

# Product Overview 2015

ProMinent® products for chemical fluid handling

ProMaqua® products for water treatment and water disinfection



# Your application, our solution. Welcome to ProMinent.



## Technical progress is our motivation

For over 50 years our customers have profited from the application-specific experience and the comprehensive know-how of our experts across the globe. Fluid metering technology is ProMinent's particular speciality and it is perfectly complemented by ProMaqua® water treatment and

water disinfection products. Hence the modular program, which comprises individual products and system solutions, offers every customer at any time and any location a maximum of flexibility and economy.

## Absolute customer satisfaction is our aim

High quality and reliable products courtesy of excellent engineering competence represent the foundations, but the individual requirements of each and every customer are equally important to us. We supply numerous industries and meet widely varying process requirements. In addition,

personal project care, application-specific consultancy, trouble-free completion and global service provision all come as standard.

## Future-proof innovations are our business

Regardless of whether custom one-off or major projects – absolute process safety is always key to our research and development. Our components, systems and technologies for environmentally friendly and sustainable metering and water treatment are characterised by maximum efficiency and applicability. We work continuously to optimise our

customer's potential cost-savings. Because our position as a global market leader means a continuous commitment not just to excellent products and services, but first and foremost a commitment to think and act responsibly.

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

Or request your personal printed copy directly from us at [www.prominent.com/en/catalogue-request](http://www.prominent.com/en/catalogue-request).

You can also install the ProMinent App for iPhone and iPad. You can find the app in the iTunes App Store or under [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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## **For Continuous Use Always and Everywhere**

Thanks to our invention of solenoid diaphragm metering technology over 50 years ago and the continuous new development of innovative metering technology, today's customers can choose from a well ordered product range of metering pumps and all their accessories.

Whatever you need for a specific application ProMinent has a suitable product series for every capacity range – which also guarantees maximum safety and economy. Highly durable pumps and energy saving solutions not only save operating costs, they also preserve the environment. Made by experts for professionals.



# Overview: Low-Pressure Metering Pumps

We offer an optimum selection of different sizes, dosing heads, capacities as well as adjustment and control options. Our metering pumps are characterised by uniform high performance even under the harshest conditions, nearly universal applicability and maximum economy. Equipment features: manual operation, external contact control, partial additional analogue control, process timer and BUS interface.



## Motor Driven Metering Pump **alpha**

Developed for simple applications and the optimum solution for continuous metering in the low capacity range. The motor driven metering pump alpha: highly reliable, robust and powerful.

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



## Solenoid Driven Metering Pump **Beta**<sup>®</sup>

Combining versatility with an outstanding price-performance ratio: The solenoid driven metering pump Beta<sup>®</sup> with integral pulse step-up and step-down convinces in all respects.

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



## Solenoid Driven Metering Pump **gamma/X**

A new development with pioneering control technology, sensorless pressure measurement and an extremely low level of wear during operation. The rotary dial, large display and all connectors on the front side make it extremely easy to use.

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



## Solenoid Driven Metering Pump **delta**<sup>®</sup>

The delta<sup>®</sup> product range represents high-end technology with a globally unique innovation: optoDrive<sup>®</sup>, which is a controlled solenoid drive that permits maximum adaptation to the metering task combined with maximum accuracy.

- Capacity range: 7.5 – 75 l/h, 25 – 2 bar



**Precision Plunger Metering Pump mikro delta®**

Maximum precision characterises the flexible metering pump mikro delta®. The controlled solenoid drive ensures maximum accuracy during the metering process.

- Capacity range: 150 – 1,500 ml/h, 60 – 20 bar



**Pneumatic Metering Pump Pneumados**

When there is no available electrical power, the Pneumados product range is a proven standard solution. It just goes on and on carrying out simple metering tasks reliably and continuously.

- Capacity range: 0.76 – 16.7 l/h, 16 – 2 bar



**Flow Meter DulcoFlow®**

This device, which can measure all liquid media, is the perfect complement to a metering pump. Using an ultrasound measurement method, the DulcoFlow® measures the throughput amount of a pulsating liquid.

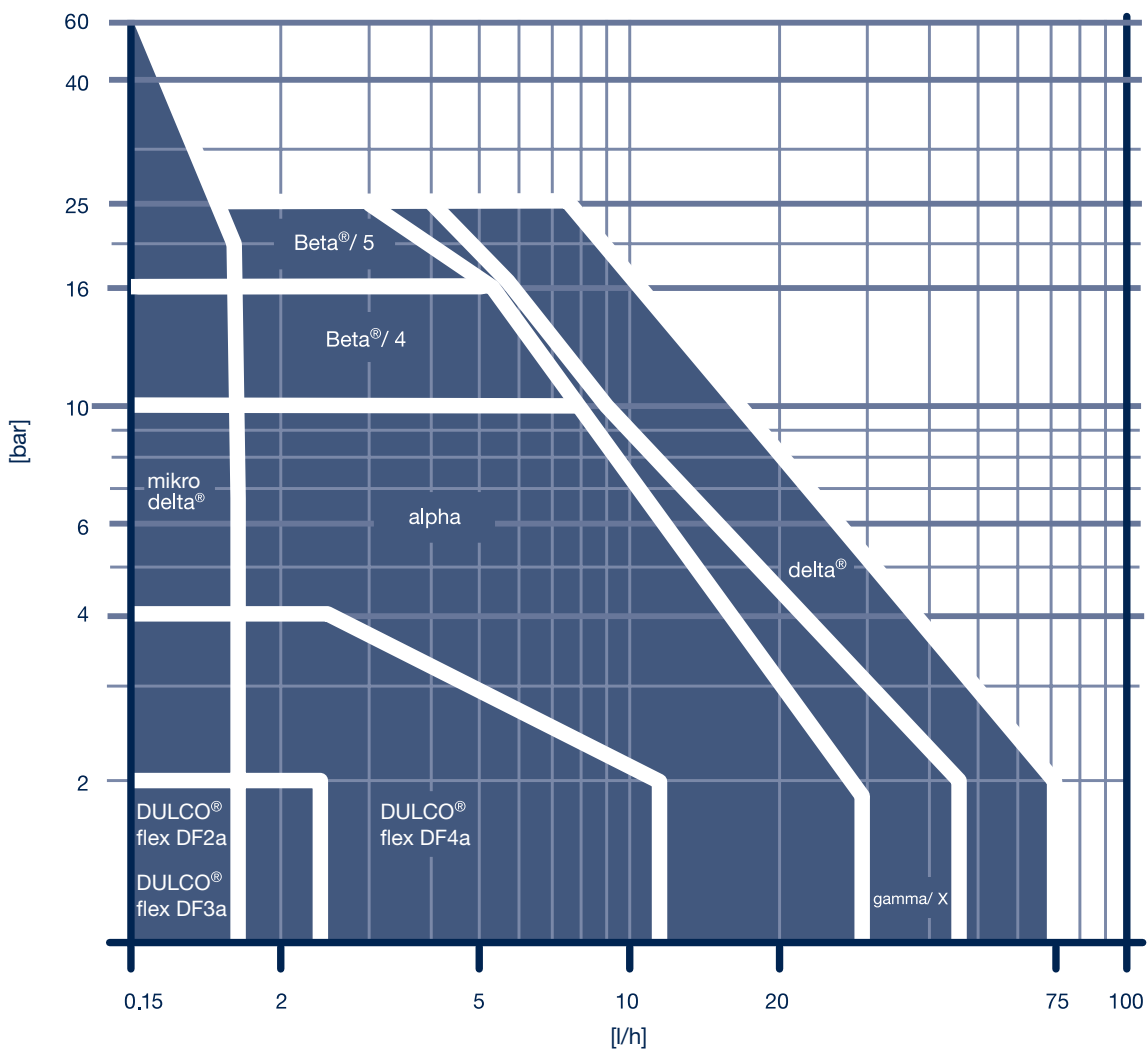
- Measures pulsating volumetric flows in the range between 0.03 – 5 ml/stroke

## Selection Guide

For the capacity range 0.15 – 75 l/h at a back pressure of 60 – 2 bar there is a wide range of metering pumps to choose from. Using the selection guide you can determine precisely the right pump for your application.

## Pump Guide

To help you quickly find the right pump for your application, use our online selection guide under [www.pump-guide.com](http://www.pump-guide.com). Simply enter the pump capacity, back pressure and frequency – and that's it! A selection of suitable pumps is automatically displayed for you.







# Overview: Tanks, Chemical Transfer and Peristaltic Pumps

For chemical storage and transfer, we not only supply you with standard tanks in different designs, we also supply customised tanks to match your specifications. The product range is rounded off by chemical transfer pumps and peristaltic pumps, which can moreover be used for metering tasks in many applications with nearly every possible pump capacity.



## Dosing Tanks and Collecting Pans

Dosing tanks and collecting pans made from UV-stable polyethylene or polypropylene are available in various sizes.

- Useful capacity of 35 – 1,000 l



## Storage Tanks

All storage tanks comply with the internationally applicable manufacturing certification and are suitable for indoor and outdoor use.

- Design according to DVS2205, conforming to EN 10573, upon request with general certification according to WHG section 19

## Selection Guide

Depending on requirements and volumes, you will find the right tank for your needs using the following selection guide.

	Shape	WHG Certification	Useful Volume
PE dosing tank	Cylindrical	–	35 – 1,000 l
PE storage tank with general WHG certification	Cylindrical	x	500 – 50,000 l
PP/PE storage tank, made to customer dimensions	Cylindrical or rectangular	–	500 – 50,000 l



### Eccentric Screw Pump Spectra

The Spectra was especially designed for transporting polymer solutions.

- Pump capacity up to 12,000 l/h



### Centrifugal Pump von Taine®

The von Taine® centrifugal pump is a solenoid-coupled centrifugal pump for pumping liquid media.

- Pump capacity up to 22,500 l/h



### Air-Operated Diaphragm Pump Duodos

Duodos is an air-driven double diaphragm pump without electrical components.

- Pump capacity up to 6,700 l/h



### Barrel Pump DULCO®Trans

DULCO®Trans enables fast, safe filling, emptying and decanting of liquids from a very wide range of different tanks.

- Pump capacity up to 4,800 l/h



## Peristaltic Pumps DULCO®flex

Peristaltic pumps DULCO®flex are amongst our most adaptable pumps. They are suitable for an enormously wide pump capacity range. The small pumps of type DF2a – DF4a were specially designed for metering tasks in swimming pools, whirlpools or spas. The large peristaltic pumps DFAa - DFDa are ideal for specific tasks using maximum pump capacities and pressures in the laboratory and in industry.

All models follow a simple operating principle and are extremely safe and easy to use.



**DULCO®flex DF2a**

The DF2a is primarily used in private pools for processes with low feed pressure.

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



**DULCO®flex DF3a**

Developed specifically for metering fragrances in saunas and spas, for example.

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



**DULCO®flex DF4a**

The DULCO®flex DF4a can be used for comprehensive metering tasks in private and public swimming pools as well as for general chemical metering.

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



#### Peristaltic Pump DULCO®flex DFAa

The peristaltic pump DFAa is designed as a low-pressure pump suitable for lab use.

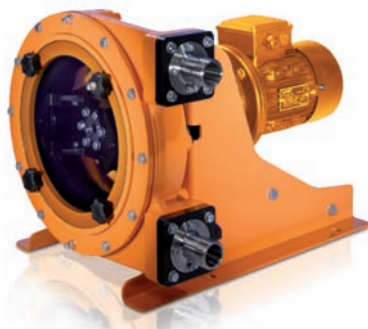
- Capacity range: up to 105 l/h at 2 bar



#### Peristaltic Pump DULCO®flex DFBa

The DULCO®flex DFBa copes perfectly with small to medium feed rates in harsh industrial applications.

- Capacity range: up to 650 l/h at 8 bar



#### Peristaltic Pump DULCO®flex DFCa

Thanks to being equipped with a ball-bearing mounted rotor, this peristaltic pump offers high running smoothness and durability – perfect for heavy industrial use.

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



#### Peristaltic Pump DULCO®flex DFDa

The perfect peristaltic pump for high feed rates and pressures. DULCO®flex DFDa is extremely robust and loadable.

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



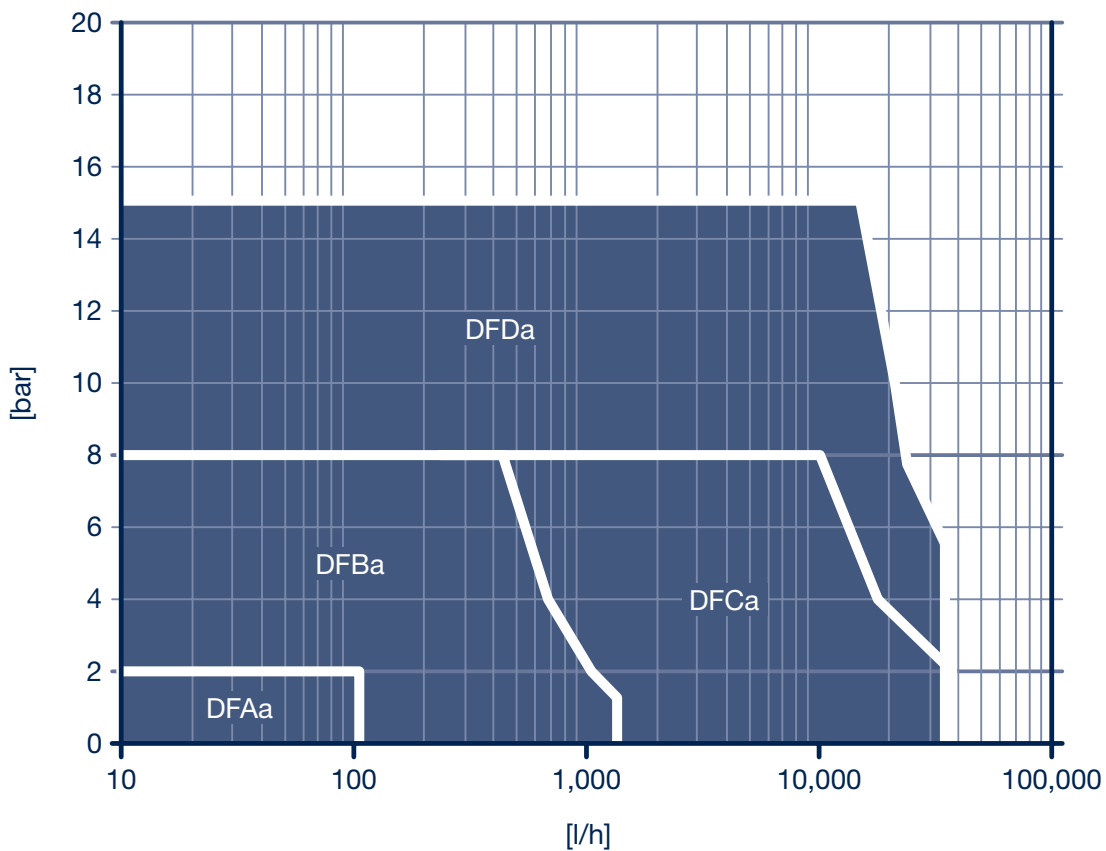
## Selection Guide

Depending on requirements and volumes, you will find the right chemical transfer or peristaltic pump for your needs using the following selection guide.

You can also use the new online selection guide at [www.pump-guide.com](http://www.pump-guide.com) for easy and quick pump selection.

Type	Priming	Drive	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

Type	Priming	Drive	Capacity Range
Peristaltic Pump DULCO®flex	Self-priming	Electrical	Up to 15,000 l/h, max. 15 bar



# Overview: Metering Systems DULCODOS®

## Metering Systems DULCODOS®

The standard metering systems DULCODOS® are ready-for-use, ready-mounted systems where all components are perfectly matched to each other to ensure trouble-free operation. They are available as metering systems with tanks or as panel-mounted metering systems and can be individually configured upon ordering to match your requirements.



**DULCODOS® eco**

DULCODOS® eco systems are metering stations with tanks which are suitable for the storage and metering of liquid chemicals.

- Useful capacity: 35 – 1,000 l



**DULCODOS® panel**

These panel-mounted modular metering systems are a standard solution for common metering tasks encountered with liquid products.

- Capacity of 0.74 – 1,000 l/h



**DULCODOS® Hydrazin**

This metering system is used to prepare and meter a hydrazine solution, e.g. for preventing corrosion in water and steam systems.



**DULCODOS® PPLA**

DULCODOS® PPLA metering systems are used in the animal feed industry to apply liquid additives after pelleting the feed.



### DULCODOS® custom

These metering systems are individually made and are particularly suitable for specific applications or specifications.

- If required, ATEX compliant (explosion proof) can also be supplied



### DULCODOS® modular

The ready-wired metering system DULCODOS® modular 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 to 1,000 l/h, other capacities on request
- Simple and quick to install, thanks to ready-wired design
- Modular construction for flexible, practical process integration
- Minimal space requirements due to compact construction

# Overview: Metering Systems Ultromat®

## Metering Systems Ultromat®

Polymer and metering systems for the preparation of liquid or powdered polymers are required for the separation of colloidal solids from liquids. Which is why our waste water treatment experts developed the Ultromat® metering systems to fulfil the highest requirements for this specialised application while at the same time allowing simple installation and operation.



### Ultromat® ULFa Continuous Flow System

These triple chamber continuous flow systems made from polypropylene are used for the processing of liquid and powdered polymers.

- Capacity range: 400 – 8,000 l/h



### Ultromat® ULPa Oscillating System

The Ultromat® ULPa oscillating system processes liquid and powdered polymers.

- Capacity range: 400 – 4,000 l/h



### Ultromat® ULDa Double-Deck System

In this system, the liquid or powdered polymers are processed in two tanks arranged one above the other.

- Capacity range: 400 – 2,000 l/h



### Ultromat® MT Manual Batching Station

In the manual batching station powdered polymers can be manually prepared in small amounts when continuous operation is not necessary.

- Capacity range: 120 – 3,800 l/h





**Ultromat® ATR Continuous Flow System with Round Tanks**

The continuous flow system Ultromat® with round PP tanks is particularly suited to the processing of powdered polymers.

- Capacity range: 400 – 2,000 l/h



**POLYMORE Inline Batching Station**

POLYMORE is a batching station for liquid polymers.

- Capacity range: 120 – 18,000 l/h



**PolyRex Double-Deck System**

This double-deck system offers high dosing precision and a highly reproducible batch composition.

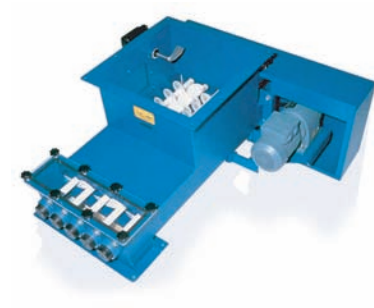
- Capacity range: 240 – 3,820 l/h



### Big-Bag Emptying and Metering Station

The Big-Bag emptiers are effective systems for emptying and metering free-flowing or non-flowing bulk goods out of bags. The emptying stations are available as standard for single-use and reusable bags and also customised upon request.

- Optional various designs for lifting big bags
- Available as a complete system in combination with the multi-screw feeder



### Multi-Screw Feeder

The volumetric metering units are particularly suitable for safe silo emptying and the highly precise metering of powders and granulates.

- Can be integrated into nearly every process
- Available as a complete system in combination with the Big-Bag emptying and metering station



## Selection Guide for Metering Systems DULCODOS®

The ready-mounted metering systems DULCODOS® are available in many different versions dependent on the application. Using the selection guide you can find precisely the right metering station.

Type	Function	Applications	Capacity Range
DULCODOS® eco	Storage, metering	General	35 – 1,000 l
DULCODOS® panel	Storage, metering	General	0.74 – 1,000 l/h
DULCODOS® Hydrazin	Batching, metering	Boiler feedwater	Up to 11 l/h
DULCODOS® PPLA	Mixing, metering	Animal feed	–
DULCODOS® modular	Metering	General	40 – 1,000 l/h

## Selection Guide for Metering Systems Ultromat®

Ultromat® metering systems for polymer batching are available for highly specific applications. Using the selection guide you can find precisely the right design for your application.

Type	Application	Polymers	Capacity Range
Continuous Flow System Ultromat® ULFa	Waste water	Powder + liquid	400 – 8,000 l/h
Oscillating System Ultromat® ULPa	Waste water, paper	Powder + liquid	400 – 4,000 l/h
Double-Deck System Ultromat® ULDa	Waste water, paper	Powder + liquid	400 – 2,000 l/h
Continuous Flow System Ultromat® ATR with Round Tanks	Waste water	Powder	400 – 2,000 l/h
Manual Batching Station Ultromat® MT	Waste water	Powder	120 – 3,800 l/h
POLYMORE	Waste water, paper	Liquid	120 – 18,000 l/h
PolyRex	Waste water, paper	Powder + liquid	240 – 3,820 l/h

You can get detailed information about the mode of operation and technical specifications for metering pumps, tanks, chemical transfer and peristaltic pumps plus metering systems from ProMinent on the Internet and in volume 1 of the product catalogue, *Metering Pumps, Components and Metering Systems*. Here you can also find information about matching accessories and spare parts as well as information for ordering individual products.

# Intelligent Metering: Measuring, Control and Sensor Technology

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## **Precise Measured Values**

Using high-performance measuring and control technology combined with precise sensors, our customers can optimise their particular liquid media metering applications. This is where our ground-breaking innovations set new standards for quality and reliability in industrial manufacturing,

The precise interaction between all components such as metering pumps, controllers and sensors guarantees efficiency. Because only an integrated control circuit can guarantee fault-free operation with maximum safety. This increases the quality of customer products, saves energy and conserves resources.



# Overview: Sensor Technology

Only the availability of an online measurement parameter makes it possible to monitor a limit value or set up a closed control circuit. Here our DULCOTEST® product family offers you an extensive, application-specific range of reliable sensors for a huge variety of measuring applications. All sensors deliver precise measured values 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.

- Precise and reliable measurement for efficient processes and maximum process safety

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

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

## Selection Guide 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 1 – 12	Max. 80 °C / no overpressure	PHEN	Chemically contaminated water, low-conductivity water < 50 µS/cm
	Max. 60 °C / 3 bar	PHES	Swimming pool water, potable water, glass stem clear
		PHEK	Swimming pool, aquarium, synthetic stem
	Max. 80 °C / 6 bar	PHEP/PHEPT	Process water
Solid matter, turbid, pH 1 – 12	Max. 80 °C / 8 bar	PHER	Cooling water, waste water
Solid matter, not transparent pH 1 – 12	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



Since 2014, all pH and ORP glass sensors are available made from lead-free glass.

### Selection Guide DULCOTEST® ORP Sensors

Medium	Temperature / Pressure	Sensor Type	Typical Application
Clear	Max. 80 °C / no overpressure	RHEN	Chemically contaminated water, low-conductivity water < 50 µS/cm
	Max. 60 °C / 3 bar	RHES	Swimming pool water, potable water, glass stem
		RHEK	Swimming pool, aquarium, synthetic stem
	Max. 80 °C / 6 bar	RHEP-Pt	Process water
PHE-Au		Chemically contaminated water, e.g. CN <sup>-</sup> ozone treatment	
Solid matter, turbidity	Max. 100 °C / 16 bar	RHER	Cooling water, waste water
Solid matter, non-transparent	Max. 80 °C / 6 bar	RHEX	Suspensions, sludge, emulsions



#### DULCOTEST® Sensors with CAN Bus Communication

The innovative sensor series with CAN bus communication enables data storage and a bi-directional communication with the measuring and control instrument.

- Simple wiring and retrofit expansion options courtesy of the CAN bus system
- Field bus system with planning and installation cost savings



#### Amperometric Sensors DULCOTEST®

The amperometric sensors of the DULCOTEST® product range provide selective and precise measured values for a wide range of disinfectants.

- Sensors in incremental measuring ranges for different chlorine and bromine compounds, chlorine dioxide, chlorite, ozone, peracetic acid, hydrogen peroxide and dissolved oxygen
- Sensor type BCR1 for the important disinfectant BCDMH for reliable measurements even in contaminated cooling water
- Sensors CLB 2 and CLB 3 are economical, easy to maintain compact sensors for the online measurement of free chlorine in lightly contaminated water

## 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	Washing water from F&B	10 – 200 mg/l	D1C, DAC	CLR 1-mA-xppm
Free chlorine	Potable water, swimming pool water	0.01 – 100 mg/l	DULCOMARIN® II	CLE-CAN-xppm, CLE 3.1-CAN-xppm
Free chlorine	Potable water, swimming pool water, in-situ Electrolysis (without diaphragm)	0.02 – 10 mg/l	D1C, DAC	CLO 1-mA-xppm
Free chlorine	Hot water up to 70 °C, (legionella), in-situ electrolysis (without diaphragm)	0.02 – 2 mg/l	D1C, DAC	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	DULCOMARIN® II	CLE 3-CAN-xppm, CLE 3.1-CAN-xppm
Free chlorine	Potable water, swimming pool water	0.05 – 5 mg/l	COMPACT	CLB 2-µA-5ppm, CLB 3-µA-5ppm
Free chlorine	Cooling, process, waste water, water with higher pH values (stable)	0.01 – 10 mg/l	D1C, DAC	CBR 1-mA-xppm
Total available chlorine	Swimming pool water with chlororganic disinfectants	0.02 – 10 mg/l	D1C, DAC	CGE 2-mA-xppm, CGE 3-mA-xppm
Total available chlorine	Swimming pool water with chlororganic disinfectants	0.01 – 10 mg/l	DULCOMARIN® II	CGE 2-CAN-xppm
Total chlorine	Potable, raw, process and cooling water	0.01 – 10 mg/l	D1C, DAC	CTE 1-mA-xppm
Total chlorine	Potable, raw, process and cooling water	0.01 – 10 mg/l	DMT	CTE 1-DMT-xppm
Total chlorine	Potable, raw, process and cooling water	0.01 – 10 mg/l	DULCOMARIN® II	CTE 1-CAN-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® II	CTE 1-CAN-xppm and CLE 3.1-CAN-xppm
Total available bromine	Cooling water, swimming pool water, whirlpool water with organic or inorganic bromine compounds	0.02 – 10 mg/l	DULCOMARIN® II	BRE 3-CAN-10ppm
Total available bromine	Cooling, waste, swimming pool, whirlpool water, bromine with BCDMH	0.01 – 10 mg/l	D1C, DAC	BCR 1-mA-xppm
Free and combined bromine	Cooling, process, waste water, water with higher pH values (stable)	0.02 – 20 mg/l	D1C, DAC	CBR 1-mA-xppm
Chlorine dioxide	Potable water	0.01 – 10 mg/l	D1C, DAC	CDE 2-mA-xppm
Chlorine dioxide	Bottle washing system	0.02 – 2 mg/l	D1C, DAC	CDP 1-mA
Chlorine dioxide	Hot water up to 60 °C, cooling water, waste water, irrigation water	0.01 – 10 mg/l	D1C, DAC, DULCOMARIN® II	CDR 1-mA-xppm CDR 1-CAN-xppm
Chlorite	Potable water, washing water	0.02 – 2 mg/l	D1C, DAC, DULCOMARIN® II	CLT 1-mA-xppm CLT 1-CAN-xppm
Ozone	Potable, utility, process and swimming pool water	0.02 – 2 mg/l	D1C, DAC	OZE 3-mA-xppm
Ozone / zero ozone monitoring	Polluted water	0.002 – 2mg/l	D1C, DAC	OZR 1-mA-xppm
Dissolved oxygen	Potable water, surface water	2 – 20 mg/l	D1C, DAC	DO 1-mA-xppm
Dissolved oxygen	Aeration tanks, clarification plants	0.1 – 10 mg/l	D1C, DAC	DO 2-mA-xppm
Peracetic acid	CIP, antiseptic foodstuff filling	1 – 2,000 mg/l	D1C, DAC	PAA 1-mA-xppm
Hydrogen peroxide	Clear water, fast control	1 – 2,000 mg/l	D1Ca	Perox sensor PEROX H2.10
Hydrogen peroxide	Process, swimming pool water	0.5 – 2,000 mg/l	D1C, DAC	PER1-mA-xppm





**Sensors DULCOTEST® for Electrolytic Conductivity**

DULCOTEST® conductivity sensors are available in numerous versions and cover all measurement tasks extending from simple water treatment through to industrial process water measurement.

- 25 different sensor types based both on conductive and inductive measurement principles for various measuring ranges, temperatures, chemical resistances, contamination tolerances and process connections



**DULCOTEST® Turbidity Sensors**

Turbidity measuring points belonging to the DULCO®turb C series with TUC 1, TUC 2, TUC 3, TUC 4 versions are compact, online turbidity measuring points comprising sensor, flow fitting and gauge. The sensor series offers a very wide measuring range extending from waste water through raw water to very precise fine turbidity measurements in potable water. The device versions fulfil various standards and, if required, can be supplied with an ultrasound cleaning function.

**Selection Guide DULCOTEST® Conductivity Sensors**

Conductivity > 20 mS/cm or residue forming medium or chemically corrosive medium?			
Yes		No	
Inductive conductivity measurement		Conductive conductivity measurement	
Chemically corrosive medium or temperatures > 70 °C or measured value < 200 µS/cm or > 1,000 mS/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	Series LF, LMP, CK	
Series ICT 2 Process flow: with stainless steel flange accessory Immersion valves: with accessory IMA – ICT 2	Series ICT 1		
Installation in process flow?			
Yes	No		
Type ICT 1	Type ICT 1-IMA		

# Overview: Measuring and Control Technology

Our high quality measuring and control instruments have been specifically developed for particular applications. They are available in different performance classes and can be integrated in every process environment. Select the transmitter, regulator or controller that is precisely tailored to your application.



## Transmitters DULCOMETER® DULCOPAC

This transmitter primarily has monitoring functions for water and waste water treatment. It measures and controls the measured variables pH, ORP, chlorine, bromine, peracetic acid, hydrogen peroxide and conductivity in aqueous solutions.

- Compact housing for top-hat rail installation in the control cabinet



## Transmitters DULCOMETER® DMTa

The 2-wire transmitter is used in water and waste water treatment. It measures the measured variables pH, ORP, temperature, chlorine and conductivity in aqueous solutions.

- With measured value display and in-situ sensor calibration



**Controller DULCOMETER® D1Cb/D1Cc**

DULCOMETER® D1Cb (wall mounting) and D1Cc (control cabinet mounting) are the standard controllers for applications in potable water, waste water and cooling water treatment. Its basic model is equipped with 14 measured variables.

- Sensor monitoring and safety function to prevent incorrect metering
- 22 operating languages in the controller
- 14 measured variables selectable from the menu



**Controller DULCOMETER® Compact**

The DULCOMETER® Compact controller for the measured variables pH, ORP, chlorine, conductive and inductive conductivity is supplied with the standard functions for basic applications in water treatment.

- Compact housing with intuitive operation



### Controller DULCOMETER® diaLog DACa

The new one or two channel multi-parameter controller diaLog DACa was specially developed for the continuous measurement and control of parameters needed in liquid analysis. Sensors from 14 freely selectable measured variables can be connected per channel. The standard field buses are available for communication with the control level. The incorporated data, calibration and event logger records all measured values, control variables, digital inputs, calibration values, warning and error messages with a time stamp.

The diaLog DACa controller uses intelligent control functions to complete the control circuit between ProMinent® DULCOTEST® sensors and ProMinent® metering pumps, offering special functions as required in water treatment.

- Two 2-page PID controllers
- Disturbance variable processing (flow)
- Various field buses
- Integral data logger with SD card

#### Key Applications

- Potable water and sewage treatment
- Industrial and process water treatment
- Swimming pool water treatment



### Controller **DULCOMARIN® II**

The DULCOMARIN® II is a measuring and control system for drinking and swimming pool water treatment. It guarantees a complete overview of all measuring and control processes within networked systems and combines sensors and actuators at the field level. The DULCOMARIN® II is simple to operate via the large illuminated colour display and can control up to 16 water systems or filtration circuits. An OPC server, web server and PROFIBUS®-DP are available for communication with the superordinate systems (e.g. building management systems).

- Integral screen plotter with data logger
- Control for up to 16 circuits
- Soft PLC functionality for controlling special functions
- Integral screen plotter with data logger
- SMS and email alarm using mobile phone technology
- Communication via LAN, WLAN, OPC, PROFIBUS®-DP possible

#### Key Applications

- Measurement and control of hygiene parameters in swimming pools
- Monitoring of the water temperature in potable waterworks
- Monitoring of the chlorine dioxide concentration in systems to combat and prevent legionella in schools, hotels or hospitals, for example

## Selection Guide

The selection guide for DULCOMETER® shows you, divided into tables and applications, the correct solution for your application.

### Single-channel control Compact

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Waste water treatment</li> <li>■ Potable water treatment</li> <li>■ Swimming pool water treatment</li> </ul>	<ul style="list-style-type: none"> <li>■ pH and ORP (selectable)</li> <li>■ Chlorine</li> <li>■ Conductive conductivity</li> </ul>	<ul style="list-style-type: none"> <li>■ Language-independent operation</li> <li>■ 1 page control</li> <li>■ Metering pump control</li> <li>■ 1 analogue output (measured value/control variable)</li> <li>■ Sensor monitoring of pH</li> <li>■ Remote control input (pause)</li> </ul>

### Single-channel control D1Cb/D1Cc

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Waste water treatment</li> <li>■ Cooling water treatment</li> <li>■ Potable water treatment</li> <li>■ Neutralisation</li> </ul>	<ul style="list-style-type: none"> <li>■ pH, ORP, conductivity</li> <li>■ Chlorine, chlorine dioxide, chlorite, bromine</li> <li>■ Ozone, hydrogen peroxide, dissolved oxygen</li> <li>■ Peracetic acid, fluoride, temperature, mA in general</li> </ul>	<ul style="list-style-type: none"> <li>■ Menu-driven operation, multiple languages</li> <li>■ 2 page control</li> <li>■ Metering pump control</li> <li>■ Alarm relay</li> <li>■ 2 limit value relays</li> <li>■ 1 analogue output (measured value/control variable)</li> <li>■ Remote control input (pause)</li> <li>■ Sensor monitoring</li> <li>■ Subsequent functions upgrade</li> </ul>

### Multi-parameter single and two-channel controller diaLog DACa

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Waste water treatment</li> <li>■ Neutralisation</li> <li>■ Cooling water treatment</li> <li>■ Potable water treatment</li> <li>■ Swimming pool water treatment</li> </ul>	<ul style="list-style-type: none"> <li>■ pH, ORP</li> <li>■ Chlorine, chlorine dioxide, chlorite, bromine</li> <li>■ Ozone, hydrogen peroxide, dissolved oxygen</li> <li>■ Peracetic acid, fluoride, conductivity (mA), temperature, mA in general</li> <li>■ Free combination of previously named measured variables</li> </ul>	<ul style="list-style-type: none"> <li>■ Data logger with SD card</li> <li>■ Two 2-page PID controllers</li> <li>■ External setpoint setting via mA</li> <li>■ Control parameter switching using timer or digital input</li> <li>■ 4 frequency relays for metering pump control</li> <li>■ 3 analogue outputs</li> <li>■ Interference variable processing</li> <li>■ pH compensation of chlorine measurement</li> <li>■ 5 digital switching inputs</li> <li>■ Menu-driven operation in 22 languages</li> <li>■ Various field buses</li> </ul>

### DULCOMARIN® II multi-channel controller

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Swimming pool water treatment</li> <li>■ Potable water treatment</li> <li>■ General water treatment</li> </ul>	<ul style="list-style-type: none"> <li>■ pH, ORP, free chlorine, total available chlorine</li> <li>■ Combined chlorine, temperature</li> <li>■ Via mA: turbidity, fluoride, ammonia, UV</li> </ul>	<ul style="list-style-type: none"> <li>■ Menu-driven operation in 6 languages</li> <li>■ Large colour display</li> <li>■ Up to 16 filtration circuits/water systems</li> <li>■ Integral data logger/screen plotter</li> <li>■ Web server/OPC server over LAN/Ethernet</li> <li>■ Soft PLC</li> <li>■ Alarm via SMS and email</li> </ul>



**DMTa 2-wire transmitter**

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Processes and process technology</li> <li>■ Food and beverage industry</li> <li>■ Chemical industry</li> <li>■ Pharmaceuticals</li> <li>■ Water treatment</li> <li>■ Waste water treatment</li> <li>■ Power station technology</li> </ul>	<ul style="list-style-type: none"> <li>■ pH, ORP, chlorine, temperature</li> <li>■ Conductivity (conductive)</li> </ul>	<ul style="list-style-type: none"> <li>■ Menu-driven operation in 6 languages</li> <li>■ Sensor monitoring</li> <li>■ Auto-ranging for conductivity</li> <li>■ Switchover within the measured variables pH, ORP, temperature and chlorine</li> </ul>

**DULCOPAC single-channel transmitter/controller**

Applications	Measured Variables	Functions
<ul style="list-style-type: none"> <li>■ Waste water treatment</li> <li>■ Potable water treatment</li> </ul>	<ul style="list-style-type: none"> <li>■ pH, ORP, chlorine, bromine, peracetic acid, hydrogen peroxide and conductivity (conductive)</li> </ul>	<ul style="list-style-type: none"> <li>■ 2 page control</li> <li>■ Metering pump control</li> <li>■ 2 analogue outputs</li> </ul>

# Overview: Panel-Mounted Measuring and Control Systems

Completely assembled online measuring and control units from the DULCOTROL® series are ideally suited for certain measured variables within the areas of potable water, food and beverage industry and waste water. These units are easily configurable using a simple application-orientated ordering system. Hence 1-3 different available measuring points can be selected from 13 different measuring parameters in a multiplicity of combinations. The advantage: As a complete plug&play module they are quickly and easily installed and immediately ready for use.



## DULCOTROL® Potable Water / Food and Beverage Industry

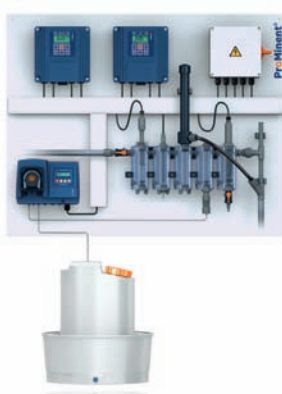
This product range is specifically tailored to the stringent requirements of the potable water and food and beverage industries.

- Also fulfils all the requirements for rinsing, raw and process water treatment

## DULCOTROL® Waste Water

The measuring and control systems DULCOTROL® Waste Water deliver perfectly clarified waste water in all sectors of industry.

- Typical applications are for example pH neutralisation and pH value adjustment, disinfection of purified water, waste water detoxification and monitoring of rinsing water



## DULCOTROL® Free Chlorine – pH Independent

If free chlorine has to be measured and pH values are available, which are either unstable or  $> 8.0$ , the measuring and control system DULCOTROL® Free Chlorine is the product of choice, regardless of the pH.

- The pH value of the water to be measured can be lowered and stabilised by metering a pH buffer solution





## Selection Guide

The DULCOTROL® selection guide gives an overview of the correct solution for the applications mentioned.

DULCOTROL® Potable Water / Food and Beverage Industry	Treatment of potable water, water similar to potable water and treatment of the rinsing, raw and process water in the food and beverage industry	<ul style="list-style-type: none"> <li>■ Disinfection</li> <li>■ CIP</li> <li>■ pH value adjustment</li> <li>■ Monitoring</li> </ul>
DULCOTROL® Waste Water	Treatment of industrial and municipal waste water	<ul style="list-style-type: none"> <li>■ pH neutralisation</li> <li>■ Disinfection</li> <li>■ Detoxification</li> <li>■ Desalination of process water</li> <li>■ Control of dissolved oxygen</li> <li>■ Monitoring</li> </ul>
DULCOTROL® Free Chlorine – pH Independent	All applications with clear, uncontaminated water where there are unstable pH values or pH values of > 8.0	

You can get detailed information about the mode of operation and technical specifications for measuring, control and sensor technology from ProMinent on the Internet and in volume 2 of the product catalogue, *Measuring, Control and Sensor Technology*. Here you can also find information about matching accessories and spare parts as well as information for ordering individual products.

# All-Rounders for All Capacity Ranges: Motor Driven and Process Metering Pumps

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## **Adapted to Extreme Requirements**

Industrial applications of fluid metering technology are many and varied. They are often critical and each industry has its own specific requirements. Independent of whether a reliable pump is required for a routine or complex application, our product range of motor driven and process metering pumps offers an outstanding selection both in breadth and quality.

Process and operating safety have top priority in industrial applications, which is why our powerful pumps stand out because of their dosing precision, robustness and durability. However, just as impressive is their efficiency, economy and flexibility, clear advantages for our customers across a huge variety of application options.



# Overview: Motor Driven Metering Pumps for All Capacity Ranges

We offer a wide selection of universal motor driven metering pumps for applications extending from industrial routine processes in the low pressure range through to fluid handling of very large capacities of over 1,000 l/h: Whether metering disinfectant in potable water treatment and cooling circuits, flocculants in waste water treatment or metering additives in the paper industry, they represent robust technology and efficient processes.



**Motor Driven Metering Pump Vario C**

Vario C is a very robust motor driven metering pump with high process quality for continuous metering as part of straightforward metering tasks.

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



**Motor Driven Metering Pump Sigma/ 1, S1Ba**

Sigma Basic Types offer a diverse range of drive variants. They are approved for use in Exe and EXde areas with ATEX certification. Left liquid end selectable.

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



**Motor Driven Metering Pump Sigma/ 2, S2Ba**

Sigma Basic Types offer a diverse range of drive variants. They better ensure a high level of process quality through the reproducibility of metering  $\pm 2\%$ .

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



**Motor Driven Metering Pump Sigma/ 3, S3Ba**

Sigma Basic Types offer a diverse range of drive variants. An integrated relief valve protects against overloading.

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



## Motor Driven Metering Pumps Sigma (Control Type)

The entire product range impresses thanks to ingenious new features, providing our customers with an overall significant increase in ease of use, safety and efficiency. All Sigma pumps (Control Type) come as standard with a removable operating unit, intelligent metering profiles, a patented multi-layer diaphragm and an internal overload cut-off. Other equipment features: manual operation, external contact control, process timer and BUS interface.



### Motor Driven Metering Pump **Sigma/ 1, S1Cb**

The smallest motor driven metering pump in the Sigma product range for continuous metering and for outside use is available in various designs.

- Capacity range: 17 – 117 l/h, 12 – 4 bar



### Motor Driven Metering Pump **Sigma/ 2, S2Cb**

The middle Sigma metering pump with patented multi-layer diaphragm is used for the medium capacity ranges.

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



### Motor Driven Metering Pump **Sigma/ 3, S3Cb**

The high performance Sigma metering pump is also ideally suited to the capacity range of 1,000 l/h and above and as such completes the Sigma range.

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

### The New Highlights

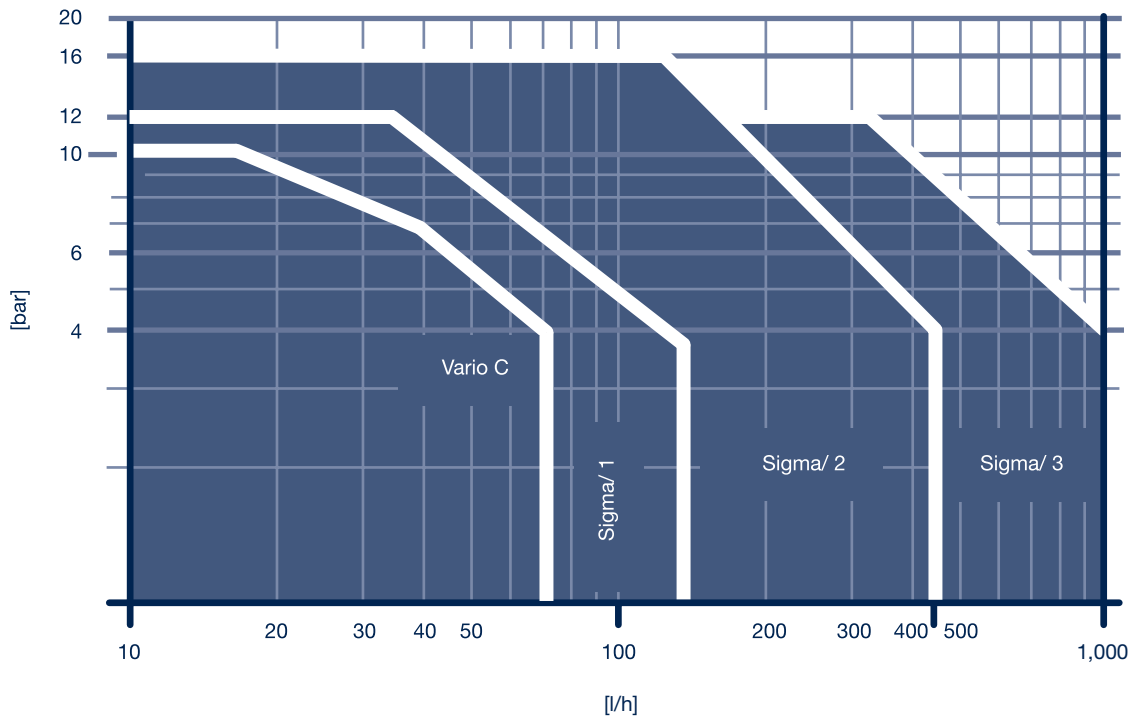
- Removable control unit
- Metering profiles for optimum results
- Automatic overload cut-off as pump protection function
- Fitted as standard with multi-layer diaphragm

## Selection Guide Motor Driven Metering Pumps

The pre-selection of the correct metering pump in the low pressure range up to approximately 1,000 l/h depends on the application. The selection guide helps you to "filter out" the right model for your needs. All oscillation diaphragm pumps have a leak-free, hermetically sealed metering room and an identical operating structure.

## Pump Guide

To help you quickly find the right pump for your application, use our online selection guide under [www.pump-guide.com](http://www.pump-guide.com). Simply enter the pump capacity, back pressure and frequency – and that's it! A selection of suitable pumps is automatically displayed for you.





# Overview: Process Metering Pumps for All Capacity Ranges

The high capacity process metering pumps are especially tailored to high-end applications in the petrochemical, oil and gas industries: for metering of toxic, corrosive and flammable liquids under very high pressures and at extreme temperatures. Advanced technology for demanding applications.



## Diaphragm Process Metering Pump ProMinent EXtronic®

ProMinent EXtronic® is perfectly suited to the metering of liquid media in gas-explosive facilities as well as for firedamp-endangered mining operations.

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



## Hydraulic Diaphragm Metering Pumps Hydro

The hydraulic diaphragm process metering pump is available in several designs and is suitable for a multiplicity of applications. Newly developed especially for higher capacity ranges, the Hydro/ 4 completes the product range.

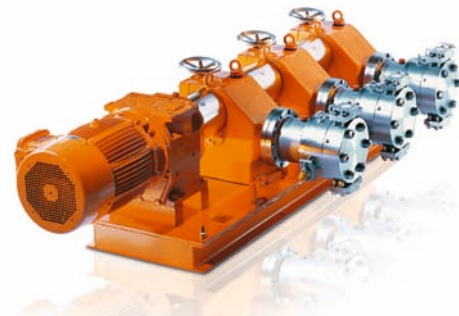
- Capacity range Hydro/ 2: 3 – 72 l/h, 100 – 25 bar
- Capacity range Hydro/ 3: 10 – 180 l/h, 100 – 25 bar
- Capacity range Hydro/ 4: 130 – 1,450 l/h, 25 – 7 bar



**Valveless Plunger Metering Pump Orlita® DR**

Orlita® DR has a valveless dosing plunger head, which meters by way of a superimposed oscillating and rotating piston movement.

- Capacity range (2 product ranges): 0 – 4,000 l/h, 400 – 4 bar



**Hydraulic Diaphragm Metering Pump Orlita® MF**

Comprising the function groups step-up gear unit, crank drive and liquid end, the modular metering pump Orlita® MF can be attached to any drive mechanism.

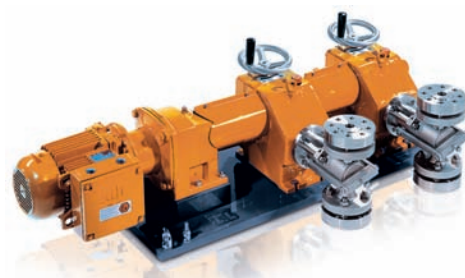
- Capacity range (6 product ranges): 0 – 30,000 l/h, 700 – 7 bar



**Hydraulic Diaphragm Metering Pump Orlita® MH**

The Orlita® MH metering pump is just as flexible in its use as the MF product range, but is designed for maximum pressure.

- Capacity range (6 product ranges): up to 800 l/h, up to 700 bar



**Hydraulic Diaphragm Metering Pump Orlita® PS**

Orlita® PS is characterised by a particularly high hydraulic efficiency and can be used over a wide temperature range.

- Capacity range (6 product ranges): 0 – 37,000 l/h, 400 – 4 bar





**Diaphragm, Hydraulic Diaphragm, Plunger Metering Pumps Makro TZ**

This metering pump series 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, Hydraulic Diaphragm, Plunger Metering Pumps Makro/ 5**

Likewise modularly expandable, with Makro/ 5 there is an additional product range available with diaphragm, hydraulic diaphragm or plunger metering pumps, 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 Orlita® Evolution 3**

The process hydraulic diaphragm metering pump Orlita® Evolution 3 is an oscillating diaphragm pump with hydraulically deflected safety diaphragm. Reliable diaphragm position control combined with the integrated pressure relief valve and temperature control protect the robust process pump against nearly all possible malfunctions.

Special characteristics:

- New mechanical diaphragm position control
- Wide range of combination options with multiple pumps
- Hydraulic and mechanical design according to API 675
- Pump capacity: 25 – 1,335 l/h at max. stroke
- Pressure range: 353 – 18 bar



**Process Diaphragm,  
Process Plunger Metering Pump TriPower**

Thanks to its exceptionally compact design, the TriPower MF offers a lot of performance for a very small size.

- TriPower MF: Capacity range 4 – 38 m<sup>3</sup>/h;  
415 – 50 bar



**Process Diaphragm Metering Pump  
Zentriplex**

The process metering pump Zentriplex is an oscillating multi-cylinder process diaphragm metering pump providing high capacities and high efficiency yet with an extremely small footprint. Unlike the conventional design, the diaphragm dosing heads and hydraulic units are arranged in a star formation around the drive mechanism.

- Compact size, low weight
- Excellent energy efficiency
- Capacity range: 424 – 8,000 l/h,  
367 – 36 bar



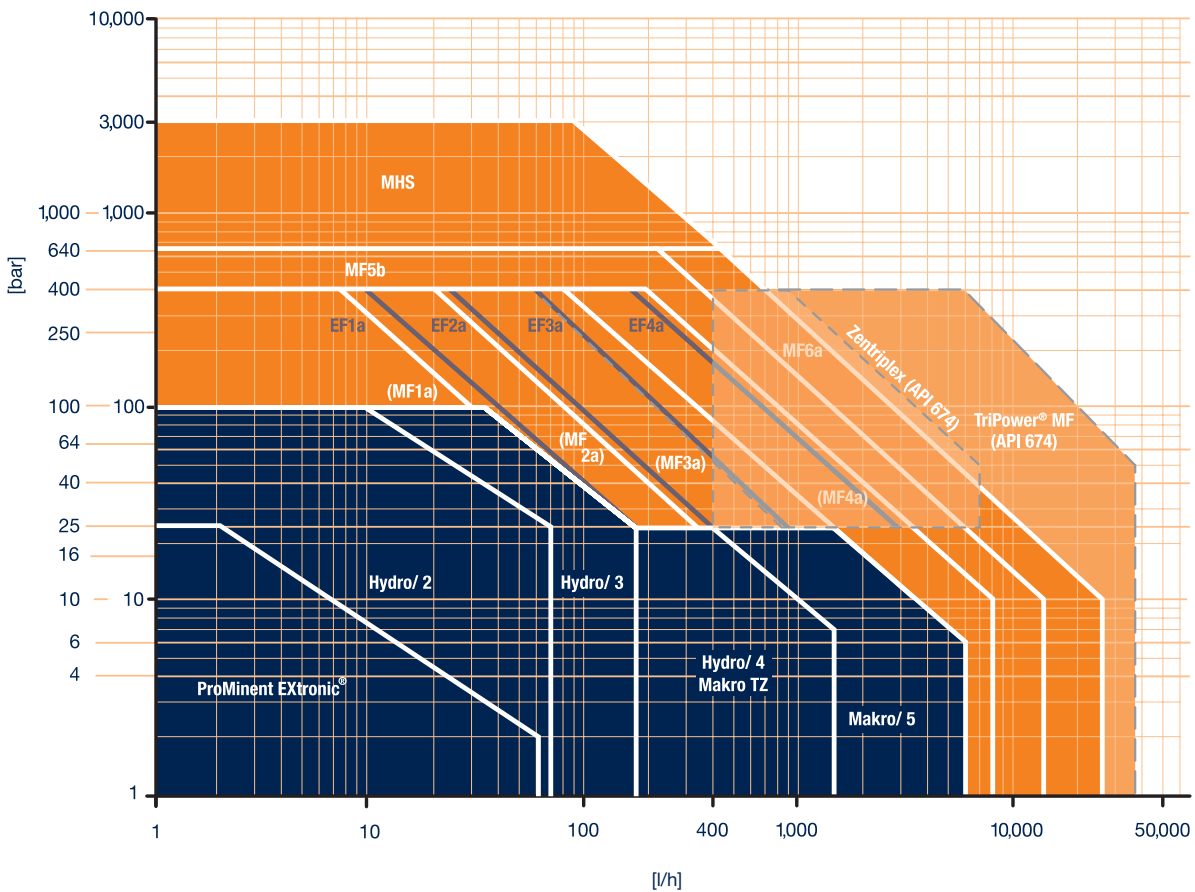
## Selection Guide for Process Metering Pumps

For each type of industrial application ProMinent has several solutions available. Using the selection guide you can determine precisely the right pump for your application.

You can get detailed information about the mode of operation and technical specifications for motor and process metering pumps from ProMinent on the Internet and in volume 3 of the product catalogue, *Motor Driven and Process Metering Pumps for All Capacity Ranges*. Here you can also find information about matching accessories and spare parts as well as information for ordering individual products.

## Pump Guide

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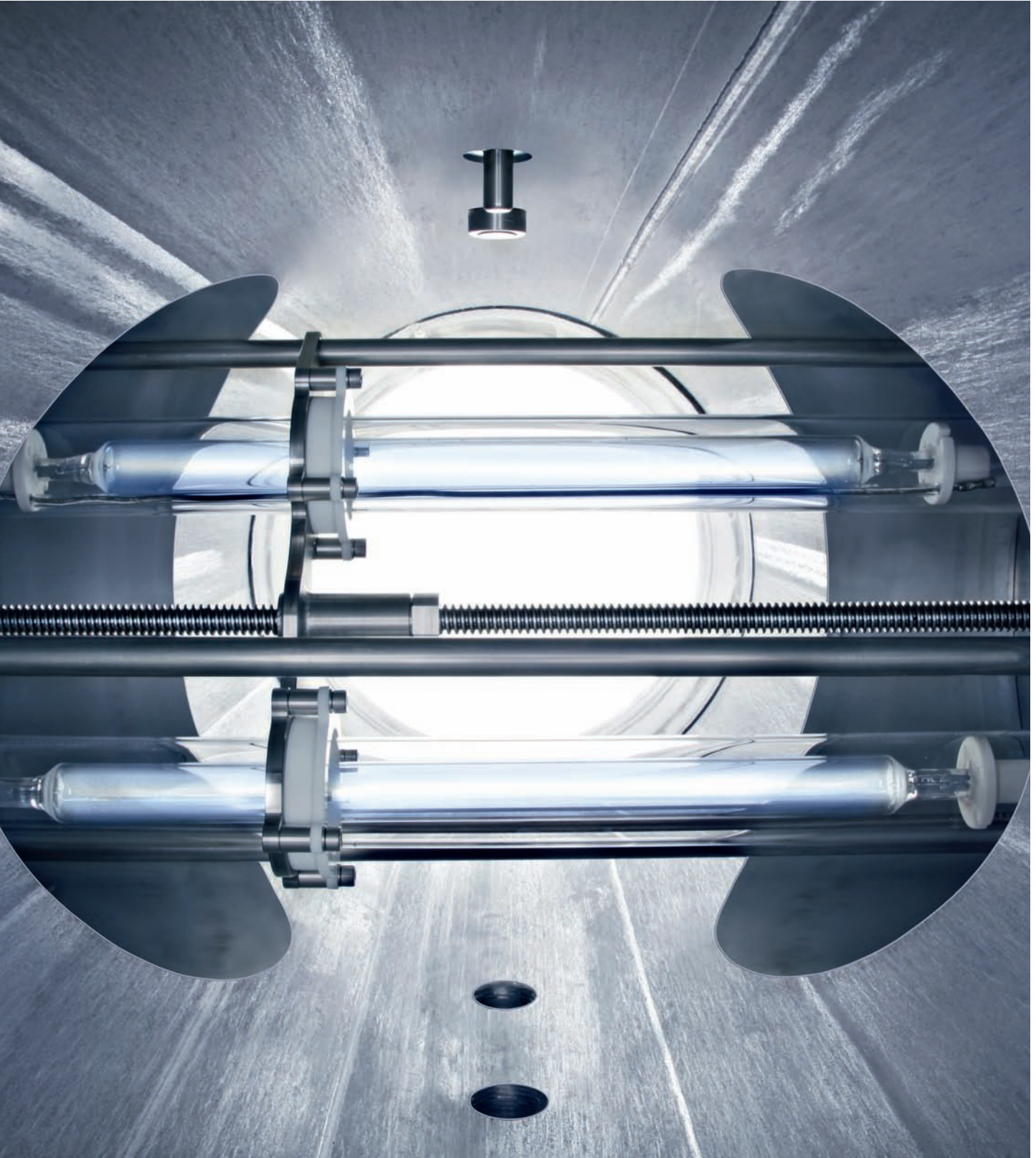
# Responsibility for the Future: Water Treatment and Water Disinfection

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## Hygienic Pure Water at Any Time

The result of our research and development work on all standard technologies used in the preparation of hygienic pure water is our range of ProMaqua® products and systems. Combined with our many years of practical experience and industry-specific knowledge, the result is application-orientated solutions that are characterised by optimum sustainability, minimum operating costs and maximum efficiency. A clear leap in performance with ProMaqua® Smart Disinfection: **Low impact. Less cost. High efficiency.**

Our experts assemble precisely the system our customers need to optimally match the application in question based on a huge range of available products. As a single source supplier our product offering extends from metering pumps for all capacity ranges through to measuring and control technology, membrane filtration systems and established disinfection processes, all in the form of efficient, safe and high tech complete solutions. Of course the offer also includes worldwide technical support.



# Overview: UV Systems

Where oxidation and disinfection are concerned, a comprehensive product range for all processes is at your disposal. Our UV systems Dulcodes are particularly safe for humans and are environmentally-friendly: Completely chemical-free, the UV radiation alone produces microbiologically bacteria-free water and there are no harmful disinfectant side products.



## UV System Dulcodes A

The new UV system Dulcodes A is suitable for the treatment of potable water, swimming pool water and raw water.

- Extensive certification: NSF 50, UVDGM 2006, UL 508, CSA 22
- Electronic ballasts ensure maximum energy efficiency and make it possible to match the power to the flow (up to 739 m<sup>3</sup>/h)



## UV System Dulcodes S

The equipping of the S product range with Powerline medium-pressure lamps permits the efficient treatment of large water quantities.

- For breaking down chloramines in swimming pool water or chlorine, chlorine dioxide and ozone in production water at flows of up to 569 m<sup>3</sup>/h



## UV System Dulcodes Z

Dulcodes Z UV systems are DVGW and ÖVGW certified. For safe, state of the art, globally approved potable water disinfection.

- Economical Opti-Flux lamp with 14,000 h service life for irradiation of potable, process and product water at flows of up to 230 m<sup>3</sup>/h



**UV Systems Dulcodes W, R and P**

Dulcodes W, R and P are proven standard solutions for the disinfection of potable and raw water and for breaking down chloramines in swimming pool water.

- Dulcodes W: suitable for universal use at flows up to 600 m<sup>3</sup>/h
- Dulcodes R: with wiper system for the simple and quick cleaning of water where there is a tendency for deposits to form
- Dulcodes P: for lower flows up to 4 m<sup>3</sup>/h

**UV Systems Dulcodes D and K**

Dulcodes D thin-layer systems guarantee the safe disinfection of low-transmission media. Because of their corrosion resistance Dulcodes K plastic systems are ideally suited to saline water. Through the use of high power lamps, a higher output range is achieved with a lower number of lamps.

- Dulcodes D: safe even with fluctuating water quality in the low transmission range
- Dulcodes K: for the treatment of saline water such as thermal or seawater

**Performance Overview: UV Systems**

The following performance overview of the Dulcodes UV systems shows the performance and typical key applications of the standard systems.



# Overview: Ozone Systems

The main application areas of ozone are the treatment of potable and swimming pool water, water treatment in the food and beverage industry as well as for treating cooling/process water and combating legionella. Inorganic substances such as iron and manganese can be removed without problem, and ozone also has outstanding disinfection properties with respect to bacteria and viruses.



**Ozone System OZONFILT® OZVa**

The OZVa type series can be used almost universally. It can use air or oxygen as an operating gas.

- Capacity range: 5 – 90 g ozone/h



**Ozone System OZONFILT® OZMa**

The compact ozone generation systems from the OZONFILT® OZMa product range are characterised by maximum reliability and minimum operating costs.

- Capacity range: 70 – 735 g ozone/h



**Ozone System OZONFILT® Compact OMVa**

Ozone systems OZONFILT® Compact OMVa offer turnkey ozone treatment with compact outside dimensions and optimised components for many applications.

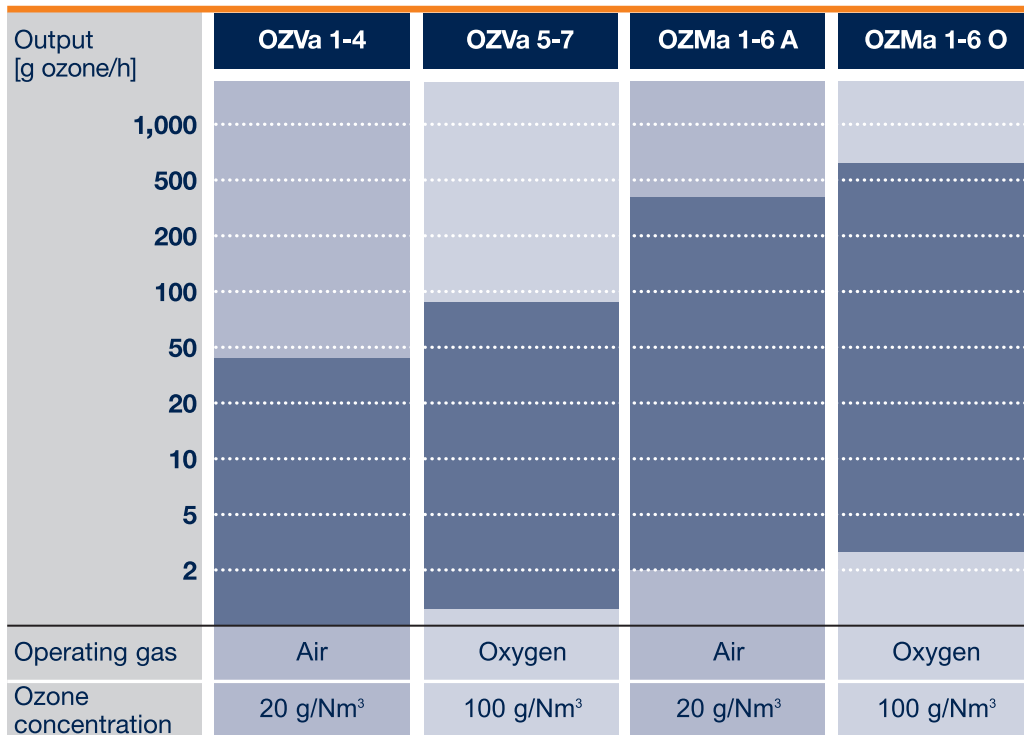
- Capacity range: 5 – 70 g ozone/h





## Performance Overview: Ozone Systems

You can determine which ozone system is most suitable for which operating gas and ozone output from the performance overview.



# Overview: Chlorine Dioxide Systems

Due to its depot effect, chlorine dioxide provides long lasting microbiological protection, for example in drinking water supplies. Our chlorine dioxide systems produce a very reactive and highly-effective oxidising agent or disinfectant directly at the place of use. To achieve the most economical solution across different capacity ranges, there is a wide range of products at your disposal.



**Chlorine Dioxide System Bello Zon® CDLb**

The system works in safe batch operation. The integral or separate storage module provides the solution for both continuous and intermittent metering tasks.

- Capacity range: 0 – 120 g chlorine dioxide/h and for flows up to 600 m<sup>3</sup>/h
- Optimum with multiple points of injection
- Disinfection for the food and beverage industry
- Prevents and combats legionella



**Chlorine Dioxide System Bello Zon® CDVc**

The connection-ready complete chlorine dioxide systems Bello Zon® CDVc ensure continuous water treatment and are ideal for medium to large water quantities.

- Capacity range: 1 – 2,000 g chlorine dioxide/h and for flows up to 10,000 m<sup>3</sup>/h
- Disinfecting tasks in potable water treatment and for applications in the food and beverage industry



**Chlorine Dioxide System Bello Zon® CDKc**

The system enables a particularly economical operation through the use of concentrated chemicals. The innovative pre-dilution module for the hydrochloric acid ensures particularly safe operation while simultaneously reducing operating costs.

- Capacity range: 8 – 12,000 g chlorine dioxide/h and for flows up to 60,000 m<sup>3</sup>/h
- For potable water, process water and cooling circuits



**Chlorine Dioxide System Bello Zon® CDEa**

The chlorine dioxide systems Bello Zon® CDEa are used in the continuous production and metering of chlorine dioxide using diluted chemicals. The system impresses thanks to its simple operation and clear construction.

- Capacity range: 5 – 140 g chlorine dioxide/h
- Maximum operating safety, thanks to stroke length-monitored pumps using individual stroke monitoring



## Performance Overview: Chlorine Dioxide Systems

Here you will find the right system for every application. However, if your specific application area is not represented, please contact our experts.

Type [g/h]	CDLb	CDEa	CDVc	CDKc
15,000				
10,000				8 – 12.000
5,000				
1,000			1 – 2.000	
500				
100	0 – 120	5 – 140		
50				
10				
5				

### 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

Technically proven and exceptionally environmentally friendly, our electrolysis systems process completely harmless cooking salt to produce chlorine, hydrogen and sodium hydroxide. Directly on site and completely without any transport, storage or handling of chemicals.



## Tubular Cell Electrolysis System CHLORINSITU® II

CHLORINSITU® II type systems are robust systems which are used wherever clearly arranged technology is required and where the spilling of cooking salt into the water to be treated is not a problem.

- Simple technology, compact design



## Diaphragm Electrolysis System CHLORINSITU® III

The optimised electrolysis system is used when a high-purity and low-chlorate sodium-calcium hypochlorite solution is required.

- System control with remote diagnostics by remote control engineer
- Storage tank for several points of injection



## Diaphragm Electrolysis System CHLORINSITU® III Compact

For the production of sodium-calcium hypochlorite for smaller swimming pools in hotels and for private pools.

- Robust, simple technology



## Diaphragm Electrolysis System CHLORINSITU® IV Compact

The product range CHLORINSITU® IV Compact produces high-purity chlorine gas in a vacuum process.

- Chlorination and pH value adjustment in a single system



**Electrolysis System CHLORINSITU® V**

This system produces high-purity active chlorine in a vacuum process. CHLORINSITU® V is suited to applications for metering hypochlorous acid and simultaneously correcting the pH value.

- Chlorination and pH value adjustment with a single system
- Exceedingly low chloride and chlorate content



**Electrolysis System CHLORINSITU® V Plus**

Electrolysis systems CHLORINSITU® V Plus produce high-purity active chlorine in combination with a sodium hypochlorite solution.

- Chlorination and pH value adjustment with a single system
- Exceedingly low chloride and chlorate content
- Stores sodium hypochlorite solution to cover peak demand



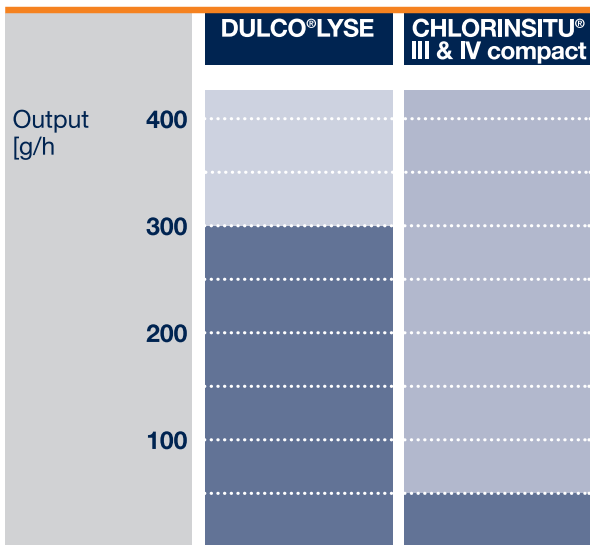
**Electrolysis system Dulco®Lyse for the production of DulcoLyt 400 (ECA water)**

Compact electrolysis systems Dulco®Lyse are used for the efficient production of DulcoLyt 400 (ECA water) with an exceptionally low chloride and chlorate content. Low chloride means maximum protection against corrosion and maximum economy.

- Extremely low chloride and chlorate content for maximum protection and corrosion-free system technology
- Environmentally friendly, highly effective disinfection
- Sustainable freedom from germs, without any transport, storage or handling of concentrated chemicals

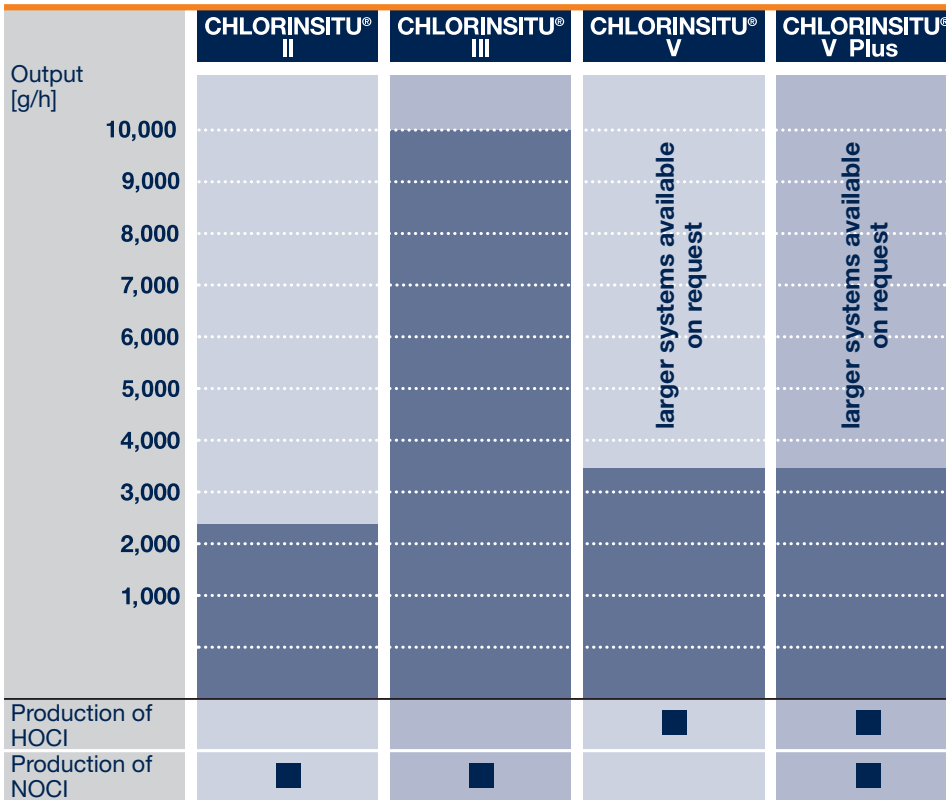
## Performance Overview: Electrolysis Systems

We offer different solutions for potable, process and swimming pool water dependent on the capacity range.



### Application

Food and beverage industry	■	
Potable water		■
Cooling tower		■
Swimming pool		■



### Applications

Potable water	■	■	■	■
Waste water	■	■	■	■
Process water	■	■	■	■
Swimming pool water	■	■	■	■
Cooling tower		■	■	■

# Metering Systems for Swimming Pool Water Treatment

The automatic measuring, control and metering systems DULCODOS® Pool continuously measure the parameters required for crystal-clear swimming pool water. Based on these measured values, precisely the amount of chemicals required are automatically metered.

## Benefits

- Simple, quick assembly
- Simple, menu-driven operation
- Constantly good water quality
- Versatile monitoring functions



### DULCODOS® Pool Soft

DULCODOS® Pool Soft uses no chlorine chemicals. It uses active oxygen compounds, which are less effective than chlorine. The metering system is especially suited to less frequented private pools.



### DULCODOS® Pool Basic

DULCODOS® Pool Basic regulates the pH value and chlorine content via the ORP. The ORP is the direct measurement of effective oxidation in the water and is therefore an indication of the disinfectant effect and concentration of the metered chlorine.



### DULCODOS® Pool Comfort

DULCODOS® Pool Comfort uses highly specific chlorine measuring cells to control the chlorine content. The concentration of chlorine in the water can be determined and set with accuracy. The effectiveness of the pool filter is boosted by an integrated feeder assembly for flocculant.



### DULCODOS® Pool Professional

In addition to the features described above, DULCODOS® Pool Professional also measures the combined chlorine. This is an important parameter in public pools. It is a complete system for the individual adjustment and monitoring of all standard hygiene-relevant variables in public pools, such as pH, ORP and free and combined chlorine.



# Overview: Membrane Filtration Systems

Membrane filtration is a key process in many industries and applications. We therefore offer a wide spectrum of application-orientated variants for ultra and nano filtration as well as reverse osmosis, including pre- and post-treatment precisely matched to the filtration system.



**Ultrafiltration System Dulcoclean® UF**

Dulcoclean® UF and UF eco reliably separate out even the finest particles and suspended matter.

- Very high retention rates of 99.99% for bacteria (calculated for MS2 phages) and viruses



**Nanofiltration System Dulcosmose® NF**

This product line is an economical alternative to softening and partial desalination. It is primarily used in drinking water treatment, but also in many other industrial applications.

- Specific application areas, e.g. softening, partial desalination and elimination of multiple charged anions such as sulphates or phosphates



**Reverse Osmosis System Dulcosmose® ecoPRO**

Dulcosmose® ecoPRO was developed for potable water demineralisation in industrial applications.

- Outstanding price-performance ratio due to high degree of standardisation



**Reverse Osmosis System Dulcosmose® TW**

Dulcosmose® TW systems are universally applicable for the demineralisation of potable water in multiple industrial applications.

- Maximum flexibility due to customer-specific design



### Reverse Osmosis System Dulcosmose® BW

The economical BW product range was developed specifically for well water demineralisation for the supply of potable water and for industrial applications.

- Low operating costs due to efficient operation using the latest generation of low pressure diaphragms and outputs of up to 80 %



### Reverse Osmosis System Dulcosmose® SW

Dulcosmose® SW systems are used for seawater desalination for the supply of potable water and for industrial applications.

- Using the latest generation of heat recovery systems, they ensure maximum energy efficiency

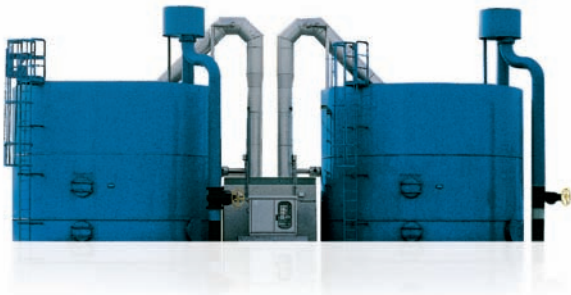
## Performance Overview: Reverse Osmosis

We sub-divide the performance overview of our products according to capacity ranges and raw water types: ecoPro – the standard system for drinking water treatment, TW: potable water, BW: brackish water, SW: seawater.

Type	ecoPRO	TW	BW	SW
Permeat-output [m³/h]	50			
	25			
	10			
	5			
	2.5			
	1			
	0.5			
	0.25			
	0.1			
Salinity feed water	< 1,000 mg/l	< 1,000 mg/l	< 5,000 mg/l	< 40,000 mg/l

## Overview: Gravity Filtration Systems

Whether for cooling water filtration, the treatment of river, operating or potable water or the removal of iron from well water, our gravity filtration systems are suitable for nearly all filtration tasks. No energy consumption, no wear parts, no consumables – you will not find a more economical method for water treatment.



### INTERFILT® SK

The gravity filter INTERFILT® SK is an open sand filter system, which carries out countless filtration tasks and is highly impressive thanks to its extremely economical and simple mode of operation.

- Sample applications: Partial flow cooling water filtration, river water, operating and drinking water treatment, well water iron removal

You can get more detailed information, technical details and instructions for comprehensive consultancy services from ProMinent on the Internet and in volume 4 of the product catalogue, *Water Treatment and Water Disinfection*. Here you can also find information about matching accessories and spare parts as well as information for ordering individual products.

# ProMinent: The 2015 Range

## Order Your Personal Copy of the ProMinent Product Catalogue 2015

Your application, our solution.

Our product catalogue is available in four individual volumes to help you quickly find what you are looking for. So that you can conveniently order your personal individual catalogue volume we offer a number of different ordering options.



**Volume 1**  
Metering Pumps, Components  
and Metering Systems



**Volume 3**  
Motor Driven and Process Metering Pumps  
for All Capacity Ranges



**Volume 2**  
Measuring, Control and  
Sensor Technology



**Volume 4**  
Water Treatment and  
Water Disinfection

You can find the ProMinent App for iPhone and iPad in the iTunes App Store or under [www.prominent.com/app](http://www.prominent.com/app)



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