending on conditions and specific needs
- Pumps up to 15 kW have a double mechanical seal and pumps from 22 kW to 90 kW have a triple-seal system, for longer operation and less downtime

TECHNICAL DATA

- Motor size: 0.75 to 90 kW
- Flow rate (Q): 120 l/s (430 m³/h)
- Head (H): 89 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: 2” to 6”
- Free passage: Strainer
- Insulation class: F
- Maximum hydraulic efficiency: 75 %

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL



SUBMERSIBLE DRAINAGE PUMPS – DPK

Drainage pumps designed with semi-open or enclosed impeller for pumping water in a wide range of applications. The pumps are made of robust cast iron, ensuring durable operation.

BENEFITS

- Semi-open ductile cast iron impeller maintains its performance, ensuring an increased lifetime
- Submerged free-standing installation, or submerged installation on an auto-coupling system
- The double mechanical seal is positioned in the oil chamber and ensures trouble-free operation

TECHNICAL DATA

- Motor size: 0.75 to 22 kW
- Flow rate (Q): 45 l/s (165 m³/h)
- Head (H): 56 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: DN 50 to DN 150
- Free passage: 10 to 20 mm
- Insulation class: F
- Maximum hydraulic efficiency: 74 %

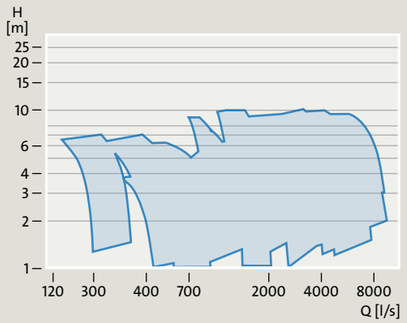
APPLICATIONS

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL

FLOOD CONTROL

Flood control pumping is characterised by a requirement for pump solutions with high flow and low head. The powerful Grundfos range of axial and mixed-flow pumps for flood control are specifically designed for durable use in pumping stations, harbour management and stormwater tank solutions.

Flood control pumps are individually engineered to suit your requirements, ensuring cost-efficient performance. Including Grundfos during the planning stages of the flood control solution ensures that all aspects are considered, such as pumping station design, retention tank design, pump selection, future requirements, and the total life cycle costs.



AXIAL FLOW PROPELLER PUMP – KPL

Axial flow propeller pump designed for the high flow at low head requirements of flood control and other similar duty applications. The Turbulence Optimiser™ reduces turbulence in the gap between the pump volute and the column pipe, increasing efficiency by up to two percentage points.

BENEFITS

- With the Turbulence Optimiser™, for best-in-class hydraulic efficiency of up to 86 %
- High-voltage motors for low installation costs
- High-precision one piece propeller with back-swept design reduces clogging

TECHNICAL DATA

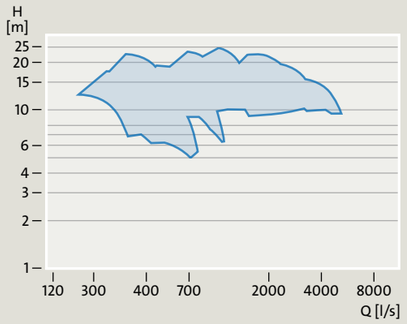
- Motor size: 11 to 700 kW (Up to 850 kW on request)
- Flow rate (Q): 9,200 l/s (33,120 m^3/h)
- Head (H): 10 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: Up to 2200 mm
- Insulation class: F
- Maximum installation depth: 20 m
- Maximum hydraulic efficiency: 86 %

VARIANTS

- Propeller in stainless steel is standard; other materials available on request
- Sensors for monitoring the pump: bearing and winding temperature, vibrations and water in oil

APPLICATIONS

- **RAW WATER** INTAKE
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



MIXED FLOW PUMP – KWM

Mixed flow pump designed for the high flow at low head requirements of, wastewater treatment recirculation control and other heavy-duty pumping applications.

BENEFITS

- With Turbulence optimizer (TM), for best-in-class hydraulic efficiency up to 86 %
- High-voltage motors for low ionstallation costs
- Robust, reliable and efficient, offering maximum value for money

TECHNICAL DATA

- Motor size: 11 to 700 kW (Up to 850 kW on request)
- Flow rate (Q): 5,555 l/s (20,000 m^3/h)
- Head (H): 20 m (Up to 400 m on request)
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: column (FPV up to DN 2,200)
- Insulation class: F
- Maximum installation depth: 20 m
- Maximum hydraulic efficiency: 85 %

VARIANTS

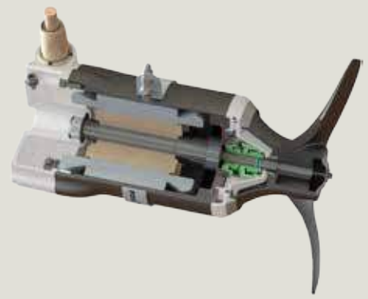
- Impeller in cast iron is standard; stainless steel available on request
- Sensors for monitoring the pump: bearing and winding temperature, vibrations and water in oil

APPLICATIONS

- **RAW WATER** INTAKE
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

MIXERS, FLOWMAKERS, AERATION, EJECTORS AND DIFFUSERS

Mixers, flowmakers and recirculation pumps available from Grundfos cover everything from small-scale mixers, ideal for prefabricated pumping stations, to large-scale flowmakers created for large tanks and basins and recirculation pumps for moving large flows at low head – a requirement often seen at treatment plants, for recirculation between process tanks.



MIXERS – SMD/SMG

Mixers for keeping particles evenly distributed in wastewater and sludge, preventing sedimentation and supporting treatment processes.Available as direct driven (SMD) versions from 0.7 to 3.5 kW, or planetary gear driven (SMG) versions from 0.9 to 18.0 kW.

BENEFITS

- Hydrodynamic optimised 2- or 3 blade propellers in stainless steel for high efficiency, reliable, and non-clogging operation
- Optimised for energy efficiency by use of IE3 motor components
- Full range og high-quality installation accessories
- Suitable for continuous and variable speed drive operation

TECHNICAL DATA

- Motor size: 0.7 to 18.0 kW
- Liquid temperature: +5 °C to +40 °C
- Thrust to power ratio:
  SMD: 0.18 to 0.24 N/W
  SMG: 0.25 to 0.43 N/W
- Propeller diameter:
  SMD: 210 to 370 mm
  SMG: 550 to 900 mm
- Propeller speed:
  SMD: 967 to 1478 rpm
  SMG: 269 to 359 rpm
- Axial Thrust:
  SMD: 170 to 830 N
  SMG: 360 to 4360 N

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **WASTEWATER** TREATMENT
- **DRINKING WATER** TREATMENT

FLOWMAKERS – SFG

Flowmakers for keeping particles evenly distributed in even the largest wastewater tanks and basins, preventing sedimentation and optimising the treatment process. Gear driven flowmakers from 0.7 to 8.0 kW.

BENEFITS

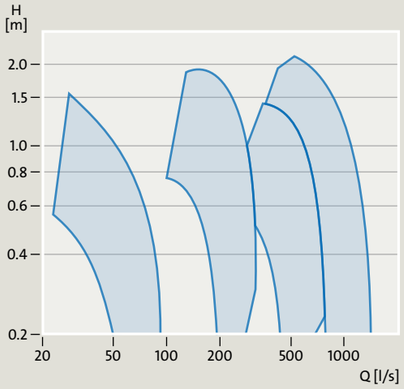
- Hydrodynamic optimised 2 or 3 blade propellers for high efficiency, reliable, and non-clogging operation
- Optimised for energy efficiency by use of IE3 motor components
- Full range og high-quality installation accessories
- Suitable for continuous and variable speed drive operation

TECHNICAL DATA

- Motor size: 0.7 to 8.0kW
- Liquid temperature: +5 °C to +40 °C
- Thrust to power ratio: 0.55 to 1.34 N/W
- Propeller diameter: 1300 to 2660 mm
- Propeller speed: 26 to 88 rpm
- Axial Thrust: 665 to 6570 N

APPLICATIONS

- **WASTEWATER** TREATMENT
- **DRINKING WATER** TREATMENT



SUBMERSIBLE RECIRCULATION PUMPS – SRG

Submersible recirculation pumps to handle large flows with low heads that are equally suitable for wastewater treatment plants and flood control. The triple sealing system ensures maximum protection of the mechanical shaft seal, and the bracket makes installation very easy.

BENEFITS

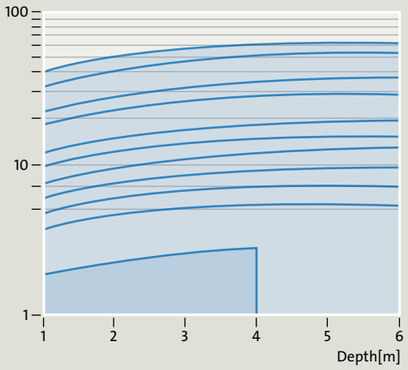
- Hydrodynamic optimised stainless steel propeller for high efficiency, reliable, and non-clogging operation
- Optimised for energy efficiency by use of IE3 motor components
- Wide performance range
- Suitable for continuous and variable speed drive operation

TECHNICAL DATA

- Motor size: 0.8 to 24.0 kW
- Flow rate (Q): 1450l/sec (5250 m³/h)
- Head (H): 2.1 m
- Liquid temperature: +5 °C to +40 °C
- Discharge diameter: 300 to 800 mm
- Maximum hydraulic efficiency: 68 %

APPLICATIONS

- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



EJECTORS – AEROJET

Self-aspirating aerator that keeps aerobic treatment processes running and also helps to avoid odour problems in wastewater storage, as anaerobic zones can be eliminated providing mixing and aeration in the same device.

BENEFITS

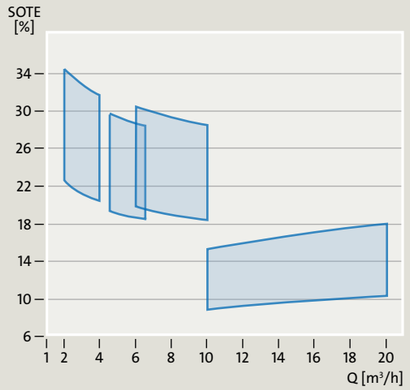
- Robust industrial design for continuous operation, made completely in stainless steel for strength
- Easy to install, operate and maintain, as they do not require any blowers, air distribution piping or control valves
- Submerged aerator increases oxygen transfer time, and the submerged installation reduces noise and limits aerosol formation at the tank

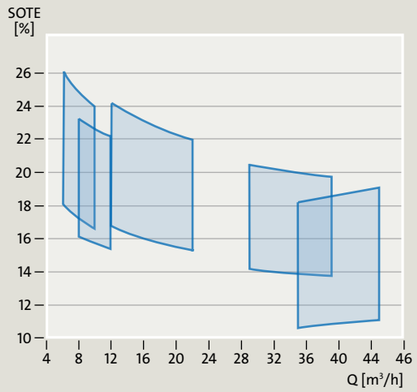
TECHNICAL DATA

- Motor size: 4 to 50 kW
- Liquid temperature: 0 °C to +40 °C
- Standard Oxygen Transfer Rate at 4 m submersion: SOTR 61 [kgO_2/h]

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT





SEWAGE AERATION DIFFUSERS – SAD

A wide range of energy efficient, sturdy and flexible membrane disc and tube fine bubble diffusers for process tanks and other wastewater treatment applications. For new build or refurbishment, systems include pipes and fittings, manifold, anchors and diffusers.

BENEFITS

- Customised energy efficient, fine bubbled diffuser systems delivered with complete working layout drawings and a calculation of system performance
- Diffuser systems are delivered pre-assembled, with fast and easy one-bolt on-site installation of the air distribution pipes
- A large range of disc and tubular diffusers, with system components available in a range of materials for different wastewater types

TECHNICAL DATA

- Disc diffusers 9" & 12" Maximum Qnominal 8.0 Nm³/h
- Tube diffusers 2" & 3" Maximum Qnominal 34.0 Nm³/h

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TREATMENT

PREFABRICATED PUMPING STATIONS

Grundfos offers a full range of functional modular pumping stations – complete with all necessary pumps, piping, valves and level controls. The pump pit, pumps and controls can be combined to suit specific requirements for each individual application.

The Grundfos prefabricated pumping stations are available in a variety of sizes and heights. Depending on the selected pump, applications can be for drainage, effluent, stormwater and wastewater. The pumping stations are made either from polyethylene (PEHD) or Glass Reinforced Polyester (GRP). All pre-installed piping is stainless steel or PEHD.

PREFABRICATED PUMPING STATIONS

Sturdy and well-designed pump pit sized to suit requirements, with up to three wastewater pumps easily installed on auto couplings.

All necessary components such as piping and valves are built in or placed in a seperate valve champer. Grundfos Dedicated Control offer operational reliability, integration and automatic optimisation.

BENEFITS

- Sturdy construction from high quality corrosion-free materials;
- Designed for easy and fast installation
- The design of the pit sump limits sludge and odour problems and is for unattended operation and remote control

PRODUCT DATA

- Maximum diameter: 400 to 3000 mm
- Maximum length: 8 m
- Material of tank: PEHD / GRP

As variant we can make other diameters and lengths

COMPONENTS

- Primarily designed for up to three Grundfos wastewater pumps
- Grundfos controllers offer a full range of options for monitoring, control, communication and optimisation
- Options for level sensors, external control units and valves

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **WASTEWATER** TREATMENT
- **FLOOD** TREATMENT

DESIGN

Design your own pumping stations based on Grundfos standard components. Find our Pumping Station Creator in Grundfos Product Center under Tools or use the URL code.

CONTROLS & MONITORING

Grundfos can supply dedicated communication modules and controls for every eventuality, ensuring trouble-free and continuous operation of complex pumping solutions, offering open protocols, control and monitoring with data collection options, all fully compatible with your management system.

For many of our monitoring and control solutions, the packaged software Grundfos PC Tool is used for commissioning, monitoring pump status, adjusting the settings, start/stop of the pumps, query data, generating reports on the operation, and establishing service reports. A huge range of main functions and specialised functions, depending on the application, is also easily accessible via the PC tool, or from the user interface.

REMOTE MANAGEMENT – GRM

Grundfos Remote Management is a cost-effective and straightforward way to monitor and manage pump installations in water supply and wastewater infrastructure and irrigation. It reduces the need for onsite inspections and in the event of an alarm or warning, the relevant people are notified directly.

COMMUNICATION

- CIM/CIU communication interfaces enable data transmission via GPRS, SMS and Internet from Grundfos pumps and controllers
- Built-in multi-purpose I/O board allows the connection of sensors and switches
- A fixed low fee covers data traffic, hosting costs and system support, including back-up of all data

BENEFITS

- Get the full overview of the operation, performance and trends and see the status of your entire system on your own map or image
- Live monitoring, analysis and adjustments, monitoring of energy consumption, and optimisation of system performance
- Manage service & maintenance; plan service work on the basis of actual operating data and get notification when service is due

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

MOBILE PUMP CONTROL – GRUNDFOS GO REMOTE

Designed to save time and effort for the pump owner, this is the most comprehensive platform for mobile pump on the market, offering intuitive, handheld assistance and access to the Grundfos online tools, saving valuable time in reporting and data collection.

COMMUNICATION

- Wink function, live data feed, frequently needed shortcuts (wizard), and improved alarm logging
- User-friendly interface
- Infrared, radio, or universal MI 301 dongle
- A complete box product including MI204, Ipod Touch 5th gen., charger and cables is available
- Supports infrared connection to existing products, and radio communication to newer products

BENEFITS

- Group pumps, change configuration parameters and monitor pump data
- Descriptive error codes make trouble shooting easy and intuitive
- Time saving, with quick links to documentation, replacement tool, and automatic updates

APPLICATIONS

- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT

FIELDBUS COMMUNICATION INTERFACES – CIM/CIU

The Grundfos fieldbus concept is the ideal solution for complete control of pumps and pump systems. The Communication Interface Module (CIM) and the Communication Interface Unit (CIU) enable data communication via open and interoperable networks.

COMMUNICATION

- Available with GENIbus, BACnet MS/TP, BACnet/IP, LON, Modbus RTU, Modbus TCP, PROFIBUS DP, PROFINET IO, Grundfos Remote Management (GRM) and GSM/GPRS/SMS

BENEFITS

- Ease of installation and commissioning, user-friendliness, and great value for money
- All modules are based on standard functional profiles for easy integration into the network and easy understanding of data points
- Supports a wide range of Grundfos products

COMPONENTS

- CIM/CIU 100/110 LON is mainly used for HVAC applications
- CIM/CIU 150 Profibus DP is mainly used for factory and process automation
- CIM/CIU 200 Modbus RTU is used for versatile automation e.g. HVAC and wastewater applications
- CIM/CIU 250 GSM is mainly used for water supply and wastewater applications
- CIM/CIU 270 GRM is used together with Grundfos Remote Management
- CIM/CIU 300 BACnet is used for building automation
- CIM/CIU 500 is a versatile module supporting Industrial Ethernet solutions. It currently supports PROFINET IO, Modbus TCP, BACnet/IP and GRM IP

APPLICATIONS

- **RAW WATER** INTAKE
- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT

MOTOR PROTECTION UNIT – MP 204

Reliable, easy to set up and easy to use motor protection for all Grundfos pumps and applications, for motors ranging from 3 to 999 amps and voltages from 100 to 480 VAC that protects pump motors against under-voltage, overvoltage and other variations in power supply and overheating.

COMMUNICATION

- Supports communication with monitoring equipment or other external units via a number of different fieldbus protocols using the Communication Interface Unit (CIU)
- Compatible with Grundfos Remote Management
- Connect to any SCADA system, allowing remote access to pump data anywhere

BENEFITS

- Power factor measurement, giving an indication of clogging in the intake or impeller wear
- Motor power consumption continually checked with precision, stopping the pump before dry-running and preventing pump damage
- Alerts for ground failure/insulation resistance, allowing preventive maintenance of the motor, cables, or cable joints

COMPONENTS

- The Control MP204 cabinet is also available with DOL (Direct on-line), SD (Star delta) and SS (Soft starter) starting methods

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

DEMAND DRIVEN DISTRIBUTION – DDD

The Demand Driven Distribution system compensates for excessive system pressure by adapting the setpoint to the actual flow. This is done by measuring pressuring in the remote critical point and creating a hydralic model.

COMMUNICATION

- Supports communication with monitoring equipment or other external units via a number of different fieldbus protocols using the Communication Interface Unit (CIU)
- Compatible with Grundfos Remote Management
- Connect to any SCADA system, allowing remote access to pump data anywhere

BENEFITS

- Lowering average pressure in the system, resulting in reduced leakage and energy consumption
- Increased comfort for consumers in the network
- User-friendly display interface with an intuitive and easy-to-follow installation wizard

COMPONENTS

- The basic component of the DDD system are:
- CU 354 to control unit
- IO 351 to basic I/O unit
- CIU 250 with CIM 040 - GSM interface to remote sensors
- Xilog 1P Remote critical point sensor

APPLICATIONS

- **WATER** DISTRIBUTION

MULTI-PUMP CONTROLLER – MPC

Pressure boosting permits monitoring and control of up to six identical pumps connected in parallel and will minimise energy consumption and cut energy costs straight out of the box for the highest possible system energy efficiency.

COMMUNICATION

- Supports communication with monitoring equipment or other external units using the Communication Interface Module (CIM) via a number of different fieldbus protocols
- Compatible with Grundfos Remote Management

BENEFITS

- Easy to install and configure; Wizard helps the user to configure the system when you first start, ensuring the desired parameters are set up in the correct sequence
- Standby pump allocation, forced pump changeover and dry-running protection help to increase system reliability and decrease downtime and costly maintenance
- Soft pressure build-up function minimises risk of water hammer, reducing the risk of water loss and costs of pipe maintenance

COMPONENTS

The basic components of the Control MPC are:

- CU 352 – control unit
- IO 351 – primary I/O unit

The Control MPC comes in variants for mains operation, for external VFD speed control, or with speed control built in.

APPLICATIONS

- **WATER** DISTRIBUTION

EXTERNAL FREQUENCY CONVERTERS – CUE

A complete range of external frequency converters designed for speed control of a wide range of Grundfos pumps for water supply, wastewater and irrigation applications. A special start-up guide will lead you through the set-up of the CUE.

COMMUNICATION

- Supports communication with monitoring equipment or other external units via a number of different fieldbus protocols using the Communication Interface Unit (CIU)
- Compatible with Grundfos Remote Management

BENEFITS

- Predefined control modes, sensor range and pump family data make it very easy to set up a system in only a few steps
- Shares the unique Grundfos intuitive interface with Grundfos control equipment
- Very easy installation and set-up – just 16 steps to get a system up and running

COMPONENTS

- Additional functions available that for example provide better application support and system optimisation
- Additional analog input/output board, providing for additional inputs, for example temperature sensors for monitoring bearings
- A range of motor filters available
- MP 204 motor protection

APPLICATIONS

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

WASTEWATER CONTROLS – DEDICATED CONTROLS

Control up to six pumps in wastewater applications in main, network and pressurised pumping stations. A range of advanced features allow for system measurement and calculation, and integration with other monitoring, control and energy optimising equipment.

COMMUNICATION

- Supports communication with monitoring equipment or other external units Communication Interface Module (CIM) via a number of different fieldbus protocols
- Compatible with Grundfos Remote Management
- Communication using wired or wireless (GPRS/GSM) networks to SCADA and BMS systems

BENEFITS

- The anti-clogging attributes of the flush and reverse function are unique to Dedicated Controls, as is the ability for continuous energy optimisation according to duty condition
- User-friendly display interface with an intuitive and easy-to-follow installation wizard and you can also choose your language
- In addition to a comprehensive range of basic features, defined inputs/outputs can be added for system functions specific for the pumping station

COMPONENTS

- The main components of the system Dedicated Controls are:
- CU 362 – control unit
- IO 351 – basic I/O module
- IO 113 – protection module for pumps sensors
- SM 113 – sensor module

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

LEVEL CONTROLLERS – LC/LCD

Single or two-pump controllers designed for level control and for monitoring and protection of pumps in wastewater, water supply and drainage systems that offer effective and reliable control functions, offering basic control for basic needs with easy commissioning and maintenance.

COMMUNICATION

- The cabinet can be fitted with a Communication Interface Unit (CIU) to transmit the data collected via GPRS/GSM networks
- Compatible with Grundfos Remote Management

BENEFITS

- A perfect match for Grundfos pumps, supplied as a complete controller incorporating motor protection relay and control unit and offering protection against water hammer
- Automatic pump changeover, ensuring even distribution of operating hours on both pumps
- Selection of automatic test run (every 24 hours) during long periods of inactivity, and of alarms and alarm resetting, automatic restart and more

COMPONENTS

- Three series with a total of six versions are available, operated by level bells, float switches or electrodes
- A comprehensive range of accessories is also available for the LC/LCD series
- Use with direct on-line start motors up to 11 kW, or the LC/LCD range can also be supplied with an integrated star-delta starter for applications requiring larger motors, up to 30 kW

APPLICATIONS

- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

FULLY DIGITAL PRE-ASSEMBLED COMPACT MEASUREMENT AND CONTROL SYSTEM – DID

The 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 perfectly match Grundfos dosing pumps, gas dosing systems and systems for the generation and dosing of chlorine dioxide and hypochlorite.

BENEFITS

- Complete and ready to use
- Sensors with wide measuring ranges and comprehensive standard range allows easy selection
- Intuitive user interface provides easy commissioning and operation
- Easy system integration thanks to included digital, analog and Modbus interfaces

TECHNICAL DATA

- Parameters: Free or total Chlorine, Chlorine Dioxide, Hydrogen peroxide, Peracetic acid, pH, ORP, Conductivity and Temperature
- Preassembled systems with Bypass-flowcell or tank immersed sensors

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TREATMENT

WATER DISPENSER WITH REVENUE COLLECTION AND WATER MANAGEMENT – AQtap

AQtap is an intelligent water dispenser that addresses some of the main challenges of providing a reliable and sustainable water supply in the developing world. Through an integrated platform for revenue collection and online management of water kiosks, AQtap supports the financial viability and accountability of water service operations.

BENEFITS

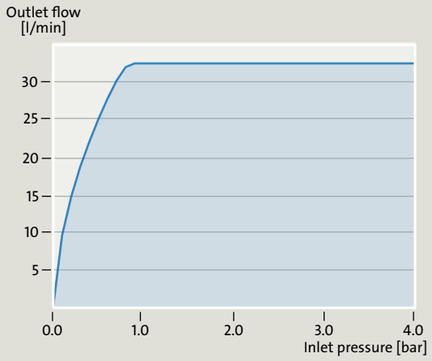
- Positive and transparent water tapping experience with a simple and intuitive interface and a closed water credit system using smart cards
- Efficient revenue collection platform that is flexible to be fitted to customers' organisation and setup
- Intelligent water management via remote data management to optimise and document the performance of each single water point

TECHNICAL DATA

- Nominal dispensing capacity: 1 m^3/h
- Inlet and outlet connection: 3/4"
- Inlet pressure: 0.2 to 4 bar
- Dimensions: 400 x 500 x 210 mm
- Protection class: IP55
- Grid power: 110 to 240 VAC, 50/60 Hz
- Solar power: 15 to 45 VDC

APPLICATIONS

- **WATER DISTRIBUTION**



PRE-ASSEMBLED COMPACT MEASUREMENT AND CONTROL SYSTEM – DIA AND DIS

Preassembled systems for monitoring of typical water quality parameters as well as precise control of disinfectant addition or pH adjustment.

BENEFITS

- Complete and ready to use
- Intuitive user interface provides easy commissioning and operation
- Easy system integration thanks to included digital and analog interfaces

TECHNICAL DATA

- Parameters: Free Chlorine, Chlorine Dioxide, Ozone, pH, ORP, and Temperature
- Preassembled systems with Bypass-flowcell

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TREATMENT

MEASUREMENT AND CONTROL SYSTEMS – CONEX® DIA

The Conex® DIA (Dosing Instrumentation Advanced) series of measuring amplifiers and controllers for one or two parameters – Cl_2, ClO_2, O3, H_2O_2, PAA, pH, redox (ORP) – is designed for users without previous knowledge. Conex® units monitor themselves, ensuring high water quality at all time and come in three versions. DIA preasssembled systems combine controllers and tried-and-tested electrodes on a plate ready for quick installation.

BENEFITS

- The calibration function carries out a plausibility check to prevent mishaps
- The logbook function records sensor data and calibration values complete with date and time
- The units also keep an eye on the temperature and make adjustments as necessary

TECHNICAL DATA

- Display: High resolution, plain-text LCD
- Indication mode: Measured value as a physical variable
- Controller: PI / PID-controller
- Temperature compensation: Manually or automatically by Pt 100 sensor
- pH-compensation: Chlorine (Cl_2) measurement: automatically by pH measurement
- Permissable operating temperature: 0 to +50 °C (DIA-G)
- Permissible relative humidity: Maximum 90 % (non condensing)
- Mains voltage: 230/240 V, 50/60 Hz or 115/120 V, 50/60 Hz or 24 VDC
- Power consumption: Approx. 15 VA
- Enclosure class: IP 65 (wall-mounted) IP 54 (panel-mounted)

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION

PHOTOMETRIC WATER ANALYSIS – DIT-M PHOTOMETER AND DIT-L COMPACT PHOTOMETER

The DIT-M photometer and DIT-L compact photometer with the DIT-IR interface module offer water analysis from a state-of-the-art measuring unit of up to 15 parameters in water treatment. Long-term stable reagents in tablet form are used.

BENEFITS

- The DIT-M photometer operates with 6 interference filters and long-term stable LEDs as light sources without moving parts
- Up to 1000 (DIT-M) or up to 16 (DIT-L compact) data sets can be saved
- Data transfer to a PC or a printer is possible with an infrared interface via the optional DIT-IR module

TECHNICAL DATA

- DIT-M: Aluminium, bromine, chlorine,(free, total, combined), chlorine dioxide, chloride, chlorite, cyanuric acid, iron,fluoride, manganese, ozone, phosphate, pH, acid capacity KS 4.3., hydrogen peroxide
- DIT-L: Chlorine, chlorine dioxide, chlorite or ozone as well as the pH value.

APPLICATIONS

- **WATER** DISTRIBUTION
- **WASTEWATER** TREATMENT

SOLAR INVERTER – RSI

The intelligent IP66 off-grid solar inverter offers the possibility to power nearly all Grundfos pumps by solar panel. A system of low (or nearly no) operating costs.

BENEFITS

- IP66 enclosure class means the RSI is weather-proof and allows outdoor installation
- Advanced MPPT software which continuous optimise the system with respect to temperature as well as the solar panel conditions
- Quick setup Wizard with pre-defined parameters suits the Grundfos submersible MS motor.

TECHNICAL DATA

- Power size: 2.2 kW to 37 kW
- Voltage range: DC or 3-phase AC
- Enclosure class: IP66
- Analog and digital input

VARIANTS

- Compatible to 3 x 380 VAC or 3 x 230 VAC motor

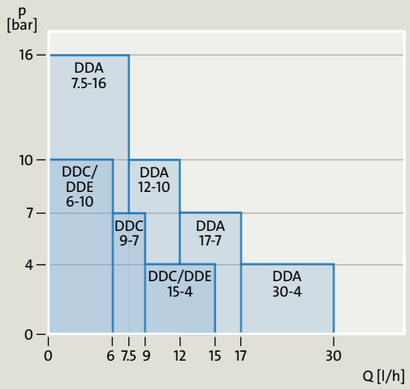
APPLICATIONS

- **RAW WATER** INTAKE
- **WATER** DISTRIBUTION

DOSING AND DISINFECTION

Grundfos offers one of the most extensive product ranges in the market for dosing and disinfection, covering everything from disinfection of drinking water to water treatment in highly sensitive industrial processes.

Grundfos can supply complete dosing pump systems for large or small volumes and based on different technologies for flocculation, disinfection, and pH adjustment. Moreover, the Grundfos range of electronic and electrochemical accessories offers complete control of your dosing and disinfection processes and can be seamlessly integrated into your system. We can also advise and supply disinfection solutions using chlorine compounds such as chlorine gas (Cl_2), sodium hypochlorite (NaOCl), and chlorine dioxide (ClO_2).



SMART DIGITAL
– DDA, DDC AND DDE

Diaphragm dosing pumps with powerful variable-speed stepper motors offer high dosing accuracy and flow control, longer maintenance intervals due to the universal chemical resistance of the full-PTFE diaphragm, and reduced energy consumption from the state-of-the-art drive technology.

BENEFITS

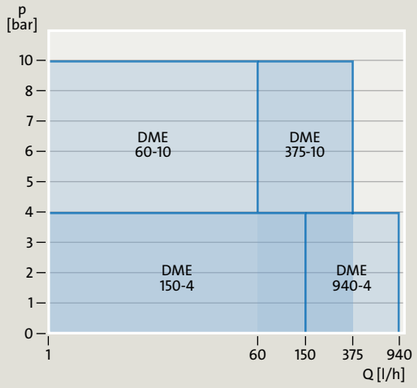
- **Modularity:** The included click-stop mounting plate is an example of the unique flexibility offered, with only a few variants.
- **Simplicity:** Easy handling and perfect overview and control ensure simple installation, commissioning and operation.
- **Flow intelligence:** The pump monitors the dosing process of liquids when the FlowControl function is activated, for advanced process reliability

TECHNICAL DATA

- Flow (Q): 0.0025 to 30 l/h
- Operating pressure: 4 to 16 bar
- Setting range: Up to 1:3000

APPLICATIONS

- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



DIGITAL DOSING
– DME

Digital Dosing pumps that combine perfect precision and user-friendliness for large dosing quantities from 60 l/h to 940 l/h, offering all the benefits of the highly acclaimed smaller Digital Dosing range, making accurate dosing is easier than ever.

BENEFITS

- Wide dosing range with a turndown ratio of 1:800 for a range of water supply, wastewater and water treatment applications
- Easy to install, the operator can set the pump to discharge exactly the quantity of dosing liquid required in the application
- Available with Profibus interface to supply performance data and status information for quality control, preventive maintenance and future reference

TECHNICAL DATA

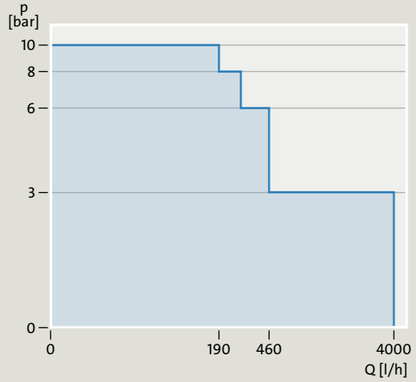
- Flow (Q): 0.075 to 940 l/h
- Operating pressure: 4 to 10 bar
- Setting range: up to 1:800

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

VARIANTS

- The dosing heads of DME pumps are available in stainless steel, PVDF, and environmentally friendly, cost-efficient polypropylene



MECHANICAL DIAPHRAGM DOSING PUMPS
– DMX

Robust diaphragm-based design with high-quality motors for many dosing applications, they require minimum maintenance and are highly versatile, covering a wide flow range and offering a variety of dosing head sizes, materials and accessories.

BENEFITS

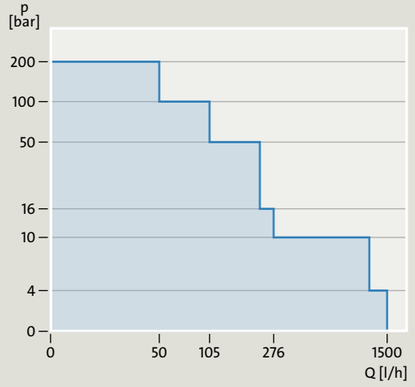
- Dosing from 0.4 up to 2 x 4000 l/h
- Compact design – saves money and space
- Smooth and low-pulsation dosing, proven technology

TECHNICAL DATA

- Motor size: 0.09 to 2.2 kW
- Flow rate (Q): 0.4 to 2 x 4000 l/h
- Maximum system pressure: 10 bar
- Liquid temperature: Up to +70 °C
- Discharge diameter: DN 8 to DN 65
- Enclosure class: IP 55 or IP 65 (depends on motor)
- Dosing flow variation: below +/- 1.5 %
- Dosing linearity: below +/- 4 %

APPLICATIONS

- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



HYDRAULIC PISTON DIAPHRAGM DOSING PUMPS
– DMH

Extremely strong, robust pumps for applications requiring a reliable dosing and high-pressure capability for high-pressure applications from 50 up to 200 bar. Highly versatile for a wide flow range and offering a variety of dosing head sizes, materials and accessories.

BENEFITS

- EX/ATEX and API 675 versions available
- Very accurate dosing
- Dosing of flammable liquids
- Full PTFE membrane as a standard

TECHNICAL DATA

- Motor size: 0.09 to 2.2 kW
- Flow rate (Q): 0.15 to 2 x 1500 l/h
- Maximum system pressure: 200 bar
- Discharge diameter: DN 4 to DN 32
- Enclosure class: IP 65
- Dosing flow variation: Below +/- 1 % (DMH 28x)
- Dosing flow linearity: Below +/- 1 % (DMH 28x)

APPLICATIONS

- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

DOSING PUMP ACCESSORIES:

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

BENEFITS

- Save and reliable operation of Grundfos dosing pumps
- Easy system integration

APPLICATIONS

- **DRINKING WATER TREATMENT**
- **WASTEWATER TREATMENT**

DOSING TANK AND SKID SYSTEMS – DTS, DSS

The complete chemical feed systems are designed to make dosing technology available as a complete package

DTS: cost-effective dosing stations
Cost-effective dosing tank stations for storing and dosing liquid chemicals. They 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.

DSS and customized solutions:
Complete panel or cabinet mounted dosing systems, with all necessary pipework, valves and dosing pumps. Standardised packaged systems or custom systems according to customers specifications are available.

BENEFITS

- Complete and ready to use
- Easy installation and commisioning
- Save and reliable operation of Grundfos dosing pumps

TECHNICAL DATA

DTS:
- 6 tank sizes between 60 and 1000l for dosing pumps up to 60 l/h

DSS and customised solutions:
- Cabinet or panel mounted

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TREATMENT

FULL-VACUUM CHLORINE GAS DOSING SYSTEMS – VACCUPERM

Gas dosing systems working in accordance with the tried-and-tested full-vacuum principle, which regulates the addition of gaseous chlorine reliably and precisely.

BENEFITS

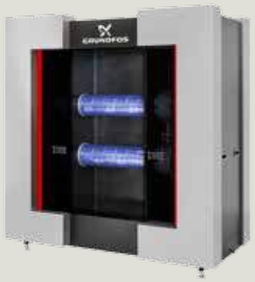
- Systems for direct installation on chlorine gas cylinders or drums or for installation in header lines
- Precise regulation and dosing of gaseous chlorine
- Complete range of accessories available on request: injectors, automatic changeover units, evaporators, liquid traps, gas warning systems

TECHNICAL DATA

- VGB compact dosing units up to 4 kg/h
- VGA vacuum and dosing regulators up to 10 kg/h
- VGS high performance systems up to 200 kg/h

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT



ELECTRO-CHLORINATION SYSTEMS – SELCOPERM

Selcoperm electrolysers produce sodium hypochlorite electrolytically, directly from a solution of common salt using electricity, offering health and safety benefits for operators and savings on transport and handling.

BENEFITS

- Requires only salt, water and electricity for low-cost generation of your disinfectant
- Generates chlorine on site according to your requirements, saving you transportation and storage costs
- Common salt is non-toxic and easy to store
- Customised solutions on request

SELCOPERM SES 125-2000

TECHNICAL DATA

- Capacities from 110 g/hour to 1.8 kg/hour
- 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

SELCOPERM SES 5000-45000

TECHNICAL DATA

- Capacities from 5 to 45 kg/h
- Max. salt consumption 3.5 kg per kg of Cl_2
- Max. power consumption 5.4 kWh (AC) per kg of Cl_2
- Sodium hypochlorite concentration 0.8 %

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

CHLORINE DIOXIDE PREPARATION AND DOSING SYSTEMS – OXIPERM

Chlorine dioxide generators that are extremely easy to use, bringing together precise dosing technology, an ideal mixture of components, quick chemical reactions with Maximum conversion rates, and outstanding reliability for effective disinfection

BENEFITS

- 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

TECHNICAL DATA

- Oxiperm Pro 162 OCD – 5/10/30/60 g/hour
- Oxiperm 164 D – 120 to 2000 g/hour
- Oxiperm 164 C – 150 g/hour to 10 kg/hour
- Oxiperm 166 – 750 g/hour to 10 kg/hour
- Oxiperm ISIA – 0.5 to 20 kg/hour

APPLICATIONS

- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

MODULAR AND AUTOMATED ULTRAFILTRATION WATER TREATMENT – AQpure

Modular and prefabricated water treatment system that produces drinking water quality by filtering bacteria, viruses and particles from raw source water, providing a reliable and affordable watersupply for local communities, even in remote areas.

BENEFITS

- Prefabricated to simplify local installation and commissiong
- Self-adaptive control to provide automated and stable operation to ensure long service intervals
- Modular design approach to offer superior simplicity in sizing and selection process and to ensure attactive pricing

TECHNICAL DATA

- Water production: Up to 50 m³/d
- Membrane type: Ultrafiltration; hollow-fibre; dead-end
- Pore size in membrane: 0.03 µm
- Power supply: 200-240 V, 1-phase, 50/60 Hz
- Dimensions: Max. length 147.5 cm, max. width 152 cm, max. height 230 cm

APPLICATIONS

- **DRINKING WATER** TREATMENT

VARIANTS

Mass-customisable from 11 standard modules of pre- and post treatments as well as auxiliary equipment.

The selection process is done in 3 simple steps:

1. Determine the local raw water quality
2. Decide on the main configuration
3. Add optional modules

PREPARATION AND DOSING INSTALLATIONS – POLYDOS

The Polydos series are flexible, environmentally friendly and economic dosing and preparation systems that range from one to three chamber installations for preparation of dry or liquid polymers. We can customise the system to match the application.

BENEFITS

- Compact, yet flexible installation of fully integrated system, including material handling, preparation and maturing and solution dosing
- Environmentally friendly and economical to use with precise prepared, precise dosing and water metering and with variants that meet the customers' exact needs
- Configured according to the required polymer quantity in kg/h or require volume of prepared solution, the concentration of the preparation polymer, and the maturation time in minutes

VARIANTS

- Polydos 412 is a fully automatic three-chamber preparation system for liquid and dry polymers for preparation and dosing of liquid flocculants and coagulants
- Polydos 420 is a fully automatic two-chamber preparation system for liquid polymer only
- KD 440 is a fully automatic one-chamber preparation system
- TD423 is a dry material feeding system for feeding powders or granules, such as lime hydrate, aluminium sulphate, diatomite, phosphates, activated carbon or polymers

TECHNICAL DATA

- Capacity range: Up to 10 m³/h of prepared solution with 60 minutes maturation time
- Concentration range: 0,05 to 0,5%
- Water inlet: Shut-off valve, solenoid valve , pressure reducing valve and contact water meter.
- Maximum viscosity of the polymer solution: 2500 mPas
- Ultra-sonic level sensor to enable flow proportional preparation

MATERIAL:

- Dry material feeder and feeding worm, agitator shaft and stainless steel propeller
- Tank material: PPH or SS
- Lines and connections: PVC-U

APPLICATIONS:

- **DRINKING WATER** TREATMENT
- **WASTEWATER** TREATMENT

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Grundfos Water Utility – optimised water solutions

Grundfos Water Utility is a full-range supplier of intelligent pumps and systems for all water supply and wastewater applications. We optimise pumping solutions to provide maximum reliability and resource efficiency for our customers. Our solutions are made with tried and tested technology and our expertise is part of any delivery.

We offer solutions and expertise within the following applications:

- **RAW WATER** INTAKE
- **DRINKING WATER** TREATMENT
- **WATER** DISTRIBUTION
- **WASTEWATER** TRANSPORT
- **FLOOD** CONTROL
- **WASTEWATER** TREATMENT

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