

# Product guide 2019

Products for chemical fluid handling,  
water treatment and water disinfection



# Inventive, progressive and global



## Our foundation

The foundation of ProMinent's global success story is high-quality products based on decades of engineering expertise, an in-depth understanding of applications and continuous innovation. The group of companies therefore invests continuously in research and development. ProMinent also has

a high degree of vertical integration at its twelve production sites worldwide, including Heidelberg, guaranteeing outstanding levels of quality for our customers and ensuring our independence from fluctuations in supplier markets.

## Our commitment

We are passionately committed to environmentally sound, sustainable and cost-effective solutions for metering technology and water treatment. In more than 100 countries, around 2,600 employees in our own sales, production and service companies work hard to deliver fast and reliable

service for every product, day in, day out. Because the ProMinent group's position as a global market leader means a continuous commitment to excellent products and services and an obligation to think and act responsibly.

## Our aim

The modular ProMinent range, integrated in carefully designed solutions, enables our customers in a wide range of industries to achieve maximum safety and efficiency in their production processes, at all times and in any location. For us, customer proximity means working with the customer to find the right solution for individual needs. Personal, practical advice and smooth project handling are as much a part of our offering as our worldwide customer service. We are looking to the future with DULCOnneX, our smart

solution for digital fluid management. Some of our products can already be networked and this number is growing all the time. In the product overview, such products are indicated by the DULCOnneX label. At the heart of this extended connectivity lies the remote monitoring module DULCOnnect®, which enables real-time monitoring in your application, offering great potential to optimise processes. Take a look at [dulconnect.prominent.com](http://dulconnect.prominent.com)

You can find individual catalogues for downloading or for online browsing at [www.prominent.com/en/product-catalogue](http://www.prominent.com/en/product-catalogue).

You can also install the ProMinent app for iPhones and iPads. You can find the app in the iTunes app store or at [www.prominent.com/app](http://www.prominent.com/app).

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# The all-rounders: metering pumps and metering systems

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## How do metering pumps work?

Most metering pumps are oscillating displacement pumps. An exactly defined volume of liquid is drawn into the displacement body on the reciprocal stroke and forced into the metering line on the compression stroke. The pump settings can be changed to achieve consistently accurate metering.

## Microprocessor technology since 1988

The accurate control of the pumps is made possible by microprocessor technology. Sophisticated monitoring functions ensure operational reliability and guarantee minimal chemical consumption yet optimum disinfection. Interfaces integrate the pumps into a fully automated process.

Over one million ProMinent pumps are in use all over the globe, delivering reliable, accurate performance under the toughest conditions. Our proven design principles guarantee a high standard of quality and precision.



# Overview: low-pressure metering pumps

Solenoid-driven metering pumps are available in capacities ranging from 0.74 to 75 l/h at a back pressure of 25 to 2 bar. To be able to meter almost any liquid chemicals, ProMinent uses a very extensive range of materials.



**Motor-driven metering pump alpha**

The motor-driven metering pump alpha is the metering pump for liquid media and the optimum solution for simple applications. Robust, low-noise, chemical-resistant, with precise metering and good suction capacity.

- Capacity range: 1 – 30.6 l/h, 10 – 2 bar



**Solenoid-driven metering pump Beta®**

All-purpose solenoid metering pump for the metering of liquid media in water treatment and chemical processes: solenoid-driven metering pump Beta®. Cost-effective, overload-proof, adaptable to signal transducers fitted.

- Capacity range: 0.74 – 32 l/h, 25 – 2 bar



**Solenoid-driven metering pump gamma/ X**

Discover a metering pump that sets new standards in productivity, reliability and cost-effectiveness.

- Capacity range: 2.3 l/h – 45 l/h, 25 – 2 bar



**Solenoid-driven metering pump gamma/ XL**

The gamma/ XL is a smart, network-compatible solenoid-driven metering pump that sets new standards in productivity, reliability and cost-effectiveness.

- Capacity range 8 – 80 l/h, 25 – 2 bar



#### Flow meter **DulcoFlow**<sup>®</sup>

The flow meter DulcoFlow<sup>®</sup> reliably measures pulsating flows in the range above 0.03 ml/stroke based on the ultrasound measuring principle. The flow meter achieves maximum chemical resistance, as all wetted parts are made of PVDF and PTFE.

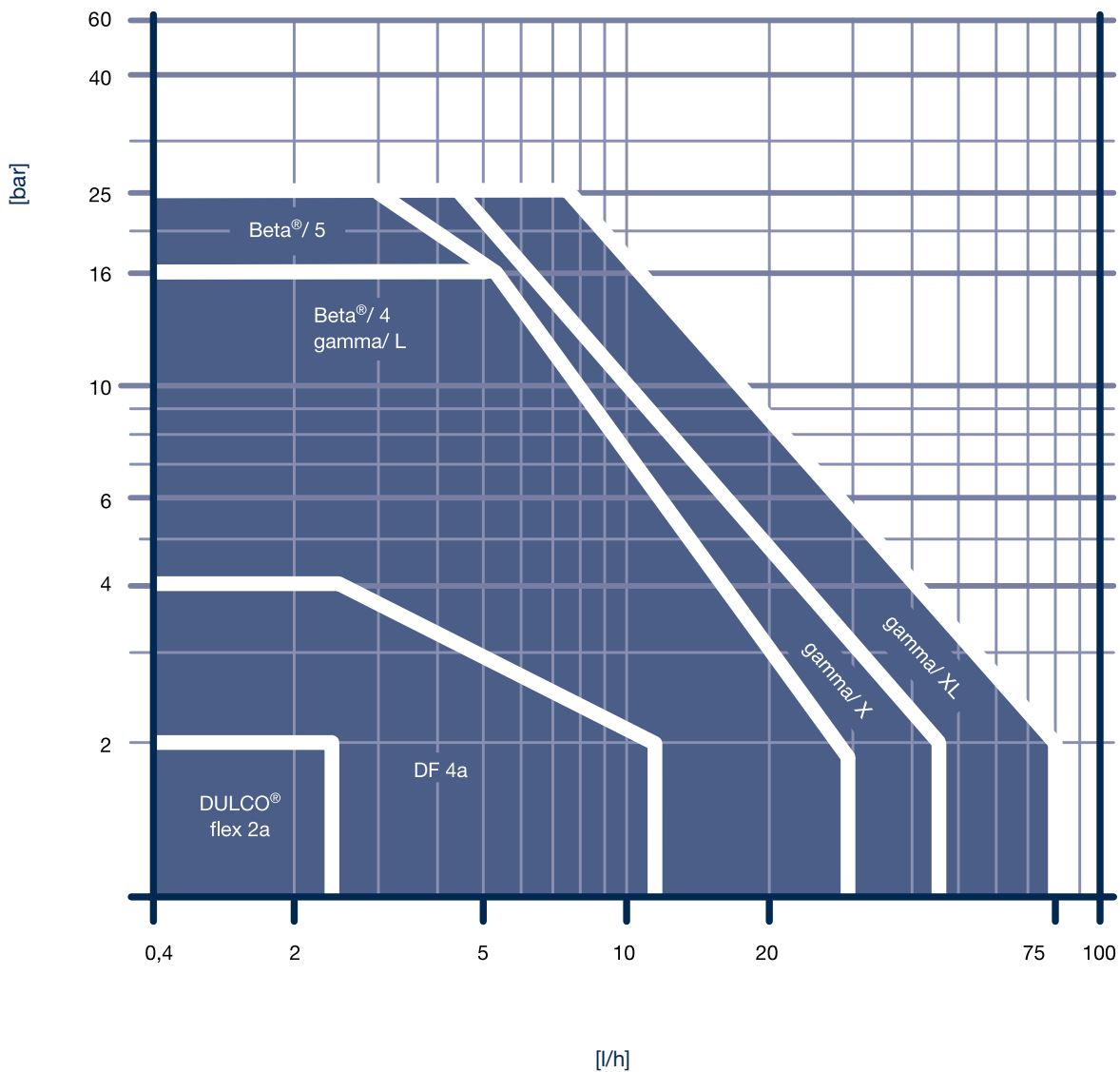
- Measures pulsating volumetric flows in the range between 0.03 – 10 ml/stroke

## Find the right pump type in four steps

- Specify pump capacity in litres per hour [l/h]
- Specify back pressure in bar
- Find the intersection of these two values and
- select the pump type that lies nearest to it

## Pump Guide

The choice of pumps is huge: 80 industries, 100,000 products and infinite applications. To make it easy to find your ideal metering pump, ProMinent designed the Pump Guide. In just a few clicks you will find a selection of suitable models. [www.pump-guide.com](http://www.pump-guide.com).







# Overview: motor-driven metering pumps for all capacity ranges

Motor-driven metering pumps need to be robust, reliable and able to run on their own without supervision. Metering pumps with mechanically actuated diaphragms can be used almost universally in low pressure ranges. And what about servicing? Minimal. Precision? Uncompromising. Value for money? The best.



Motor-driven metering pump **Vario C**

The motor-driven metering pump Vario C delivers a high level of process quality for continuous metering within simple metering tasks. It can be used, for example, in the metering of additives or flocculants in chemical metering.

- Capacity range 8 – 76 l/h, 10 – 4 bar



Motor-driven metering pump **Sigma/ 1 (Basic type)**

The Sigma/ 1 Basic is an extremely robust motor-driven metering pump with patented multi-layer safety diaphragm for excellent process reliability. It offers a wide range of power end designs, such as three-phase or 1-phase AC motors and is also suitable for use in areas at risk from explosion.

- Capacity range 17 – 144 l/h, 12 – 4 bar



Motor-driven metering pump **Sigma/ 2 (Basic type)**

Robust motor-driven metering pumps like the Sigma/ 2 Basic guarantee excellent process reliability with their patented multi-layer safety diaphragm. The diaphragm metering pump offers a number of power end versions and is also suitable for use in areas at risk from explosion.

- Capacity range 50 – 420 l/h, 16 – 4 bar



Motor-driven metering pump **Sigma/ 3 (Basic type)**

The patented multi-layer safety diaphragm for excellent process reliability is just one feature of the extremely robust motor-driven metering pump Sigma/3 Basic. It also offers a wide range of power end versions, such as three-phase or 1-phase AC motors and is also suitable for use in areas at risk from explosion.

- Capacity range 146 – 1,030 l/h, 12 to 4 bar



## The new Sigma X family – reliable, smart and with scope for networking



**Motor-driven metering pump Sigma X**  
Control type **Sigma/ 1**

The Sigma control type is a smart, flexible motor-driven metering pump that sets new standards in terms of productivity, reliability and safety.

- Capacity range: 21 – 117 l/h, 12 – 4 bar



**Motor-driven metering pump Sigma X**  
Control type **Sigma/ 2**

The Sigma control type is a smart, flexible motor-driven metering pump that sets new standards in terms of productivity, reliability and safety.

- Capacity range: 61 – 353 l/h, 16 – 4 bar



**Motor-driven metering pump Sigma X**  
Control type **Sigma/ 3**

The Sigma control type is a smart, flexible motor-driven metering pump that sets new standards in terms of productivity, reliability and safety.

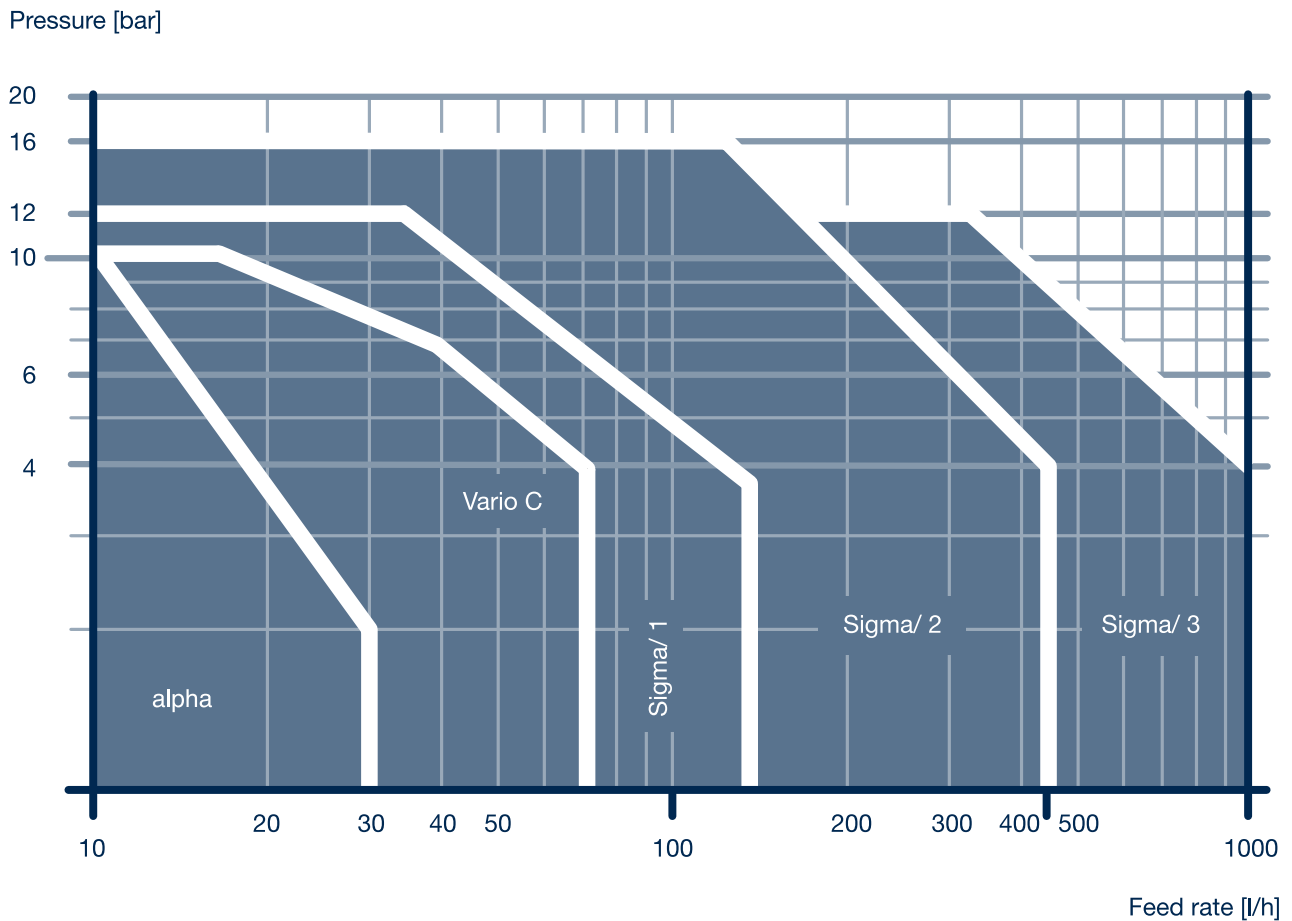
- Capacity range: 182 – 1,040 l/h, 12 – 4 bar

## Find the right pump type in four steps

- Specify pump capacity in litres per hour [l/h]
- Specify back pressure in bar
- Find the intersection of these two values and
- select the pump type that lies nearest to it

## Pump Guide

The choice of pumps is huge: 80 industries, 100,000 products and infinite applications. To make it easy to find your ideal metering pump, ProMinent designed the Pump Guide. In just a few clicks you will find a selection of suitable models.  
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# Notes

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# Overview: process metering pumps for all capacity ranges

There is no room for compromise in high-end applications in the petrochemical and oil and gas industries. Risks associated with the metering of toxic, corrosive and flammable liquids must be fully eliminated. Reliable metering pumps need to be able to withstand very high pressure levels and extreme temperatures. What could be a more obvious solution for very challenging applications than ProMinent cutting-edge technology?



## Diaphragm process metering pump ProMinent EXtronic®

The diaphragm metering pump EXtronic® is perfectly suited for the sensitive application of liquid media in facilities at risk of gas explosions as well as in mines at risk of firedamp, as it is approved in compliance with the EU EX Regulation 2014/34/EU (ATEX).

- Capacity range: 0.19 – 60 l/h, 10 – 1.5 bar



## Hydraulic diaphragm metering pump Hydro/ 2

As an extremely robust hydraulic diaphragm metering pump, the Hydro/ 2 meets the most exacting safety requirements. Its modular construction, with either one or two dosing heads, 4 gear ratios, 2 dosing head sizes and 3 dosing head materials, offers a very high degree of flexibility in terms of areas of application.

- Capacity range: 3 – 72 l/h, 100 – 25 bar



## Hydraulic diaphragm metering pump Hydro/ 3

The Hydro/ 3 is an extremely robust hydraulic diaphragm metering pump. It meets the most exacting safety requirements. Its modular construction offers extremely good flexibility in terms of application, for example in the oil and gas industry.

- Capacity range: 10 – 180 l/h, 100 – 25 bar



## Hydraulic diaphragm metering pump Hydro/ 4

The Hydro/ 4 is an extremely robust hydraulic diaphragm metering pump, which meets the most exacting safety requirements – it comes with a pressure relief valve and PTFE multi-layer diaphragm with diaphragm rupture warning system as standard. Its modular construction makes it extremely versatile.

- Capacity range: 76 – 1,450 l/h, 40 – 7 bar



**Hydraulic diaphragm metering pump Orlita® Evolution with stainless steel liquid end**

Orlita® Evolution hydraulic diaphragm metering pumps EF1a, EF2a, EF3a and EF4a form an integrated product range with stroke lengths of 15 to 40 mm. This covers the capacity range from 3 to 7,400 l/h at 400 – 10 bar. A wide range of drive versions is available, including some for use in Zone 1 or Zone 2 areas at risk from explosion with ATEX certification. The Orlita® Evolution product range is designed to comply with API 675.

- Capacity range:
 

Size 1	3 – 511 l/h, 400 – 8 bar
Size 2	6 – 900 l/h, 400 – 11 bar
Size 3	21 – 1330 l/h, 400 – 18 bar
Size 4	55 – 7400 l/h, 400 – 10 bar



**Hydraulic diaphragm metering pump Orlita® Evolution 1-4 with PVDF/PVC liquid end**

The hydraulic diaphragm pump Orlita® Evolution is also available in a “plastic dosing head” version. The wetted materials PVC and PVDF display chemical resistance to many media, allowing this process-reliable pump to be used even more flexibly in an even greater number of applications.

- Capacity range:
 

Size 1	3 – 511 l/h, 16 – 8 bar
Size 2	6 – 511 l/h, 16 – 8 bar
Size 3	339 – 1335 l/h, 10 bar
Size 4	674 – 7426 l/h, 10 bar



**Plunger metering pump Orlita® Evolution**

The Orlita® Evolution plunger metering pumps EP1a and EP2a form an integrated product range with stroke lengths of 15 to 40 mm. This covers the capacity range from 3 to 7,400 l/h at 400 – 10 bar. A wide range of drive versions is available, including some for use in Zone 1 or Zone 2 areas at risk from explosion with ATEX certification. The Orlita® Evolution product range is designed to comply with API 675.

- Capacity range:
 

5 – 511 l/h, 293 – 8 bar
5 – 511 l/h, 520 – 19 bar



**Hydraulic diaphragm metering pump Orlita® Evolution API 674**

Orlita® Evolution hydraulic diaphragm metering pumps EF1a, EF2a, EF3a and EF4a form an integrated product range with stroke lengths of 15 to 40 mm. This covers the capacity range from 3 to 7,400 l/h at 400 – 10 bar. A wide range of drive versions is available, including some for use in Zone 1 or Zone 2 areas at risk from explosion with ATEX certification. The Orlita® Evolution product range is designed to comply with API 675.

- Capacity range:
 

Size 1	3 – 511 l/h, 400 – 8 bar
Size 2	6 – 900 l/h, 400 – 11 bar
Size 3	21 – 1330 l/h, 400 – 18 bar
Size 4	55 – 7400 l/h, 400 – 10 bar



#### Hydraulic diaphragm metering pump **Orlita® MF**

The hydraulic diaphragm metering pump Orlita® MF offers reliable capacities even under high pressure and has a modular construction, making it highly versatile. Thanks to its modular design, this pump is tailored to meet your requirements even at very high pump capacities.

- Capacity range: 0 – 13,000 l/h, 700 – 6 bar



#### Hydraulic diaphragm metering pump **Orlita® MH**

The diaphragm metering pump Orlita® MH has a robust metal diaphragm. This permits precise pump capacities even at very high pressure. The Orlita® MH has a modular construction and is therefore very flexible. For example, a range of power end versions is available and drives, power ends and dosing heads can be freely combined.

- Capacity range: up to 800 l/h, up to 700 bar



#### Plunger metering pump **Orlita® PS**

The high-performance plunger metering pump Orlita® PS enables precise pump capacities even at maximum pressure and temperatures of up to +400 °C. The Orlita® PS pump has a modular construction and is therefore very flexible.

- Capacity range: 0 – 42,000 l/h, 400 – 4 bar



#### Plunger metering pump **Orlita® DR**

The plunger metering pump Orlita® DR does not need valves and can therefore be operated within a broad stroke rate range. This makes it suitable for use with high-viscosity and extremely high-viscosity media of up to 106 mPas within a wide temperature range from -40 °C to 400 °C, for example in the food industry.

- Capacity range: 0 – 4,000 l/h, 400 – 4 bar





**Diaphragm pumps, hydraulic diaphragm pumps and plunger metering pumps **Makro TZ****

This range of metering pumps has a modular design and offers an application-matched solution for every use.

- Capacity range TZMb (mech. deflected diaphragm pump): 260 – 2,100 l/h, 12 – 4 bar
- Capacity range TZKa (plunger metering pump): 8 – 1,141 l/h, 320 – 11 bar



**Diaphragm pumps, hydraulic diaphragm pumps and plunger metering pumps **Makro/ 5****

Makro/ 5 can also be expanded one module at a time and is another product range available as a diaphragm pump, hydraulic diaphragm pump or plunger metering pump, which is used for higher capacity ranges.

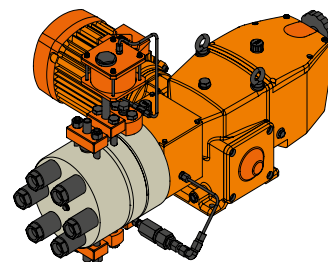
- Capacity range M5Ma (mech. deflected diaphragm pump): 1,540 – 4,000 l/h, 4 bar
- Capacity range M5Ha (hydr. deflected diaphragm pump): 450 – 6,108 l/h, 25 – 6 bar
- Capacity range M5Ka (plunger metering pump): 38 – 6,014 l/h, 320 – 6 bar



**Hydraulic diaphragm metering pump **Evolution mikro****

The Evolution mikro is an innovative micro-metering pump for high pressures. The hydraulic diaphragm metering pump is the first of its kind with an electronically regulated direct linear drive. The power end does not contain any mechanical functional elements and thus works virtually maintenance-free.

- Capacity range: 3 – 23 l/h, 400 – 25 bar



**Hydraulic metal diaphragm metering pump **Orlita® MHHP****

The metal diaphragm metering pumps Orlita® MHHP are special pumps, which provide precise pump capacities even at maximum pressures of up to 3,000 bar.

- Capacity range: 3 – 11 l/h, 3,000 bar



### Process diaphragm metering pump **Zentriplex**

As an oscillating triplex process diaphragm metering pump, the Zentriplex guarantees excellent performance and provides outstanding efficiency with an extremely small footprint thanks to the space-saving arrangement of the pump and drive unit. It also stands out on account of its efficiency, as minimal material and labour are required.

- Capacity range: 424 – 8,000 l/h, 367 – 36 bar

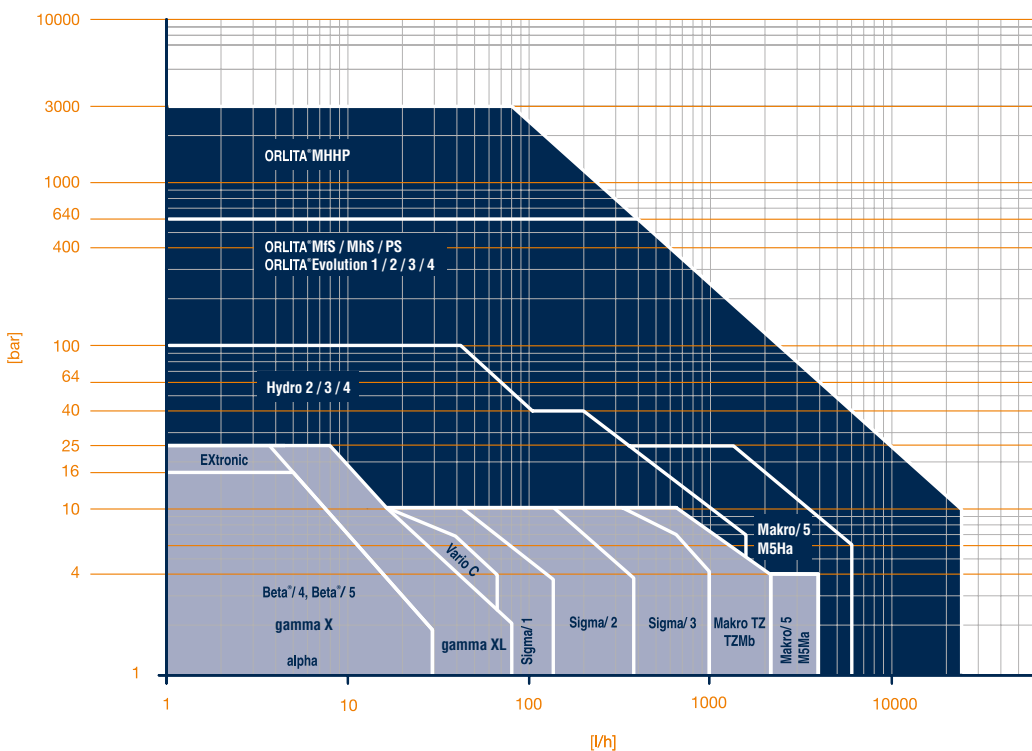
## Find the right pump type in four steps

- Specify pump capacity in litres per hour [l/h]
- Specify back pressure in bar
- Find the intersection of these two values and
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## Pump Guide

The choice of pumps is huge: 80 industries, 100,000 products and infinite applications. To make it easy to find your ideal metering pump, ProMinent designed the Pump Guide. In just a few clicks you will find a selection of suitable models.

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# Overview: storage tanks, chemical transfer and peristaltic pumps

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## Storage tanks

ProMinent also offers standard tanks for chemical storage and transfer. However, if you have specific requirements ProMinent can also supply tanks customised to a wide range of specifications. The perfect addition: chemical transfer pumps and peristaltic pumps, which can be used for metering tasks in many applications with virtually any conceivable pump capacity.



## Dosing tanks and collecting pans

PE storage tanks produced in a rotation process. Can be supplemented by ProMinent metering pumps, suction lances and stirrers. The stackable PE collecting pans are available in matching sizes.

- Useful capacity of 35 – 1,500 l



## Chemical transfer pumps

ProMinent chemical transfer pumps are used to pump liquids from container A to container B. Different media have very different chemical properties, so the pumps need different functional principles. ProMinent engineers work hard to make sure that liquid and pump are fully compatible. They approach every application with the same ProMinent standards of maximum diligence and quality.



### Eccentric screw pump **Spectra**

The eccentric screw pump Spectra meters liquid polyelectrolytes in concentrated and dilute form. It can be used, for example, in waste water treatment or sludge dewatering.

- Capacity range: 2.4 – 12,000 l/h, 12 – 3 bar



### Centrifugal pump **vonTaine®**

The solenoid-coupled centrifugal pump vonTaine® for the pumping of liquid media works safely and reliably: liquid media are pumped leak-free.

- Capacity range: up to 22,500 l/h, delivery height up to 23.5 mWs



### Air-operated diaphragm pump **Duodos**

Air-operated diaphragm pump Duodos for pumping liquid media.

- Capacity range up to 6,700 l/h, delivery height up to 70 mWs



### Barrel pump **DULCO®Trans**

The area of application of the DULCO®Trans depends on the chemical resistance of the materials used.

- Pump capacity according to size 900, 2,800 or 3,750 l/h



### Rotary lobe pump ROTADOS

The compact rotary lobe pump pumps viscous and even abrasive media at up to 100 m<sup>3</sup>/h. It even provides a reversible pumping direction thanks to its valveless construction. Housing, plunger and seals are available in different materials to match the medium.

- Capacity range: 25 – 100 m<sup>3</sup>/h, 10 – 4 bar

## Selection guide

ProMinent makes it easy to choose the right chemical transfer pump. Choose the pump capacity and desired pressure. If your specific requirement is not shown here, please contact us.

Type	Priming	Power end	Capacity range
Eccentric screw pump Spectra	Self-priming	Electrical	up to 12,000 l/h
Centrifugal pump von Taine®	Normal priming (Feed necessary)	Electrical	up to 22,500 l/h
Air-operated diaphragm pump Duodos	Self-priming	Compressed air	up to 6,700 l/h
Barrel pump DULCO®Trans	Self-priming	Electrical	up to 4,800 l/h
Rotary lobe pump ROTADOS	Self-priming	Electrical	up to 100 m <sup>3</sup> /h



## Peristaltic pumps DULCO®flex

Peristaltic pumps DULCO®flex are amongst ProMinent's most adaptable pumps. They are suitable for an enormously wide pump capacity range. The smaller pumps of types DF2 to DF4 have been specially designed for metering tasks in swimming pools, hot tubs or spa and wellness zones. The large peristaltic pumps DFBa, DFCa and DFDa are ideal for specific tasks using maximum pump capacities and pressures in the laboratory and in industry. All models are based on a simple operating principle and are extremely safe and easy to use.



Peristaltic pump **DULCO®flex DF2a**

The peristaltic pump DULCO®flex DF2a meters chemicals functionally, cost-effectively and quietly – ideal for use in swimming pools, hot tubs and in spa and wellness facilities.

- Capacity range: 0.4 – 2.4 l/h, 1.5 bar



Peristaltic pump **DULCO®flex DF4a**

The peristaltic pump DULCO®flex DF4a for metering flocculants and active carbon treats water precisely and accurately. It is ideal for use in swimming pools, hot tubs or spa and wellness facilities. An operating pressure up to 4 bar is possible.

- Capacity range: 0.35 – 12 l/h, 4 – 2 bar



**Peristaltic pump DULCO®flex DFBa**

The peristaltic pump DULCO®flex DFBa (designed as a low-pressure pump) is suitable for metering the smallest volumes in laboratories.

- Capacity range: up to 649 l/h at 8 bar



**Peristaltic pump DULCO®flex DFDa**

The peristaltic pump DULCO®flex DFDa is designed for maximum pump capacities and high pressures and wins customers over with its very smooth nature and long service life. It is fitted with shoes and fabric-reinforced hoses – perfect for industrial use.

- Capacity range: up to 15,000 l/h at 15 bar

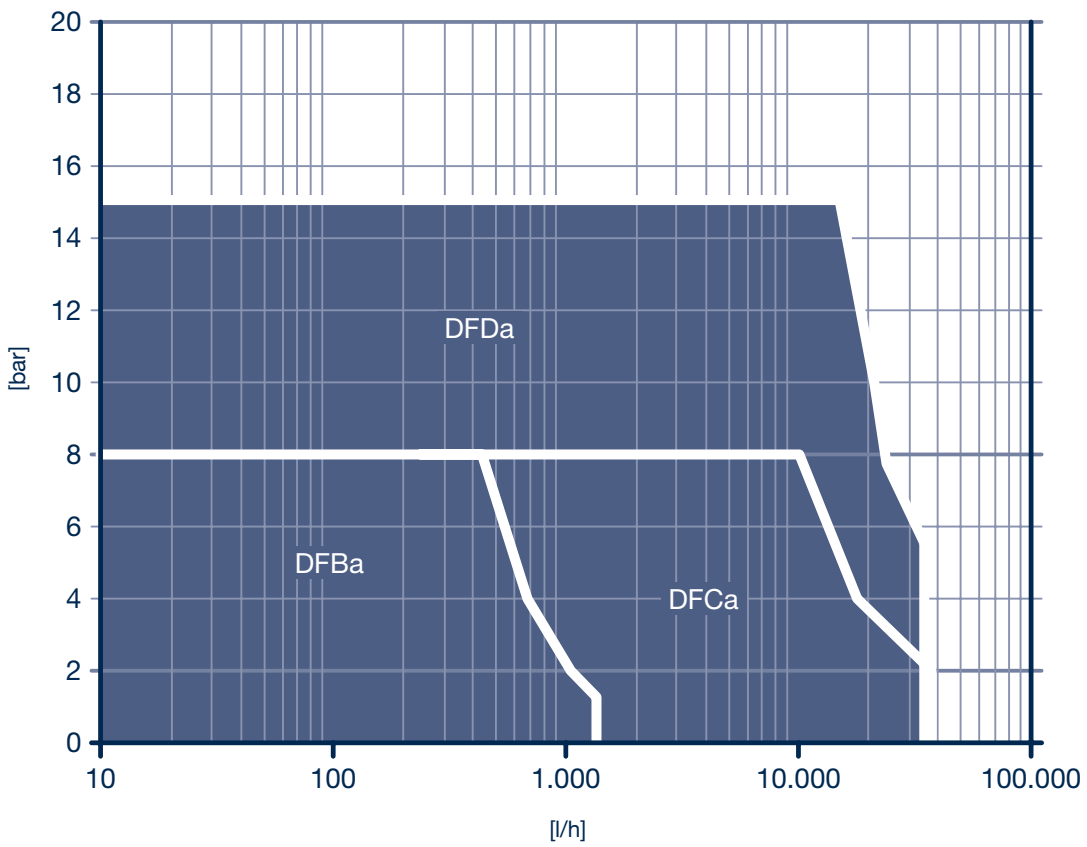


**Peristaltic pump DULCO®flex DFCa**

High pump capacities are not a problem with the peristaltic pump DULCO®flex DFCa. It is equipped with extra rollers and fabric-reinforced hoses for industrial use.

- Capacity range: up to 8,900 l/h at 8 bar





# Overview: metering systems DULCODOS®

## Metering systems DULCODOS®

The standard metering systems DULCODOS® are the result of years of application-based development at ProMinent. After all, you don't have to reinvent the wheel every time. With ProMinent you can reduce your costs by choosing carefully designed complete solutions.



Metering system **DULCODOS® eco (DSBa)**

For storing and metering liquid chemicals. Use a selection system (identity code) to easily, quickly and flexibly adapt your metering system to your metering task.

- Useful capacity: 35 – 1,000 l



Metering system **DULCODOS® universal (DSUa)**

The metering system DULCODOS® universal combines carefully selected standard components with your chosen solenoid-driven metering pump. This is a convenient method for the reliable metering of liquid chemicals – and is available cost-effectively and extremely quickly thanks to the pre-configured modules.

- Pump volume according to selected pump up to 75 l/h, back pressure 10 – 2 bar



Metering system **DULCODOS® universal mini**

The metering system DULCODOS® universal mini combines reliable standard components, tailored precisely to your needs, in the most compact space.

- Up to 75 l/h (10 – 2 bar) pump volume depending on the pump selected



Metering system **DULCODOS® panel (DSWb)**

DULCODOS® panel is a complete metering system for reliable chemical metering. It is now even more space-saving and quickly available – our new standards ensure this. You can select perfectly coordinated components, depending on material resistance, pump capacity and function.

- Pump capacity depending on the selected pump up to 1,000 l/h, back pressure 10 – 2 bar



**Metering system DULCODOS® modular, DSKa**

The ready-wired modular metering system DULCODOS® is used for the ultra-precise metering of chemicals. It is modular in design and can be flexibly used in a wide range of applications.

- Capacity: 40 – 1,000 l/h



**Metering system DULCODOS® Emergency potable water disinfection**

Handy metering system for emergency potable water disinfection. For fast use against micro-organisms.

- Metering volumes: 0.02 – 1.55 l/h, 10 bar



**Metering system DULCODOS® Ammonia**

Metering system DULCODOS® Ammonia for the low-odour and safe handling of ammonia solution. For a stable pH value and reduced corrosion in the vapour system.



**Metering system DULCODOS® Hydrazin**

The DULCODOS® Hydrazin batching and metering system is used for manual batching and automatic metering of diluted hydrazine solutions. And, of course, it complies with all environmental and safety requirements.

- Dosing tanks hold 130 and 250 litres

# Intelligent metering: measuring, control and sensor technology

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## **Precision in detail**

Measuring and control technology needs to deliver high performance. That includes precise sensor systems. In this way, liquid media can be metered with absolute precision. ProMinent experts are passionate about industrial process engineering. They use a combination of continuous research and their full expertise to develop pioneering innovations. If we set new standards in quality and reliability along the way, then so much the better.

## **Strong together**

When all the components work together, everything runs smoothly. The metering pump, controller and sensor are designed to work optimally together, forming an integral control circuit for fault-free operation with maximum safety. This increases the quality of your products, saves energy and conserves resources.



# Overview: sensor technology

Monitoring a limit value or building a closed control circuit is easy with our sensors – in an enormous range of measuring applications. The product family DULCOTEST® is application-based and ensures precise measuring of a wide range of values. These measured values are delivered in real time and can be flexibly connected to the various process interfaces via bypass, immersion or installed fittings.



## Potentiometric sensors DULCOTEST®

From simple applications in water treatment through to industrial process applications under critical conditions, DULCOTEST® pH and ORP sensors fulfil all measurement tasks.

The selection guide for pH and ORP potentiometric sensors starts with the properties of the medium to be measured

and the pertinent process conditions and delivers the optimum sensor type for the particular application.

## Selection guide for DULCOTEST® pH sensors

Medium	Temperature / pressure	Sensor type	Typical application
Clear, pH 3 – 14	max. 100°C / 3 bar	PHEP-H	Chemical processes
	max. 25 °C / 6 bar		
Clear, pH 2 – 12	max. 80 °C / no overpressure	PHEN	Chemically contaminated water, low-conductivity water $\geq 50 \mu\text{S}/\text{cm}$
	max. 60 °C / 3 bar	PHEP	Swimming pool water, potable water, glass stem
		PHEK	Swimming pools, aquaria, synthetic stem
	max. 80 °C / 6 bar	PHEP/PHEPT	Process water
Solid residues, turbidity	max. 80 °C / 6 bar	PHER/PHEI	Cooling water, waste water
Solid matter, non-translucent	max. 100°C / 16 bar	PHEX	Suspensions, sludge, emulsions
Clear to turbid, containing fluoride, pH 0-7	max. 50 °C / 7 bar	PHEF	Exhaust air scrubbers, semiconductor industry, electroplating



## Selection guide for DULCOTEST® ORP sensors

Medium	Temperature / pressure	Sensor type	Typical application
Clear, pH 2 - 12	max. 80 °C / no overpressure	RHEN	Chemically contaminated water, low-conductivity water $\geq 50 \mu\text{S/cm}$
	max. 60 °C / 3 bar	RHES	Swimming pool water, potable water, glass stem
		RHEK	Swimming pools, aquaria, synthetic stem
	max. 80 °C / 6 bar	RHEP-Pt	Process water
PHEP-Au		Chemically contaminated water, e.g. $\text{CN}^-$ Ozone treatment	
Solid matter, turbid	max. 80 °C / 16 bar	RHER/RHEIC	Cooling water, waste water
Solid matter, non-translucent	100 °C/6 bar	RHEX	Suspensions, sludge, emulsions



### DULCOTEST® sensors with CAN bus communication

The innovative sensor series with CAN bus compatibility enables data storage and bidirectional communication with the measuring and control instrument



### Amperometric DULCOTEST® sensors

The amperometric sensors in the DULCOTEST® range deliver selective and precise measured values in real time for a very wide range of disinfectants.



## Selection guide for amperometric sensors

Measured variable	Applications	Graduated measuring ranges	Connection to DULCOMETER®	Sensor type
Free chlorine	Potable water, swimming pool water	0.01 – 100 mg/l	D1C, DAC	CLE 3-mA-xppm, CLE 3.1-mA-xppm
Free chlorine	Process and waste water	10 – 200 mg/l	D1C, DAC	CLR 1-mA
Free chlorine	Potable water, swimming pool water	0.01 – 10 mg/l	DULCOMARIN®	CLE 3-CAN-P-xppm, CLE 3.1-CAN-P-xppm
Free chlorine	Potable water, swimming pool water, in-situ electrolysis (without diaphragm)	0.02 – 10 mg/l	D1C, DAC, AEGIS II	CLO 1-mA-xppm
Free chlorine	Swimming pool water, uncontaminated potable water and process water; can also be used together with diaphragm-free electrolysis processes	0.01 – 10 mg/l	DULCOMARIN®	CLO 1-CAN-P-10ppm
Free chlorine	Hot water up to 70 °C (legionella), in situ electrolysis (without diaphragm)	0.02 – 2 mg/l	D1C, DAC, AEGIS II	CLO 2-mA-2ppm
Free chlorine	Potable water, swimming pool water	0.01 – 50 mg/l	DMT	CLE 3-DMT-xppm
Free chlorine	Potable water, swimming pool water	0.05 – 5 mg/l	COMPACT	CLB 2-µA-xppm
Free chlorine	Potable water, swimming pool water	0.05 – 5 mg/l	COMPACT	CLB 3-µA-xppm
Free chlorine	Cooling water, process water, waste water, water with higher pH values (stable); seawater (free chlorine exists as bromine)	0.01 – 10 mg/l	D1C, DAC, AEGIS II	CBR 1-mA-xppm
Total available chlorine / free chlorine	Swimming pool water with organic chlorine disinfectants, in situ electrolysis (without diaphragm)	0.02 – 10 mg/l	D1C, DAC, AEGIS II	CGE 3-mA-xppm
Total available chlorine / free chlorine	Swimming pool water with organic chlorine disinfectants, in situ electrolysis (without diaphragm)	0.01 – 10 mg/l	DULCOMARIN®	CGE 3-CAN-P-xppm
Total chlorine	Potable water, industrial water, process water and waste water	0.01 – 10 mg/l	D1C, DAC, AEGIS II	CTE 1-mA-xppm
Total chlorine	Potable water, industrial water, process water and waste water	0.01 – 10 mg/l	DMT	CTE 1-DMT-xppm
Total chlorine	Potable water, industrial water, process water and waste water	0.01 – 10 mg/l	DULCOMARIN®	CTE 1-CAN-P-xppm
Combined chlorine	Swimming pool water	0.02 – 2 mg/l	DAC	CTE 1-mA-2 ppm and CLE 3.1-mA-2 ppm
Combined chlorine	Swimming pool water	0.01 – 10 mg/l	DULCOMARIN®	CTE 1-CAN-P-xppm and CLE 3.1-CAN-xppm
Total available bromine	Cooling water, waste water, swimming pool, whirlpool water, bromine with BCDMH	0.01 – 10 mg/l	D1C, DAC	BCR 1-mA-xppm (replaces earlier type BRE 1)
Total available bromine	Cooling water, swimming pool water, whirlpool water with organic or inorganic bromine compounds	0.02 – 10 mg/l	DULCOMARIN®	BRE 3-CAN-10ppm
Free and combined bromine	Cooling water, process water, waste water, water with higher pH values (stable); seawater	0.02 – 20 mg/l	D1C, DAC, AEGIS II	CBR 1-mA-xppm
Free and combined bromine	Cooling water, process water, waste water, water with higher pH values (stable); seawater	0.02 – 20 mg/l	DULCOMARIN®	CBR 1-CAN-P-10 ppm
Chlorine dioxide	Potable water	0.01 – 10 mg/l	D1C, DAC	CDE 2-xppm
Chlorine dioxide	Bottle washing system	0.02 – 2 mg/l	D1C, DAC	CDP 1
Chlorine dioxide	Hot water up to 60 °C, cooling water, waste water, irrigation water	0.01 – 10 mg/l	D1C, DAC, DULCOMARIN®	CDR 1-xppm, CDR 1-CAN-xppm
Chlorite	Potable water, washing water	0.02 – 2 mg/l	D1C, DAC, DULCOMARIN®	CLT 1-mA-xppm, CLT 1-CAN-xppm
Ozone	Potable water, swimming pool water	0.02 – 2 mg/l	D1C, DAC	OZE 3-mA-2 ppm
Ozone	Process water, industrial water or cooling water	0.02 – 2 mg/l	D1C, DAC	OZR 1-mA-2 ppm
Dissolved oxygen	Aeration tanks, clarification plants, fish farming, potable water, surface water	0.1 – 20 mg/l	D1C, DAC	DO 3-mA-xppm
Dissolved oxygen	Aeration tanks, clarification plants	0.05 – 10 mg/l	D1C, DAC	DO 2-mA-xppm
Peracetic acid	CIP (cleaning in place), aseptic foodstuff filling	1 – 2,000 mg/l	D1C, DAC, AEGIS II	PAA 1-mA-xppm
Hydrogen peroxide	Clear water, fast control	1 – 2,000 mg/l	DAC	Perox sensor, PEROX-H2.10 P
Hydrogen peroxide	Process water, swimming pool water	0.5 – 2,000 mg/l	D1C, DAC	PER1-mA-xppm





### Sensors DULCOTEST® for electrolytic conductivity

Conductivity sensors for optimum process integration: DULCOTEST® sensors meet a wide range of measuring requirements and allow the best solution to any given measuring task to be achieved.

- Graduated measuring ranges 0.01  $\mu\text{S}/\text{cm}$  – 2,000  $\text{mS}/\text{cm}$



### DULCOTEST® turbidity sensors

Turbidity measurements with DULCOTEST® DULCO® turb C: Compact measuring instrument that uses light scatter to measure turbidity, with a large measuring range and different designs to comply with ISO and EPA standards. Available with or without automatic cleaning.

- Measuring range 0 - 1,000 NTU

## Selection guide for DULCOTEST® conductivity sensors

Conductivity > 20 $\text{mS}/\text{cm}$ or residue forming medium or chemically corrosive medium?			
Yes		No	
Inductive conductivity measurement		Conductive conductivity measurement	
Chemically aggressive medium (apart from strong alkalis) or temperatures > 70 °C or measured value < 200 $\mu\text{S}/\text{cm}$ or > 1,000 $\text{mS}/\text{cm}$ ?		<ul style="list-style-type: none"> <li>■ Measuring range</li> <li>■ Temperature</li> <li>■ Process matching</li> <li>■ Electrical connection</li> </ul>	
Yes	No	Product ranges LF, LMP, CK	
Series ICT 2 Installation in the process line: with stainless steel flange accessory For immersion with accessory: immersion fitting IMA – ICT 2	Series ICT 5 (compatible with alkalis)  Installation in the process line		
	Yes	No	
	Type ICT 5 (for installation in a pipe)	Type ICT 5-IMA (for installation)	

# Overview: measuring and control technology

Measuring and control instruments from ProMinent are adapted to the relevant application. They are available in different performance classes and can be integrated in every process environment.



## Transmitter **DULCOMETER® DULCOPAC**

The transmitter DULCOMETER® DULCOPAC is a complete PID controller for the key measuring parameters in water treatment. It can be installed on a top hat rail inside a control cabinet.



## Transmitter **DULCOMETER® DMTa**

The transmitter DULCOMETER® DMTa converts the sensor signals for pH, ORP value, chlorine concentration and conductivity into an interference-insensitive 4 – 20 mA analogue signal. Flexible, safe and always the optimum resolution of measured value.



## Controller **DULCOMETER® D1Cb/D1Cc**

The controller DULCOMETER® D1Cb/D1Cc can be used for control tasks in potable water treatment, waste water treatment and many other areas. Safe, convenient and clear thanks to the large illuminated graphic display, plain text operating menu and pH sensor monitoring.



## Controller **DULCOMETER® Compact**

As a controller in water analysis, the DULCOMETER® Compact is the right controller for control tasks that require only monodirectional control.



**Controller DULCOMETER® diaLog DACb**

The controller DULCOMETER® diaLog DACb is our compact all-rounder for water analysis. With its specially designed functionalities, e.g. processing of interference variables and switchover of control parameters, it closes the control circuit between DULCOTEST® sensors and ProMinent® metering pumps. The two measuring and control channels of the DULCOMETER® diaLog DACb can be individually configured to meet customer requirements. Everything that you need for the reliable treatment of industrial and process water, potable water or even swimming pool water.



**Controller DULCOMARIN® 3**

Tailored to the treatment of swimming pool water: the measuring and control system DULCOMARIN® 3 is your digital link to the technology of the future. It controls the entire range of swimming pools – from adventure pools to private pools. The system is operated using a large 7” touch display.



**Controller AEGIS II**

Especially for treating cooling water: controller AEGIS II continuously measures and controls the conductivity of cooling water of up to evaporator cooling water circuits. The selective online measurement and control of: biocides, pH and determination of tendency of various metals to corrode enable adaptation to virtually all customer requirements. The controller is configured and visualised using Wi-Fi via a smartphone or laptop.



**Controller SlimFLEX 5a**

The cooling tower controller SlimFLEX 5 is the little brother of the AEGIS II. It continuously measures and regulates conductivity and controls the metering of biocides in a time-dependent manner. This keeps pipework and heat exchangers clean and prevents legionella outbreaks.

## Selection guide

The selection guide for the measuring and control technology DULCOMETER® is divided into tables and applications to help you find the correct solution for your application at a glance.

Function	DACb	Compact	D1Cb	D1Cc
<b>Measured variables</b>				
pH	■	■	■	■
ORP	■	■	■	■
Chlorine	■	■	■	■
Chlorine dioxide	■		■	■
Chlorite	■		■	■
Bromine	■		■	■
Conductivity conductive		■		
Conductivity inductive		■		
Conductivity via mA	■		■	■
Peracetic acid	■		■	■
Hydrogen peroxide	■		■	■
Ozone	■		■	■
Dissolved oxygen	■		■	■
Fluoride	■		■	■
0/4...20 mA standard signal general measured variables	■		■	■
<b>Power supply</b>				
90 – 253V ~	■	■	■	■
24 V DC	■			
<b>Method of installation, degree of protection</b>				
Wall mounted IP 65			■	
Control panel mounting IP 54, 1/4 DIN				■
Combination housing (wall mounting, control panel mounting, pillar assembly) IP 67, IP 54	■	■		



Function	DACb	Compact	D1Cb	D1Cc
<b>Measurement</b>				
Number of measuring channels	1/2 optionally selectable	1	1	1
Sensor monitoring of pH	■	■	■	■
Temperature compensation for pH	■	■	■	■
Temperature compensation for conductivity	■	■		
pH compensation for chlorine	■			
<b>Control</b>				
PID controller	■	■	■	■
Monodirectional controller (e.g. with pH acid or alkali)	■	■		
Bidirectional controller (e.g. with pH acid or alkali)	■		■	■

# Overview: panel-mounted measuring and control systems

Complete measuring and control modules for easy integration in water treatment processes.

Fully assembled online measuring units and online control units are suitable for the most important measured variables for potable water, food and beverage and waste water applications. Here ProMinent uses the panel-mounted systems of the DULCOTROL® product range. They can be configured with a simple, application-based ordering system. You can choose up to 2 simultaneously available measuring and control points from 13 different measuring parameters in a variety of combinations. The benefit: as a complete plug-and-play module, these systems are quickly and easily installed and immediately ready for use. What more could you want?



Measuring and control systems **DULCOTROL® Drinking Water / F&B**

Monitoring and treatment of potable and similar types of water with DULCOTROL® – the compact measuring and control system specially designed for the food and beverage industry.



Measuring and control system **DULCOTROL® Waste Water**

Monitoring and treatment of waste water with the panel-mounted online measuring and control system. Easy, fool-proof configuration, no detailed technical knowledge required.



# Metering systems for swimming pool water treatment

The standard metering systems DULCODOS® are the result of years of application-based development at ProMinent. After all, you don't have to reinvent the wheel every time. With ProMinent you can reduce your costs by choosing carefully designed complete solutions.



## Metering system DULCODOS® Pool Soft

Chlorine-free measuring, control and metering system for environmentally operated private pools. Safe water disinfection with active oxygen as a turnkey complete solution.

- For swimming pools with volumes up to 100 m<sup>3</sup>



## Metering system DULCODOS® Pool Basic

The measuring, control and metering system for DULCODOS® Pool Basic is a complete solution for private swimming pools where the chlorine content is controlled using the low-maintenance measurement of the ORP.

- For swimming pools with a circulation capacity of up to 200 m<sup>3</sup>/h



## Metering system DULCODOS® Pool Comfort

The measuring, control and metering system for pH correction and liquid chlorine DULCODOS® Pool Comfort is the convenient solution for pH adjustment and disinfection of swimming pools with liquid chlorine products. Remote access is possible via LAN interface with two or three measured variables: pH/ORP, pH/chlorine or pH/ORP/chlorine.

- For swimming pools with a circulation capacity of up to 225 m<sup>3</sup>/h



## Metering system DULCODOS® Pool Professional

The measuring, control and metering system for pH correction and all kinds of chlorine according to DIN 19643 for individual adjustment and monitoring of all common hygiene auxiliary parameters in public pools. DULCODOS® Pool Professional ensures crystal-clear water quality and lowers operating costs thanks to Eco!Mode.

- For swimming pools with a circulation capacity of up to 350 m<sup>3</sup>/h

# Water treatment and disinfection

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Research and development in all standard technologies is well worth the effort because the products and systems used in the treatment of hygienically pure water are state-of-the-art.

From the huge range of available products, ProMinent experts put together the system that best supports your application. Our product offering extends from metering pumps for all capacity ranges through to measuring and control technology, membrane filtration systems and established disinfection processes. We deliver efficient, safe and high-performance complete solutions. And of course we also offer worldwide technical support.





# Overview: UV systems

UV radiation is a safe, chemical-free and reliable method of disinfection in modern water treatment. Dulcodes® UV systems from ProMinent utilise the safety and reliability of UV disinfection in a wide range of applications. Scientific research and countless systems successfully in operation prove that UV is ideally suited to water disinfection.



**UV system Dulcodes A**

The UV system works energy-efficiently and cleanly based on continuously variable medium pressure lamps and can therefore automatically compensate for variations in the water quality or level of contamination.

- Flow up to 739 m<sup>3</sup>/h



**UV system Dulcodes LP**

The unique UV systems Dulcodes LP are synonymous with pioneering water treatment – efficient and free of chemicals.

- Flow up to 523 m<sup>3</sup>/h



**UV system Dulcodes MP**

The UV system Dulcodes MP for the efficient decomposition of combined chlorine in swimming pools. The typical odour associated with swimming pools is eliminated and the eyes, nose and skin are no longer irritated. Apart from improving the water quality, the lower investment costs and high fresh water and energy consumption savings result in shorter payback times.

- Flow up to 569 m<sup>3</sup>/h



**UV systems Dulcodes LP-PE (Plastic)**

Disinfect saline seawater or thermal water without corrosion problems with the UV system Dulcodes LP-PE Plastic. The UV system consists of a reactor and a UV sensor made of highly UV-resistant plastic.

- Flow up to 505 m<sup>3</sup>/h



**UV system Dulcodes LP certified**

UV system Dulcodes LP for potable water disinfection, comprehensively certified to internationally-recognised DVGW / ÖNORM / SVGW / ACS / UVDGM standards. Pioneering water treatment – highly efficient using Vario-Flux lamps with dynamic lamp heating.

- Flow up to 410 m³/h



**UV system Dulcodes LP F&B**

UV system with hygienic design of radiation chamber. For reliable disinfection and constant quality in your production process.

- Flow up to 189 m³/h

	Typ LP not certified	Typ LP certified	Typ LP F&B	Typ LP Plastic chamber	Typ MP Conventional ballast technology	Typ A Electronic ballast technology
Output [m³/h]	1,000	500	200	100	50	20
400 J/m², 98%/cm Trans- mission	10	5	2	2	2	2
<b>Application</b>						
Drinking water	■	■				■
Industrial water	■	■		■	■	■
Swimming pool water	■			■	■	■
Salt water				■		
Food and beverages industry			■			

**Performance overview: UV systems**

Which type are you? This overview shows the performance and typical applications of ProMinent UV standard systems. Need more details? Don't hesitate to contact us. We're here to help!

# Overview: ozone systems

ProMinent ozone systems are normally used for the treatment of potable water, swimming pool water, water in the food and beverage industry, aquarium and pool water in zoos, and cooling and process water.



Ozone system **OZONFILT® OZVb**

OZONFILT® OZVb is powerful and compact and is ideal for efficient ozone generation from compressed air in the output range of up to 70 g/h. The turnkey ozone system, including mixing unit, delivers everything you need for safe and smooth operation.

- Ozone capacity 10 – 70 g ozone/h



Ozone system **OZONFILT® OZMa**

OZONFILT® OZMa represents maximum operational safety with minimal operating costs. The ozone generator is maintenance-free and generates up to 735 g/h of ozone from compressed air or oxygen.

- Capacity range: 70 – 735 g ozone/h



Ozone system **OZONFILT® Compact OMVb**

OZONFILT® Compact OMVb is a complete, ready-to-use system solution for the generation and metering of ozone. The components are perfectly coordinated to each other.

- Capacity range: 20 – 70 g ozone/h



## Performance overview: ozone systems

The operating gas and the desired ozone concentration are key here. Refer to the guide below to find out which ozone system is best suited to your purposes.

Output [g ozone/h]	OZVb	OZMa 1-6 A	OZMa 1-6 O
1.000			
500			
200			
100			
50			
20			
10			
5			
2			
Operating gas	Air	Air	Oxygen
Ozone concentration	20 g/Nm <sup>3</sup>	20 g/Nm <sup>3</sup>	100 g/Nm <sup>3</sup>

# Overview: chlorine dioxide systems

This agent disinfects regardless of the pH. It has a very good sustained-release effect and remains active in the pipes for anything from many hours to several days. With chlorine dioxide it is even possible to treat entire water systems against legionella because it reliably breaks down biofilms in pipework and tanks.



## Chlorine dioxide system Bello Zon® CDLb

Chlorine dioxide system for production of a chlorine-free chlorine dioxide liquid, especially suitable for multiple points of injection. Bello Zon® CDLb produces ClO<sub>2</sub> discontinuously using the acid/chlorite process with diluted chemicals.

- 0 – 120 g/h preparation capacity with storage of up to 60 g of chlorine dioxide for peak metering. Max. flow at 0.2 ppm ClO<sub>2</sub> metering is 600 m<sup>3</sup>/h



## Chlorine dioxide system Bello Zon® CDVc

Chlorine dioxide system for monitoring and metering chlorine dioxide with diluted chemicals. Maximum output and safety from special reactor concept. Bello Zon® CDVc can be easily and safely integrated into any water treatment process.

- 1 – 2,000 g/h chlorine dioxide. Max. flow at 0.2 ppm ClO<sub>2</sub> metering is 10,000 m<sup>3</sup>/h



## Chlorine dioxide system Bello Zon® CDKc

Chlorine dioxide system for continuous production, metering and monitoring of chlorine dioxide with concentrated chemicals. Bello Zon® CDKc is a ready-to-use convenient system with integrated intrinsically safe pre-dilution station

- 8 – 12,000 g/h chlorine dioxide. Max. flow at 0.2 ppm ClO<sub>2</sub> metering is 60,000 m<sup>3</sup>/h



## Chlorine dioxide system Bello Zon® CDEb

Chlorine dioxide system which continuously produces ClO<sub>2</sub> using the acid/chlorite process with diluted chemicals. Extremely simple operation, clear construction, analogue control, manual or control via contacts.

- 5 – 200 g/h chlorine dioxide. Max. flow at 0.2 ppm ClO<sub>2</sub> metering is 1,000 m<sup>3</sup>/h



**Chlorine dioxide system Bello Zon® CDLb with multiple points of injection**

Flexible solutions for the production and metering of ClO<sub>2</sub> adapted to the customer's tasks, requirements and price expectations. Made-to-measure systems constructed from modules designed to work together.

- 0 – 120 g/h preparation capacity with storage of up to 60 g of chlorine dioxide for peak metering. Max. flow at 0.2 ppm ClO<sub>2</sub> metering is 600 m<sup>3</sup>/h, up to points of injection possible as standard

Type [g/h]	CDLb	CDEb	CDVc	CDKc
15,000				
10,000				
5,000				8 – 12,000
1,000			1 – 2,000	
500				
100	0 – 120	5 – 200		
50				
10				
5				

**Performance overview Chlorine dioxide systems**

In the performance overview you will find the right system for every application. Can't find your application? No problem! Our specialists love a challenge.

**Manufacturing Method**

	Chlorite-Acid (depleted) 7,5 % NaClO <sub>2</sub> + 9 % HCl	Chlorite-Acid (depleted) 7,5 % NaClO <sub>2</sub> + 9 % HCl	Chlorite-Acid (depleted) 7,5 % NaClO <sub>2</sub> + 9 % HCl	Chlorite-Acid (concentrated) 24,5 % NaClO <sub>2</sub> + 25-37 % HCl
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**Application**

Legionella combating	■			
Food and beverages industry	■	■	■	
Municipal drinking and waste water treatment	■	■	■	■
Industry (cooling tower, waste/process water, etc.)	■	■	■	■

# Overview: electrolysis systems

What a great idea: no chemicals to be transported and no need to store and handle hazardous substances. Instead, sophisticated systems use harmless sodium chloride – ordinary salt – to produce chlorine, hydrogen and sodium hydroxide.



## Electrolysis system **CHLORINSITU® IIa**

CHLORINSITU® IIa is a compact on-site electrolysis system for the production of a low-chlorate hypochlorite solution from sodium chloride and electrical energy. A key advantage is its simple process management and excellent system safety through integral ventilation and bleeding.

- Output of 30 – 300 g/h



## Electrolysis system **CHLORINSITU® II**

CHLORINSITU® II is a compact on-site electrolysis system for the production of a low-chlorate hypochlorite solution from sodium chloride and electrical energy. A key advantage is its simple process management and excellent system safety through integral ventilation and bleeding.

- Output of 50 – 2,400 g/h



## Diaphragm electrolysis system **CHLORINSITU® III**

Need an output of 100 – 10,000 g/h of sodium hypochlorite that is high-purity and/or low-chloride and low-chlorate? The electrolysis system CHLORINSITU® III is the solution. Can be used for potable water, waste water, process water, swimming pool water and in cooling towers.

- Output of 100 – 10,000 g/h



## Diaphragm electrolysis system **CHLORINSITU® III Compact**

Generation of sodium hypochlorite in smaller amounts for smaller swimming pools: electrolysis system CHLORINSITU® III Compact

- Output of 25 – 50 g/h





**Diaphragm electrolysis system**  
**CHLORINSITU® IV Compact**

Generate ultra-pure chlorine gas using the vacuum process with electrolysis system CHLORINSITU® IV Compact. Cost-effective, robust and compact.

- Output of 25 – 50 g/h



**Electrolysis system CHLORINSITU® V**

Generate ultra-pure active chlorine using the vacuum method with electrolysis system CHLORINSITU® V. Suited to applications for metering hypochlorous acid and simultaneously correcting the pH value.

- Output of 100 – 3,500 g/h



**Electrolysis system CHLORINSITU® V Plus**

Generation of active chlorine in combination with a sodium hypochlorite solution using the vacuum process with the electrolysis system CHLORINSITU® V Plus. Chlorination and pH value adjustment by one single system.

- Output of 100 – 3,500 g/h



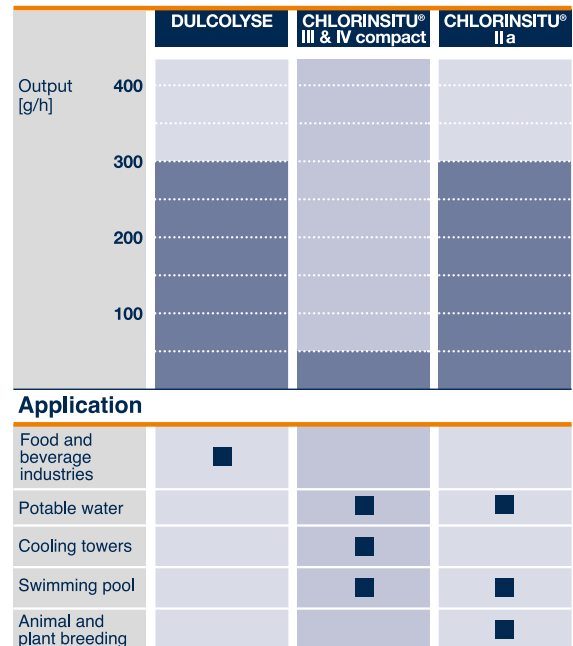
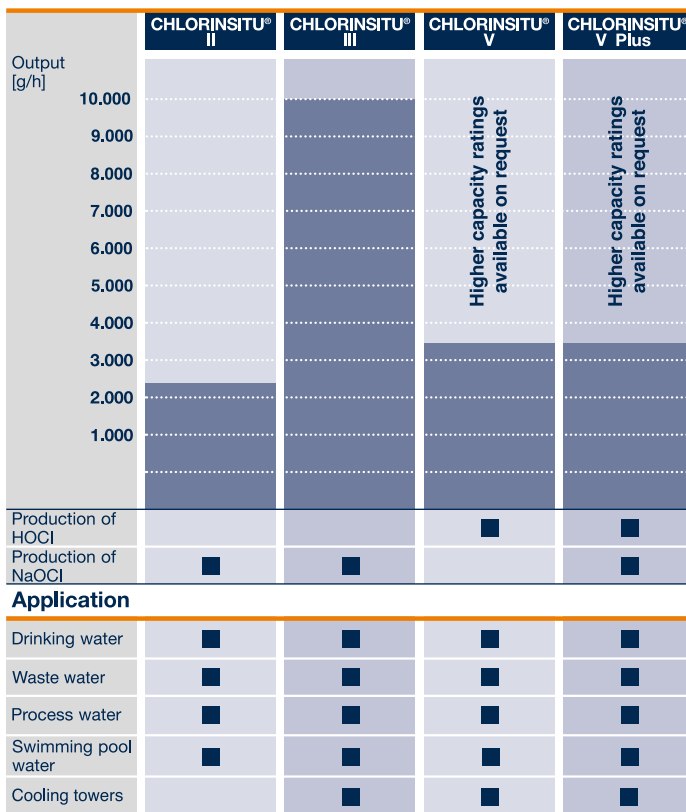
**Electrolysis system Dulco®Lyse**

Efficient production of DulcoLyt 400 (ECA water) with an exceptionally low chloride and chlorate content. Maximum protection against corrosion and very good cost efficiency because of low chloride.

- Output of 100 – 300 g/h

## Performance overview: electrolysis systems

We offer a range of solutions for potable, process and swimming pool water. You can find various application combinations in the table. If you have a specific problem, don't hesitate to ask our specialists. If they don't have a solution ready to hand, they will find one. That's guaranteed.

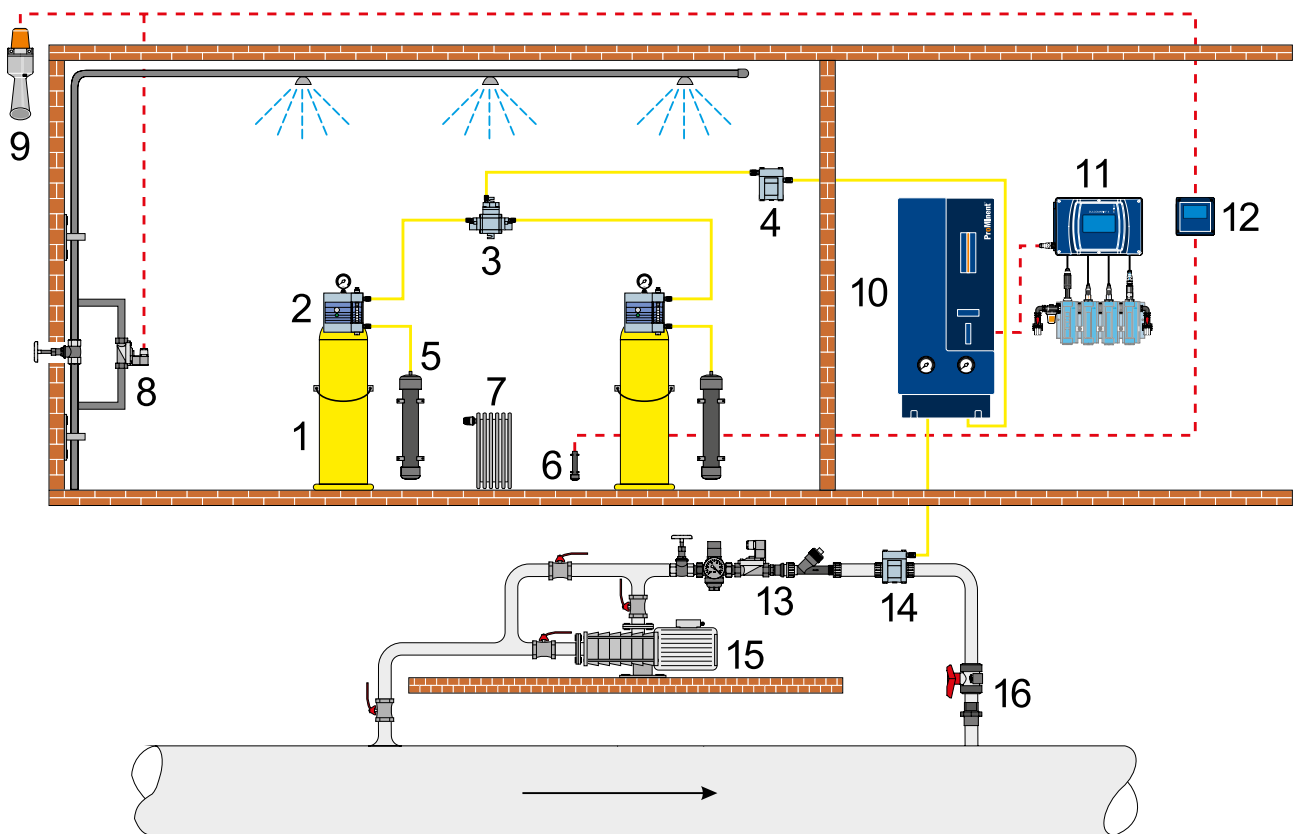




# Overview: chlorine gas metering system DULCO®Vaq

In the metering system DULCO®Vaq, chlorine gas is safely handled under a vacuum. The negative pressure generated in the injector opens the vacuum dosing regulator fitted on the chlorine gas tank and the chlorine gas enters the water to be treated. Adjustment valves control the metering volume and rotameters precisely indicate the chlorine gas flow. A large number of individual configurations is provided for by the use of additional components, such as motorised control valves, injectors or vacuum switch-overs.

ProMinent specialists take into consideration all safety-related requirements in the design of the chlorine gas metering system.



- |                                     |                           |                                |
|-------------------------------------|---------------------------|--------------------------------|
| 1 Chlorine gas bottle               | 2 Vacuum dosing regulator | 3 Vacuum switch-over           |
| 4 Vacuum safety valve               | 5 Active carbon filter    | 6 Gas warning sensor           |
| 7 Heating                           | 8 Sprinkler system        | 9 Combined flashing light/horn |
| 10 Automatic chlorine metering unit | 11 Dulcomarin             | 12 Gas detector                |
| 13 Process water set                | 14 Injector               | 15 Booster pump                |
| 16 Injection point monitoring       |                           |                                |



**Vacuum dosing regulator for chlorine gas DULCO®Vaq**

The vacuum dosing regulator DULCO®Vaq CGVa meters chlorine gas cost-effectively and efficiently. Maximum possible operating safety and reliability are ensured by the use of high-quality materials, such as tantalum and silver.

- Capacity: up to 200 kg/h



**Motorised control valve for chlorine gas DULCO®Vaq**

The motorised control valve for chlorine gas DULCO®Vaq type PM 3531 ensures precise electronically controlled metering of the chlorine gas flow. The linear control characteristic is guaranteed by an externally controlled step motor.

- Capacity: 12 g/h to 15 kg/h



**Automatic chlorine gas metering system DULCO®Vaq**

The chlorine gas metering system DULCO®Vaq type PM 3610 C for automatically controlled metering of chlorine gas. Its simple operation offers safety and precision based on the current state of the art, in compliance with the DIN standard.

- Capacity: 12 g/h - 15 kg/h



**Automatic emergency shut-down system for chlorine gas DULCO®Vaq**

The electrical emergency shut-down system provides additional safety to personnel and equipment by automatically closing off the chlorine gas supply. With its own control unit and uninterrupted power supply, it reliably closes off the chlorine gas sources even in the event of a power failure.

- Automatic closing of the chlorine gas valves in seconds.



# Overview: metering systems Ultromat®

## Metering systems for polymers

The elimination of solids from liquids requires the use of liquid or powder polymers. This is achieved with polymer batching and metering systems. The experts in waste water treatment at ProMinent understand how to provide the efficient technology to implement this specialist application. For the most stringent requirements, they developed Ultromat® metering systems, which are especially easy to assemble and operate.



Metering system **Ultromat® ULFa** (continuous flow system)

Polymer batching station Ultromat® ULFa (continuous flow system): This metering system can be used to batch flocculation aids for the preparation of a ready-to-use polymer solution. The system was designed for the fully automatic batching of polymer solutions.

- Extraction rate up to 8,000 l/h



Metering system **Ultromat® ULPa** (oscillating system)

The metering system Ultromat® ULPa (oscillating system) is ideal for batching flocculation aids for the preparation of a ready-to-use polymer solution.

- Extraction rates from 400 – 4,000 l/h



Double-deck system **Ultromat® ULDa**

The metering system Ultromat® ULDa from ProMinent is an automatic polyelectrolyte preparation system. It is useful wherever synthetic polymers need to be automatically prepared as polymer solutions to act as flocculation aids.

- Extraction rate up to 2,000 l/h



Metering system **Ultromat® MT** for batch operation

Manual polymer batching station Ultromat® MT: Perfect metering system for the processing of small quantities of liquid and powdered polymers – extremely robust and cost-effective.

- Capacity range: 120 – 3,800 l/h



Metering system **POLYMORE**

The metering system POLYMORE is the inline batching station in which the liquid polymer is introduced into the pressure-encapsulated multi-zone mixing equipment through a peristaltic pump. The result is a prepared and homogeneous polymer solution.

- Capacity range: up to 18,000 l/h



Metering system **PolyRex**

The metering system PolyRex is a double-decker batching station for the processing of liquid and powdered polymers. It consists of the feed and mixer unit and the two stainless steel double-decker tanks. The polymers used are ideally utilised.

- Capacity range: up to 3,820 l/h

### Selection guide for metering systems Ultramat®

Extraction rate max. in (l/h)	ULFa	ULPa	ULDa	MT	Polyrex	Polymore
18.000						
8.000						
6.000						
4.000						
2.000						
1.000						
400						



## Storage tanks

ProMinent storage tanks all meet the requirements of the German Water Management Act (WHG), the Directive on Systems for Handling Substances Harmful to Water (VAwS) and the Approval Marks Ordinance. They also comply with the strict legal requirements governing the construction and operation of systems in which substances hazardous to the environment are stored and transported.



### Storage tanks

Our PE storage tanks satisfy the strict requirements of the German Water Management Act (WHG). They are suitable for indoor and outdoor installation. If required our tanks can be constructed in compliance with international manufacturing approvals such as KVU, VLAREM or KIWA.

- Useful capacity up to max. 1,500 l

## Metering systems for solids

ProMinent supplies everything you need for metering and treating solids in your production process. We even have cost-effective solutions for problematic applications, for example substances with noticeable weight fluctuations or problems with bridging.



**Tomal® Big Bag emptying unit**

This emptying unit is used to accommodate and empty Big Bags weighing up to 1,000 kg. The Big Bags are suspended in the frame with the aid of a lifting cross bar. The 30-litre powder storage tank is used to transfer the powder into a feed unit.

- Emptying of Big Bags up to 1,000 kg



**Tomal® multi-screw feeder**

Its unique construction makes the multi-screw feeder ideally suited for metering powders and granulates.





## Overview: membrane filtration systems

ProMinent is an expert in membrane filtration and supplies a wide range of high-quality system technology. Combined with the extensive product range of our ProMaqua® brand, made-to-measure solutions can be developed. ProMinent membrane technology covers ultrafiltration, nanofiltration and reverse osmosis, including pre- and post-treatment precisely matched to the membrane system.



### Ultrafiltration system Dulcoclean® UF

Ultrafiltration system Dulcoclean® UF reliably and safely uses membrane technology to remove turbidity, particles and microbiological contamination.

- 8 – 75 m<sup>3</sup>/h filtrate output



### Nanofiltration system Dulcosmose® product range NF

As a nanofiltration system, the Dulcosmose® NF, a compact and value-for-money unit, can handle partial desalination in industrial applications. Maximum permeate output at low operating pressures ensures low investment and operating costs thanks to the latest "ultra low pressure" diaphragm.

- Permeate outputs from 1 – 50 m<sup>3</sup>/h, higher outputs possible on request



### Reverse osmosis system Dulcosmose® product range TW

Reverse osmosis system Dulcosmose® TW is the all-purpose model for modern potable water desalination. Maximum permeate output at low operating pressures ensures low investment and operating costs.

- Permeate output 0.1 – 50 m<sup>3</sup>/h



Reverse osmosis system **Dulcosmose® product range BW**

Reverse osmosis system Dulcosmose® BW is the standard model for the modern desalination of brackish water. Equipped with the latest generation of "high rejection low-pressure" diaphragms, this system achieves maximum permeate output with moderate operating pressures, thereby lowering investment and operating costs.

- Permeate output 2,000 – 50,000 l/h



Reverse osmosis system **Dulcosmose® product range SW**

Reverse osmosis system Dulcosmose® SW is the standard model for the modern desalination of salt water. Equipped with the latest generation of "high rejection low-pressure" diaphragms, this system achieves maximum permeate output with moderate operating pressures, thereby lowering investment and operating costs.

- Permeate output 780 – 29,000 l/h

## Performance overview: reverse osmosis

In short: TW: potable water, BW: brackish water, SW: seawater. All you need to do is select your required performance level – then you can sit back and rely on the excellent service of our ProMinent specialists.

Type	TW	BW	SW
Permeat-output [m³/h]	50		
	25		
	10		
	5		
	2,5		
	1		
	0,5		
	0,25		
	0,1		
Salinity Drinking water	< 1.000 mg/l	< 5.000 mg/l	< 40.000 mg/l



# ProMinent – the 2019 range

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Your digital reference source.  
Wherever you want. Whenever you want.

Ground breaking versatility: ProMinent 2019.  
The ProMinent product range is split into three categories.



Metering technology



Measuring, control and sensor technology



Water treatment and disinfection

You can find individual catalogue volumes for downloading or for online browsing at  
[www.prominent.com/en/product-catalogue](http://www.prominent.com/en/product-catalogue).

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