

# EXPERTISE IN **WATER TREATMENT** APPLICATIONS



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**GRUNDFOS** 



# ONE PARTNER FOR YOUR WATER TREATMENT CHALLENGES

Grundfos' extensive range of water treatment products comprises far more than high quality pumps. Dive into an ocean of dedicated solutions designed to take reliability, intelligent control and optimisation to new levels.

As one of the world's leading pump manufacturers Grundfos is at home when it comes to water. We cover the entire water treatment cycle from intake and distribution to handling of wastewater – so whether you are looking for packaged solutions or individual pumping products for each stage of the process, you can rely on our expertise.

Water treatment is technology-driven and heavily regulated, and Pump, Dosing and Disinfection Solutions have been designed to meet every demand and comply with every regulation. Grundfos has years of water treatment application experience and guarantees the perfect match between component and sub-system. Application areas include:

- Municipal Water and Wastewater Treatment
- Industrial Water and Wastewater Treatment
- Water Treatment in Commercial Buildings
- Desalination and Ultra Pure Water Applications



## TOTAL SYSTEM INTELLIGENCE ON DEMAND

*Pumps do not exist in isolation. Consequently, the optimisation of the entire pump system is the key to maximum efficiency. Grundfos iSOLUTIONS is a holistic system approach. Through intelligent technology it adapts precisely to system demands and delivers optimal energy efficiency and reliability for every specific application. With Grundfos iSOLUTIONS you can be certain that you always get the optimal solution for your specific application and challenge.*



# INTAKE & DISTRIBUTION

Grundfos offers cost effective, reliable and energy optimised solutions for both raw water pumping and water distribution. Our extensive product range consists of extremely reliable products with a proven track record. In water distribution, we can reduce water loss and cut distribution costs drastically with Demand Driven Distribution.

## HYDRO MPC

Wherever additional pressure is required, the Hydro MPC booster system handles the job with ease and accuracy. Comprising CR pumps with IE3 motors and the intelligent CU controller, the compact Hydro MPC unit is one of the most energy-efficient booster solutions when it comes to maintaining a constant pressure during changing flow demands. Additional benefits include:

- Service-friendly
- Easy to commission
- Automatic adaption to flow



# MONITORING & CONTROL

Grundfos offers a wide range of products for all areas of water quality control. Our pumps, controllers and intelligent management systems form the perfect package that makes water quality control easy and reliable.

## CUE

The CUE series are frequency converters for the speed control of a wide range of Grundfos pumps, irrespective of size, power range and application area. The predefined control modes – constant pressure, proportional pressure and constant level or constant flow – make it very easy to set up a system in only a few simple steps.

- Controls pump speed for energy-saving operation
- Easy start-up guide
- Pre-defined settings





# SUBSTANCE REMOVAL

Substance removal in water treatment is achieved through particle removal processes such as filtration, for example, with an optional coagulation/flocculation step in advance. Grundfos offers a complete range of feed pumps, boosters, disinfection systems, monitoring and control as well as intelligent products that dose the accurate amount of chemicals at the right time. This effectively reduces the amount of chemicals needed and increases the safety of the process and the employees.

## CASE

### EFFICIENT AND TROUBLE-FREE OPERATION WITH FULL-LINE SUPPLIER

*By choosing Grundfos as full-line supplier, Austrian Aqua Engineering was able to provide their customer with fully optimised operations in a brand new desalination system – and much simpler training processes for the staff.*

#### THE SITUATION

For many years it has been common practice for Aqua Engineering, specialised in building and maintaining water supply plants, to buy pumps and dosing equipment from various suppliers. This makes it difficult to optimise all system elements and complicates staff training and after-sales service. To improve on this, Aqua Engineering searched the market for a full-line supplier that could fulfill all their pumping requirements.

#### THE SOLUTION

Meeting all Aqua Engineering's requirements, Grundfos was chosen as full-line supplier for a 560,000 litre/day seawater desalination plant at Bay-Gan Island in Taiwan. Grundfos supplied a full

package of booster units, feed pumps and service pumps as well as a range of dosing pumps, each dedicated to dosing a specific chemical/additive. The high-pressure booster units offer a capacity of 95 m<sup>3</sup>/h and the DME dosing pumps an operating range of 2.5 ml/h to 150 l/h.

#### THE OUTCOME

The all-in-one solution provided by Grundfos has benefited Aqua Engineering in more ways than one. In addition to efficient and trouble-free operation of all pump systems – and thus of the entire desalination plant in Taiwan, the training of staff members has also been greatly simplified. And on top of that, logistics in terms of service and spare parts is now much easier.

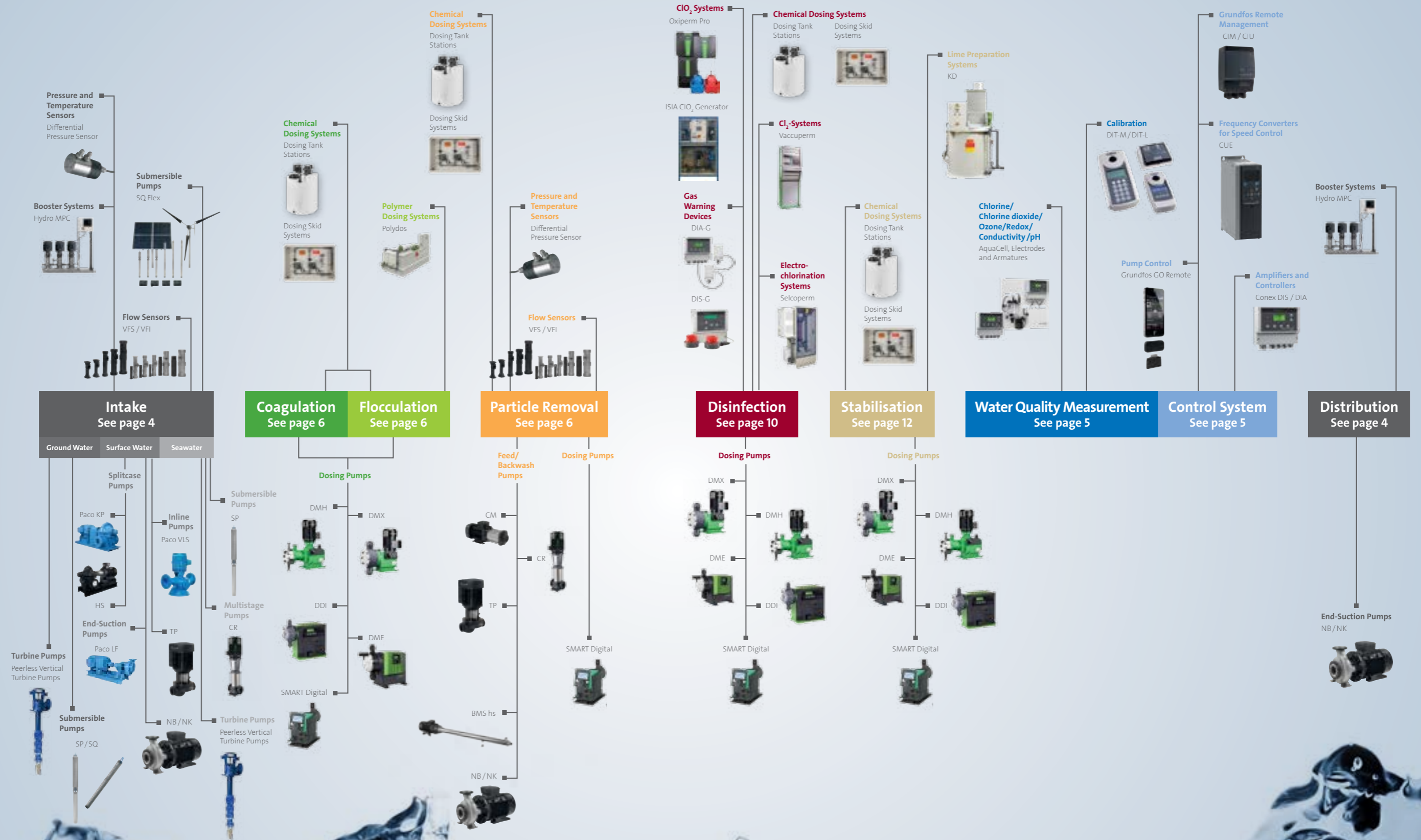
## BMS hs

*The BMS hs range is a completely new range of booster modules for reverse osmosis and filtration applications. All critical components are made of super duplex stainless steel to make it resistant to both seawater and brackish water. Benefits include:*

- Energy savings due to high efficiency
- Easy maintenance
- Easy integration into any water treatment system
- Extreme durability and reliability



# COVERING THE ENTIRE WATER TREATMENT PROCESS



# DISINFECTION

Reliable water disinfection is crucial for the health and safety of all human beings. At Grundfos, we deliver cost effective and reliable water disinfection that is guaranteed to comply with all relevant legal standards. Our technologies include chlorine gas, chlorine dioxide and electrochlorination. We bundle our products in integrated and intelligent solutions that contain pumps, controls, dosing, valves as well as inline and generator units from 5 g/h to 200 kg/h – allowing our customers to enjoy the convenience of dealing with one supplier only. With more than 40 years of experience in disinfection, we have the know-how to choose the right technology for any challenge our customers may have.

## CASE

### ELECTROCHLORINATION REDUCES OPERATING COSTS AND IMPROVES SAFETY

*In the Czech Republic the first ever disinfection system using the electrical chlorination method has been installed, eliminating the need for regular inspections and significantly reducing operating costs in general.*

#### THE SITUATION

For years the water treatment plant in Zlutice had used conventional disinfection technology in their water treatment processes. Chlorine gas was applied to the water by means of outdated controllers at two application points – pre-chlorination of the raw water and post-chlorination of the treated drinking water. During summer at maximum disinfection demand, the applied chlorine gas volumes ranged around 25 kg Cl<sub>2</sub> per 24 hours – which called for increased safety initiatives, regular inspections of equipment and high costs in connection with the fillings of the gas cylinders.

#### THE SOLUTION

When the Czech water treatment plant started scouting for alternative disinfection methods, Grundfos as a well-proven partner was quickly called upon. At the time, Grundfos was promoting the new Selcoperm system, based on electrical chlorination, but so far had no reference units installed in the Czech Republic. A trip to a Swiss plant with similar water source characteristics and a successfully running Selcoperm solution

convinced the Czech plant to also invest in the innovative disinfection system. The Selcoperm 2000 produces 2 kg Cl<sub>2</sub>/h whose reserve capacity is sufficient to cover possible emergency demands. A 5,000-litre storage tank was delivered to keep a stock of the disinfectant ready for application during service interventions or maintenance. The product is applied by means of an assembly of three digital chemical dosing pumps, including a flow monitor, which continuously checks the individual dosing stages to ensure accurate, reliable operation.

#### THE OUTCOME

Replacing the out-dated disinfection system with a Grundfos Selcoperm solution has provided the Czech water treatment plant with an efficient, safe, cost-effective and above all reliable method of disinfection. Being the first in the Czech Republic to apply the new disinfection method may have seemed risky, but the owner of the water treatment plant is very satisfied with his choice and ready to implement more Selcoperm solutions in the future.

## OXIPERM PRO

*The Oxiperm Pro chlorine dioxide production system is the perfect solution for fighting Legionella and other germs in drinking water. In addition to its compact design, which makes the solution ideal for confined spaces, Oxiperm Pro offers:*

- Low operating costs
- Easy installation
- High operational reliability due to integrated control system



# STABILISATION

Stabilisation is the process of pH-control and balancing the water chemistry in treated water. Grundfos supplies the products and expertise for your specific needs, and our dosing systems are among the most accurate and efficient on the market. Reliable processes and energy efficiency are guaranteed.

## CASE

### OVERDOSING IS NOW HISTORY IN WASTEWATER PLANT

*In northwest Oregon Clean Water Services' wastewater plant has successfully reduced the use of chemicals and made maintenance much easier by means of future-proof Grundfos dosing pumps.*

#### THE SITUATION

With 14 years under their belt, the existing dosing pumps in the Oregon wastewater plant could not be turned down to deliver low chemical dosages because they risked overheating or becoming air-locked at low speeds. As a result dosages remained unnecessarily high simply on account of the pumps. To eliminate the problem, Clean Water Services set out to find pumps with a wide operating range that would meet both current and future dosing capacity needs.

#### THE SOLUTION

A Grundfos DME dosing pump was tested against an existing peristaltic pump on the hypochlorite disinfection system. With an operating range of 0.02 to 39.5 gph the Grundfos pump offers a

turndown ratio of 1:800. Following the test, Clean Water Services installed 11 Grundfos DME 150-4 pumps for both alum and hypochlorite processes.

#### THE OUTCOME

Following the pump replacement, the overdosing and air-locking issues are history. But that is not all. "We installed the same model for both alum and hypochlorite at different flow rates", says operations analyst Rob Baur from Clean Water Services. "Fewer pumps mean fewer parts to inventory. We now need only one spare pump for maintenance purposes as it can be slotted into multiple applications." Also, the Grundfos DME dosing pump can act as a small pump initially and be adjusted to full capacity later if need be – which is just what Clean Water Services was looking for.

## SMART DIGITAL DOSING

*SMART digital dosing pumps are designed to meet the increasingly complex dosing demands. Offering highly accurate dosing, the state-of-the-art solution ensures that processes do not only run precisely and reliably, but cost-effectively as well.*





# BENEFIT FROM A GLOBAL POOL OF KNOW-HOW

With Grundfos sales and service centres in more than 50 countries throughout the world, supplemented by more than 600 authorised Grundfos Service Partners, we're never far away. As a Grundfos customer, you enjoy prompt and reliable support wherever you are.

## GRUNDFOS PRODUCT CENTER

*The Grundfos Product Center is a user-friendly online tool that makes choosing the right pump for installation or replacement easier than ever. You may also browse the product catalogue and find information about your existing pumps, including pump curves, technical specs, CAD drawings, available spare parts and installation videos. Grundfos Product Center is optimised for mobile devices, allowing you to access it from smartphones or tablets on the go.*

To learn more go to [product-selection.grundfos.com](https://product-selection.grundfos.com)



With its portfolio, Grundfos covers the entire water treatment cycle from intake and distribution to handling of wastewater. Rely on our expertise for pumping solutions in each stage of the process.

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- Industrial Water and Wastewater Treatment
- Water Treatment in Commercial Buildings
- Desalination and Ultrapure Water Applications

Find more information at [www.grundfos.com](http://www.grundfos.com)