ProMinent® Product Overview

Products for Storage, Transfer, Dosing, Measurement and Control

Printed in Germany, AL PM 054 01/08 GB

ProMinent®

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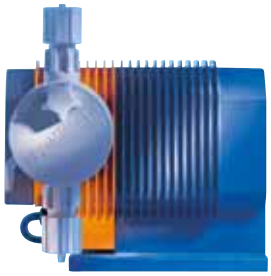
1.0.1 Product Overview



pk_1_135

alpha Motor-Driven Diaphragm Metering Pump

Output range 0.5 – 21.5 l/h, 10 – 4 bar

This metering pump is intended for simple applications. The pump is ideal for tasks involving continuous metering.

- Activation via power ON/OFF
- Stroke length adjustment in steps of 10 %

pk_1_136

Beta® Solenoid-Driven Diaphragm Metering Pump

Output range 0.74 – 32 l/h, 16 – 2 bar

This metering pump is convincing not only in terms of its versatility and reliability but also by the ideal price/performance ratio this allrounder offers.

- Manual operation and external contact activation
- Continuous stroke length adjustment
- Connection for 2-stage level switch

pk_1_137

gamma/ L Solenoid-Driven Diaphragm Metering Pump

Output range 0.74 – 32 l/h, 16 – 2 bar

This metering pump satisfies the most demanding requirements: Varied adjustment and activation options for standalone applications or use in complex bus-networked systems.

- Manual operation, external contact and analogue activation
- Continuous stroke length adjustment
- Connection for 2-stage level switch
- Optional PROFIBUS® interface and 14-day process timer

pk_1_138

delta® Solenoid-Driven Diaphragm Metering Pump

Output range 7.5 – 75 l/h, 16 – 2 bar

delta® Series with optoDrive® technology for highly effective adaptation to the metering task and monitoring of hydraulic periphery.

- Optional continuous or pulsating metering
- Integrated hydraulic monitoring functions
- Manual operation, external contact and analogue activation
- Continuous stroke length adjustment
- Connection for 2-stage level switch
- Large backlit graphic display
- Optional interfaces for PROFIBUS® or CAN-bus
- Optional 14-day process timer for time and event-dependent metering tasks

1.0 Overview Of Solenoid-Driven Metering Pumps

pk_1_141

mikro g/ 5a

Output range 150 – 1,500 ml/h, 40 – 6 bar

mikro g/ 5a is a solenoid-driven, microprocessor-controlled precision metering pump for all metering tasks in the microlitre range. The self-monitoring function of the electronics and the identification of external fault sources ensure maximum metering reliability.

- Manual operation, external contact and analogue activation
- Continuous stroke length adjustment, resolution < 1 %
- Connection for 2-stage level switch
- Micrometering as from 1 µl/stroke

P_PN_0007_C

Pneumados b

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

Pneumados is a pneumatically-operated metering pump in the capacity range of max. 0.76 - 16.7 l/h at a maximum backpressure of 16 - 2 bar.

The metering stroke is effected by a pneumatically actuated diaphragm, the suction stroke by spring force. The metering capacity can be varied via the stroke length and the stroke frequency.

- Continuous stroke length adjustment
- Material version PVDF and stainless steel
- Stroke frequency up to 180 strokes/min

DULCO®flex Peristaltic Pumps

DF2a

pk_1_143

Output range: 0.4 – 2.4 l/h, 1.5 bar

Typical applications include processes requiring lose delivery pressure such as in docent conditioners in private swimming pools. Spring-loaded rollers ensure a consistent rolling pressure while extending the service life of the pump.

- Rotor in cover mounted in ball bearings for longer service life
- Reliable dosing of small quantities, including gas-emitting chemicals
- Virtually silent operation

DF3a

P_DX_0004_C

Output range: 0.4 – 2.4 l/h, 1.5 bar

The DF3a was specifically developed for the purpose of dosing fragrances. It is equipped with relay outputs for two further metering pumps and three solenoid valves for the diluting water. Spring-loaded rollers ensure a consistent rolling pressure while extending the service life of the pump.

- Viton® hose material, used specifically for dosing fragrances in wellness application
- Program control for the pump and two further peristaltic pumps
- Virtually silent operation

1.0 Overview Of Solenoid-Driven Metering Pumps

P_DX_0005_C

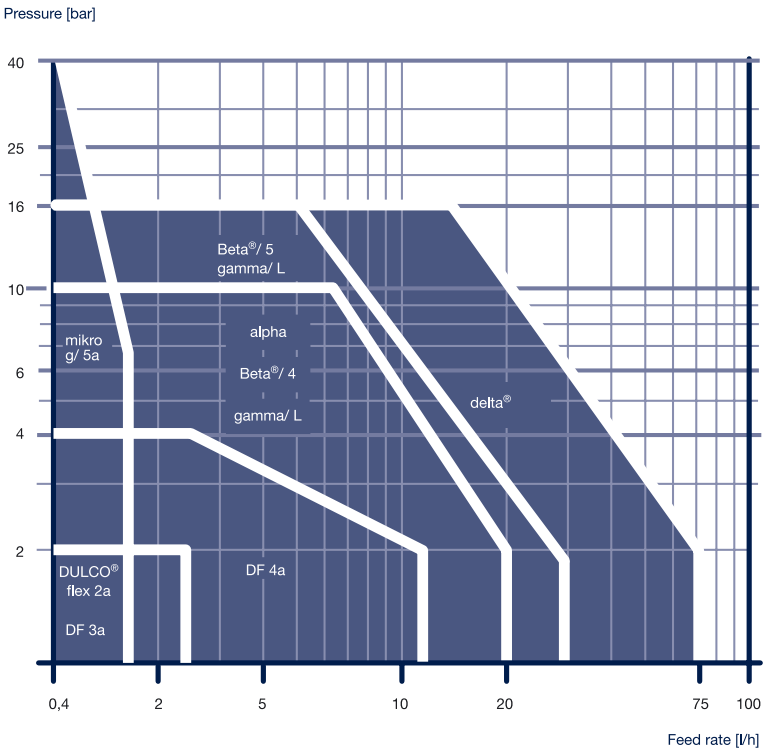
DF4a

Output range: 1.5 – 12 l/h, 4 – 2 bar

Stepper motor-operated peristaltic pump for metering chemicals. The pump is available in three versions which are geared to the specific application:

- Flocculent metering
- Activated carbon metering
- General chemical metering

1.0.2 Selection Guide



pk_1_999

Back pressure [bar] as a function of feed rate [l/h]

ProMinent offers a wide range of solenoid-driven metering pumps in the output range from 0.74 to 75 l/h at a backpressure of 16 – 2 bar. ProMinent solenoid-driven diaphragm pumps perform their metering task reliably even under the toughest operating conditions. Maintenance and repair costs are therefore kept low. With a wide range of different materials, these metering pumps are suitable for practically all liquid chemicals.

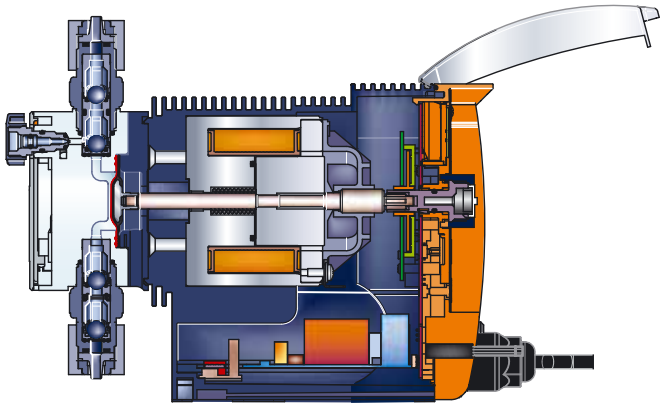
1.0 Overview Of Solenoid-Driven Metering Pumps

pk_1_140

Functional Principle/Features

A solenoid is switched on and off to move the magnetic spindle forward and backward. This stroke motion is transmitted to the metering diaphragm in the liquid end. Two non-return valves prevent the metered medium flowing back during pump operation. The metering capacity of a solenoid-driven diaphragm-type metering pump can be adjusted by way of the stroke length and the stroke rate.

- Virtually wear-free drive as there is only one moving part. Pump operates without lubricated bearings or shafts
- Outstanding continuous operation properties



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2.0 Overview Motor Driven Metering Pumps

2.0.1 Product Overview

pk_2_107

Vario C Motor Diaphragm Metering Pump

Capacity range 8 – 64 l/h, 10 – 4 bar

This metering pump is particularly suitable for use in applications requiring continuous metering. It is designed for simple metering tasks.

The Vario C is the basic model and does not feature integrated electronics. The drive motor is optionally available as a 3-phase 230/400 V, 50/60 Hz, 1-phase 230 V, 50 Hz or 1-phase 115 V 60 Hz motor.

With the PVDF or stainless steel liquid end, virtually universal resistance to chemicals is ensured in a diverse range of applications.

pk_2_108

Sigma/ 1 Motor Diaphragm Metering Pump

Capacity range 17 – 120 l/h, 12 – 4 bar

This metering pump is available as the basic version without its own internal electronics and in a microprocessor-controlled version. The pump covers the lower output range of the Sigma series.

The basic version is suitable for continuous metering tasks or for use in explosion hazard areas.

The control version offers many control and signalling options such as

contact activation, analogue control,

PROFIBUS® DP interface,

diaphragm failure signalling etc.

The vast variety of options is spedified in the identcode.

pk_2_109

Sigma/ 2 Motor Diaphragm Metering Pump

Capacity range 48 – 350 l/h, 16 – 4 bar

With an output of up to 420 l/h, this metering pump covers the medium performance range of the Sigma series.

The basic version is suitable for continuous metering tasks or for use in explosion hazard areas.

The control version offers many control and signalling options such as

contact activation, analogue control,

PROFIBUS® DP interface,

diaphragm failure signalling etc.

The vast variety of options is spedified in the identcode.

2.0 Overview Motor Driven Metering Pumps

pk_2_110

Sigma/ 3 Motor Diaphragm Metering Pump

Capacity range 145 – 1030 l/h, 12 – 4 bar

With an output of up to 1.030 l/h, this metering pump is the high-performance model of the Sigma series. All Sigma pumps are available in the basic version and in a microprocessor version.

The basic version is suitable for continuous metering tasks or for use in explosion hazard areas.

The control version offers many control and signalling options such as

contact activation, analogue control,

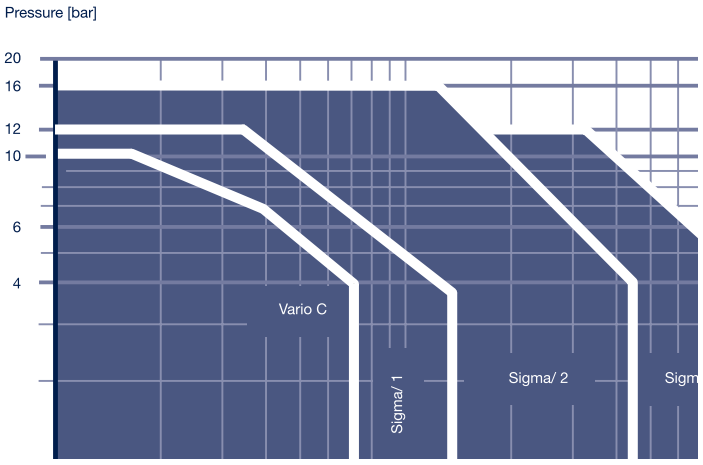
PROFIBUS® DP interface,

diaphragm failure signalling etc.

The vast variety of options is spedified in the identcode.

2.0 Overview Motor Driven Metering Pumps

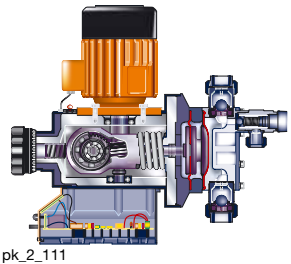
2.0.2 Selection Guide



pk_2_diagramm

Back pressure [bar] as a function of feed rate [l/h]

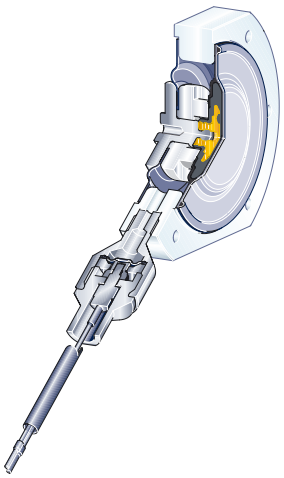
ProMinent offers an extensive range of metering pumps with an capacity rating of up to 1.000 l/h. All oscillating positive-displacement pumps feature a leak-free, hermetically sealed metering chamber and an identical operating structure.



pk_2_111

Applications

- General: Chemical feed and metering up to 1000 l/h
- Drinking water treatment: Metering of disinfectants
- Cooling circuits: Metering of disinfectants
- Waste water treatment: Metering of flocculants
- Paper industry: Metering of additives
- Plastics manufacturing: Metering of additives



pk_2_112

Features

- Extremely wide performance range
- High degree of metering accuracy even under fluctuating pressure conditions (pressure-stable characteristic) for effective saving of chemicals and exact process control
- Sturdy and inexpensively priced drive unit with high output ratings
- Simple integration and retrofitting in automated processes through flexible activation via stroke length and motor speed control
- Maximum reliability ensured by double diaphragm system and integrated overload safeguard

3.0 Overview Process Metering Pumps

3.0.1 Product Overview

pk_2_131

Diaphragm Metering Pump EXtronic®

The metering of liquid media in explosive areas makes extremely high demands on the components used.

The metering pumps of the series ProMinent EXtronic®, Zone 1, Group II, as well as in the version EXBa S for firedamp-endangered mining operations are optimally designed for use in explosive operating sites.

Capacity range: 0.23 - 60 l/h; 25 - 1.5 bar

pk_2_132

Hydraulic Diaphragm Metering Pumps Hydro

The optimal solution in the lower capacity range up to 100 bar. The two series Hydro/ 2 and 3 can be flexibly combined as single-end, double end or multiplex station. In the standard version with multilayer safety diaphragm and integrated overflow valve, the pump meets the highest safety requirements.

Standard material combinations

- PVT (PVDF liquid end/PFTE multilayer diaphragm)
- SST (SS liquid end/PFTE multilayer diaphragm)
- HCT (Hastelloy liquid end/PFTE multilayer diaphragm)
- Capacity range Hydro/ 2: 3 - 72 l/h; 100 - 25 bar
- Capacity range Hydro/ 3: 10 - 180 l/h; 100 - 25 bar

pk_2_133

Diaphragm, Hydraulic Diaphragm, Plunger Metering Pumps Makro TZ

The right modular solution for any application, be it simple, mechanical diaphragm pumps or high-tec hydraulic diaphragm pumps or highly robust plunger pumps. In the pressure range up to 10 bar, a.o. highly chemical-resistant plastics for the liquid end types are standardised, e.g. PP, PVC, PTFE.

- Capacity range TZMb (mech. actuated diaphragm pump): 260 - 2.100 l/h; 12 - 4 bar
- Capacity range TZHb (hydr. actuated diaphragm pump): 300 - 1.200 l/h; 16 - 10 bar
- Capacity range TZKa (plunger metering pump): 8 -1.141 l/h; 320 - 11 bar

pk_2_134

Diaphragm, Hydraulic Diaphragm, Plunger Metering Pumps Makro/ 5

The Makro/ 5 is a powerful metering pump for numerous types of applications, available as mechanically linked diaphragm pump, high-tec hydraulic diaphragm pump and highly robust plunger pump.

The basic version can be upgraded with modules to a double liquid end or multiplexed station.

- Capacity range M5Ma (mech. actuated diaphragm pump): 1.540 -4.000 l/h; 4 bar
- Capacity range M5Ha (hydr. actuated diaphragm pump): 450 - 6.000 l/h; 25 - 6 bar
- Capacity range M5Ka (plunger metering pump): 38 - 6.000 l/h; 320 - 6 bar

pk_2_135

Hydraulic Diaphragm Metering Pump ORLITA® MF

The metering pumps of the MF series are modular in construction and basically comprise drive mechanism, crank and liquid end as separate functional groups. The hydraulic diaphragm liquid end is equipped with a PTFE dual diaphragm system with integrated rupture indicator. An integrated relief valve protects the pump against overload.

The pumps have an extraordinary suction capacity (up to 8 m suction height).

They guarantee trouble-free operation thanks to a pump-internal overflow and diaphragm protection and thanks to a valveless and almost nonwearing anti-cavitation device.

The standard capacity range of the 6 MF series is: 2 l/h - 28 m^3/h at 700 – 9 bar

3.0 Overview Process Metering Pumps

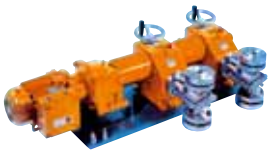
pk_2_136

Hydraulic Diaphragm Metering Pump ORLITA® Mh

Like the MF series, this pump is also extremely flexible in its application, however, designed for highest pressures (up to 3.000 bar). The pump ends are equipped with dual stainless steel diaphragms, designed for maximum operational reliability, are low-wear and can be fitted without special tools.

A relief valve as well as an automatic vent valve for the hydraulic chamber are integrated in the pump end. The valveless forced anti-cavitation of leaked hydraulic fluid is non-wearing and guarantees optimum metering accuracy.

The standard capacity range of the 6 Mh series is: 1 - 773 l/h; pressure up to 900 bar (special version up to 3.000 bar).



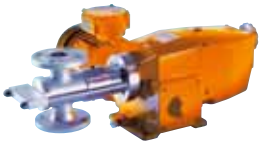
pk_2_137

Plunger Metering Pump ORLITA® PS

The PS pump series convinces by a particularly high hydraulic efficiency, excellent self-cleaning, and a low pressure loss. The PS pumps can be used in a wide range of temperatures (up to 400 °C), are easy to maintain, attractively priced and robust.

The plunger packing can also be adjusted in operation using the front clamp screw.

The standard capacity range of the 6 series is: 1 l/h - 37m^3/h; 400 - 8 bar.



pk_2_138

Valveless Plunger Metering Pump ORLITA® DR

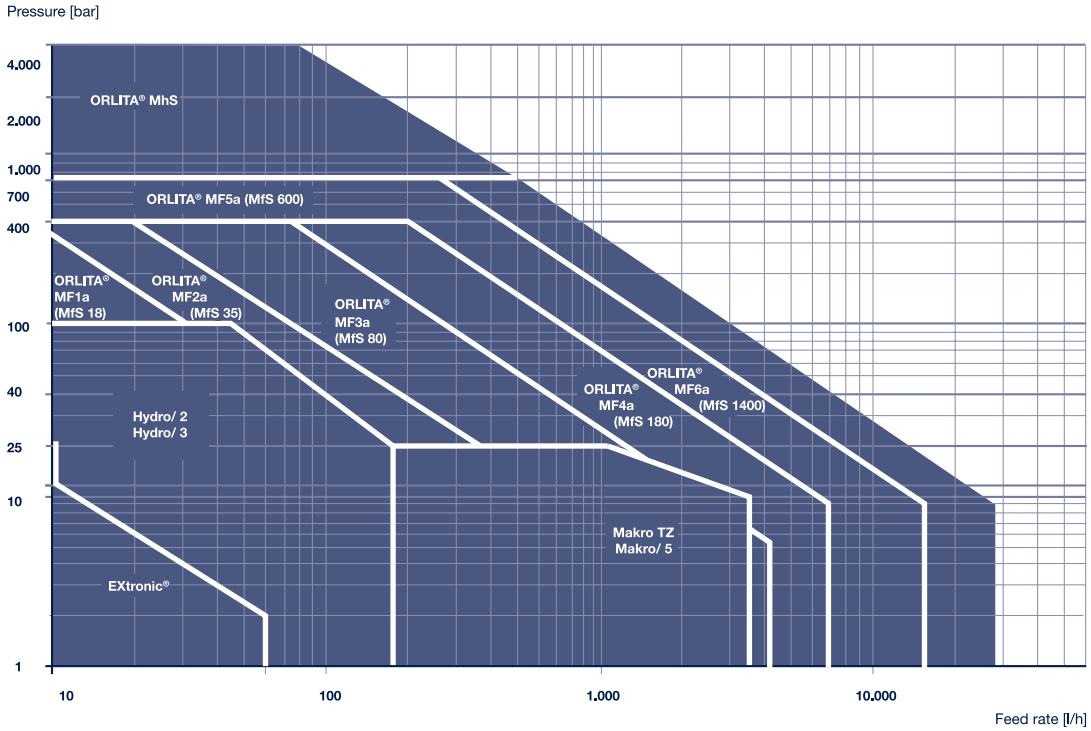
Valveless plunger-type metering end. It functions by means of a simultaneous oscillating and rotating plunger action. The displacement body itself opens and closes the suction and pressure side. The pump thus does not need any valves and can be operated in a broad stroke frequency range.

This functional principle facilitates precise metering of high to highly viscous media (up to 1.000.000 mPas). Even liquids with solid fractions can be smoothly metered by the valveless plunger metering pumps. Products with a temperature between -40 °C and +400 °C can be continuously delivered from 0-100 %.

The standard capacity range of the 2 series is: 1 - 4.000 l/h; 400 - 4 bar

3.0 Overview Process Metering Pumps

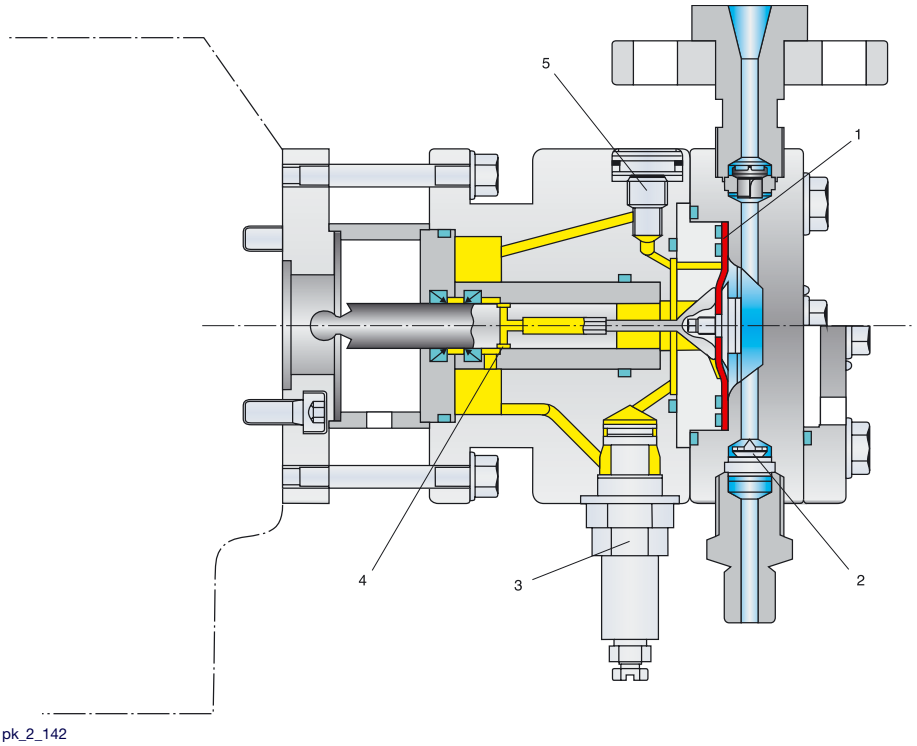
3.0.2 Selection Guide



pk_3_07_diagramm

Detail On ORLITA® MF Delivery Unit

Pump end with hydraulically displaced diaphragm. The dual PTFE diaphragm hermetically seals off the areas in contact with the product from the hydraulic component.



pk_2_142

1 PTFE multilayer safety diaphragm
2 Valves with self-cleaning effect
3 Integrated pressure relief valve
4 Oil anti-cavitation device
5 Gas vent valve

4.0 Overview Dosing Systems DULCODOS And Ultromat

4.0.1 Product Overview DULCODOS®

Dosing now made even easier. The pre-assembled, complete solutions from ProMinent are available immediately, ready for use for the most important applications. The sensor system, controller and dosing pump, together with the necessary tanks, make up a unit that can take on your task with no installation expenditure.

Compared to separate components, dosing systems offer three big advantages:

- Only one supplier and contact
- No interface problems between the separate components
- Customers do not need their own installation service. On request, the entire system is supplied pre-assembled and ready for use, or installed and commissioned on your site by our technicians.

As a customer, you get a ready-made solution which only needs electrical and hydraulic connections. We manufacture all our dosing systems in-house, which means that we make the main components used, such as dosing pump, controller and sensor system, and also assemble the systems here in our works. This guarantees ProMinent® quality.

pk_4_portfolio

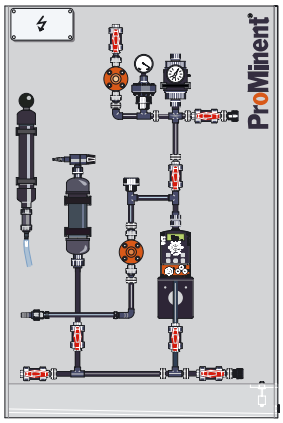
pk_7_076

DULCODOS® eco

Net volume between 35 and 1000 litres.

Metering stations with tank, drip pan, agitator, and metering pump for storing and metering of liquid chemicals. A selection system (Identcode) helps to easily, quickly and flexibly adapt the metering station to the metering task

4.0 Overview Dosing Systems DULCODOS And Ultromat

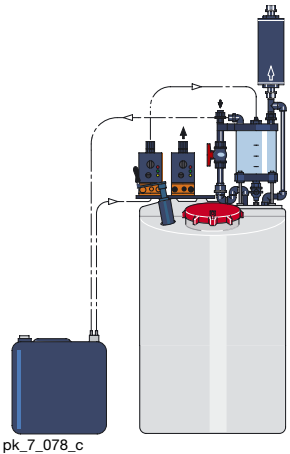


pk_7_077_c

DULCODOS® panel

Dosing output between 0.74 - 1000 l/h

Dosing systems for liquid products consist of one or 2 metering pumps including wall-mounting panel and drip pan. A selection system (Identcode) helps to easily, quickly and flexibly adapt the dosing system to the metering task



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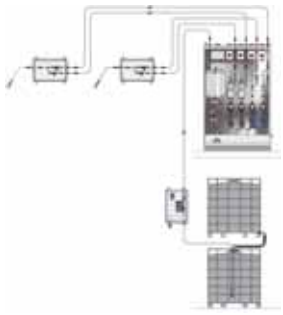
DULCODOS® Hydrazin

Dosing output up to 11 l/h

DULCODOS® Hydrazin is a dosing system for the preparation and dosing of hydrazine solution. Hydrazine is used as corrosion inhibitor in water and vapour systems. Because of the carcinogenic effect of hydrazine, special preparation and dosing units are required. The DULCODOS® Hydrazin preparation and dosing systems by ProMinent are type-approved and acknowledged by the German Accident Prevention and Insurance Association Chemical Industry (Berufsgenossenschaft Chemie).

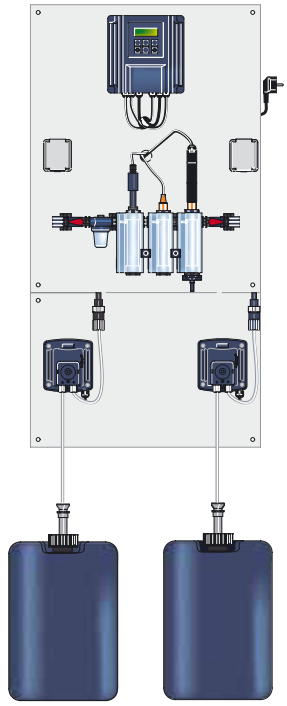


pk_7_079_c

DULCODOS® PPLA

With DULCODOS® PPLA units (Post Pelleting Liquid Application), liquid additives are sprayed on after pelletising of the animal food. The units have a modular design and offer a complete solution for storing, refilling, metering, and spraying on of all types of additives as e.g. vitamins and enzymes.

4.0 Overview Dosing Systems DULCODOS And Ultromat



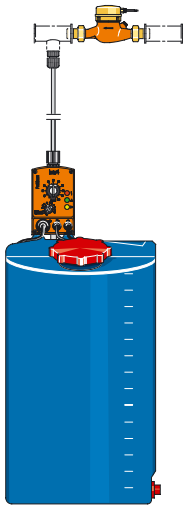
pk_7_080_c

DULCODOS® Pool

Applications: private and public swimming pools

The dosing systems DULCODOS® Pool were designed especially for the conditioning of swimming pool water. Pre-mounted and ready for connection, the DULCODOS® Pool metering systems take care of the pH value adjustment and the disinfection – be it with chlorine or active oxygen.

A selection system (Identcode) helps to easily, quickly and flexibly adapt the dosing system to your dosing task.



pk_7_081_c

DULCODOS® domestic

Dosing output between 0.165 – 165 ml/m³

Dosing systems for a volume-proportional dosing of liquid chemicals in domestic water installations.

4.0 Overview Dosing Systems DULCODOS And Ultromat

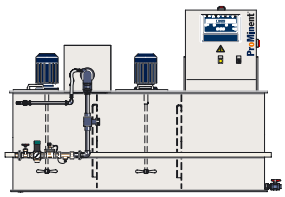
pk_7_082

DULCODOS® Custom

The customer-specific dosing systems DULCODOS® custom are individually designed, constructed and supplied according to customer preferences. Also according to ATEX (explosion-proof). You as our customer do not have to perform any installation work. If requested, we will also commission the systems at your site.

4.0.2 Product Overview Ultromat®

Ultromat® systems are special preparation and metering stations for synthetic flocculants (polyelectrolytes).

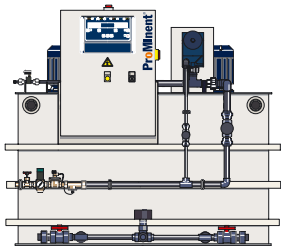


pk_7_083_c

Ultromat® AF/AT/ATF Continuous flow systems

Capacity range 400 – 8000 l/h, 0.5 % polymer solution

Ultromat® 3-chamber continuous flow systems made of polypropylene for the processing of liquid and powdery polymers. A selection system (Identcode) helps to easily, quickly and flexibly adapt the continuous flow system to your application. Ultromat® systems are special preparation and metering stations for synthetic flocculants (polyelectrolyte).

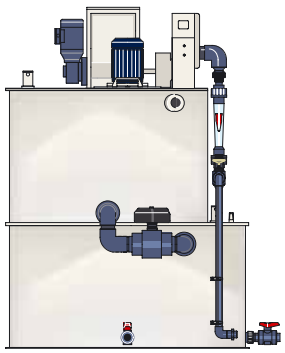


pk_7_084_c

Ultromat® AFP/ATP/ATFP 2-chamber batch systems

Capacity range 400 – 4000 l/h, 0.5 % polymer solution

Ultromat® 2-chamber batch systems for the processing of liquid and powdery polymers. The Ultromat® consists of two separate tanks which are filled with polymer solution one after the other. Having matured, the polymer solution can be withdrawn.



pk_7_085_c

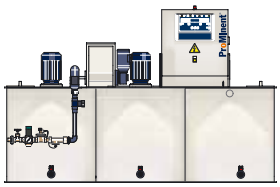
Ultromat® AFD/ATD/ATFD Double-deck systems

Capacity range 400 – 2000 l/h, 0.5 % polymer solution

Ultromat® double deck systems for the processing of liquid and powdery polymers.

The double-deck Ultromat® consists of two separate PP tanks which are arranged on top of each other. The polymer solution is prepared in the top tank. Having matured, the polymer solution is refilled into the bottom tank.

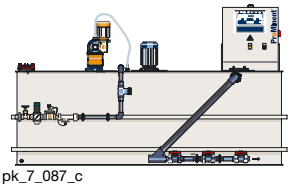
4.0 Overview Dosing Systems DULCODOS And Ultromat


pk_7_086_c

Ultromat® ATR Continuous flow systems with round tank

Capacity range 400 – 2000 l/h, 0.5 % polymer solution

Ultromat® continuous flow system with round tanks made of PP for the processing of powdery polymers. The tanks are hydraulically connected through overflow channels and are extraordinarily stable thanks to their round shape. This also significantly reduced the transport weight of the Ultromat® system.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Ultromat® AFK continuous flow systems

Capacity range 400 – 4000 l/h, 0.5 % polymer solution

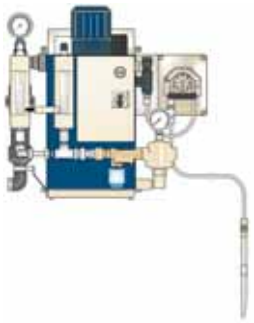
Ultromat® 2-chamber continuous flow systems for the processing of liquid polymers. The tank consists of one separate day tank for the storage of the liquid concentrate and a 2-chamber continuous flow system for the preparation of the polymer solution. The liquid concentrate pump is included in the scope of delivery.


pk_7_088_c

Ultromat® MT manual mixing station

Capacity range 120 – 4800 l/h, 0.5 % polymer solution

Ultromat® MT for processing polymers in liquid and powder form. During the preparation, the powdery polymer is added to the wetting cone to the diluent water.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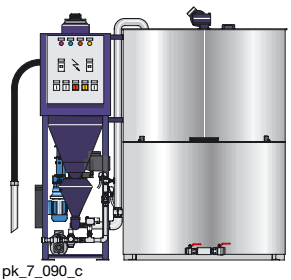
POLYMORE

Capacity range 120 – 18000 l/h, 0.5 % polymer solution

Polymer preparation stations for liquid polymers. Water and polymer are mixed in a flameproof multi-zone mixer unit. In most cases, the polymer solution can be directly metered into the application.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PolyRex

Capacity range 240 – 3820 l/h, 0.5 % polymer solution

PolyRex is a double-deck preparation station for the processing of liquid and powdery polymers. The preparation station consists of the delivery and mixer unit and the two stainless steel double-deck tanks. The upper tank is the preparation/maturing tank, the bottom tank is the storage tank for the prepared polymer solution.

4.0 Overview Dosing Systems DULCODOS And Ultromat

4.0.3 Selection Guide

Selection Guide DULCODOS®

Type	Function	Applications	Output range
DULCODOS® eco	Storing, metering	General	35 – 1,000 litres
DULCODOS® panel	Metering	General	0.74 – 1,000 l/h
DULCODOS® Hydrazin	Preparing, Metering	Boiler feed water	up to 11 l/h
DULCODOS® PPLA	Mixing, Metering	Animal food	–
DULCODOS® Pool	Measuring, controlling, metering	private and public swimming pools	–
DULCODOS® domestic	Proportional metering	Drinking water	0.165 – 165 ml/m^3
DULCODOS® custom	Customer-specific	any	–

Selection Guide Ultromat®

Type	Application	Polymers	Output range
Continuous flow system Ultromat® AF/ AT/ATF	Waste water	F*/T**/TF***	400 – 8000 l/h
2-chamber batch system Ultromat® AFP/ ATP/ATFP	Waste water, Paper	F*/T**/TF***	400 – 4000 l/h
Double-deck system Ultromat® AFD/ ATD/ATFD	Waste water, Paper	F*/T**/TF***	400 – 2000 l/h
Continuous flow system Ultromat® ATR with round tanks	Waste water	T**	400 – 2000 l/h
Continuous flow system Ultromat® AFK	Waste water	F*	400 – 4000 l/h
Manual mixing station Ultromat® MT	Waste water	T**	120 – 4800 l/h
POLYMORE	Waste water, Paper	F*	120 – 18,000 l/h
PolyRex	Waste water, Paper	TF***	240 – 3820 l/h

* liquid
** powder
*** liquid+powder

5.0 Overview Of Tanks And Transfer Pumps

5.0.1 Product Overview

Tanks

pk_3_052

Dosing Tanks and Bunds

Effective capacity from 35 to 1000 litres.

Tanks and bunds made from PE available in matching sizes and different colours.

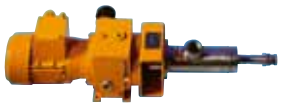
pk_3_053

Storage Tanks

Effective capacity from 500 litres up to 15 m^3.

Both standardised and customised polyethylene storage tanks and drip trays, also available with general WHG approval.

Transfer Pumps



pk_3_054

Spectra Progressive Cavity Pump

Output range 0.1 – 12,000 l/h, 12 – 3 bar.

Progressive cavity pump for conveying liquid polyelectrolytes in concentrated and diluted form.

pk_3_055

von Taine® Magnetically Coupled Centrifugal Pump

Output range up to 22,500 l/h, delivery head up to 23.5 m water column

Centrifugal pump with magnetic clutch for conveying liquid media. Leak-free transfer from tank to tank. Not self-priming, infeed necessary.

pk_3_056

Duodos Air Operated Diaphragm Pump

Output range: up to 6,700 l/h, 7 bar

Compressed air operated diaphragm pump for conveying liquid media. Run-dry safe and self-priming, no electrical components.

pk_3_057

DULCO®Trans Barrel Pump

Output range: 900 l/h, 2,400 l/h, 3,000 l/h

Barrel pump for filling, discharging and refilling liquids from canisters, drums and containers.

5.0 Overview Of Tanks And Transfer Pumps

5.0.2 Selection Guide

Selection Guide - Tanks:

	Shape	WHG approval	Effective volume
Dosing Tanks PE	Cylindrical		35 - 1,000 l
PE Storage Tank With General WHG Approval	Cylindrical	x	500 - 25,000 l
PP/PE Storage Tanks, Custom-Built	Cylindrical or rectangular		500 - 25,000 l

Selection Guide - Transfer Pumps:

Pump type	Priming	Drive	Output range
Spectra progressive cavity pump	Self-priming	Electric	0.1 - 12,000 l/h 3 - 12 bar
von Taine® magnetically coupled centrifugal pump	Normal-priming (infeed necessary)	Electric	Up to 22,500 l/h up to 23.5 m
Duodos air operated diaphragm pump	Self-priming	Compressed air	Up to 6,700 l/h
DULCO®Trans barrel pump	Self-priming	Electric	900 - 3,000 l/h

6.0 Overview Panel-Mounted Measuring/Control Stations

6.0.1 Product Overview

DULCOTROL® Panel-Mounted Measuring/Control Stations

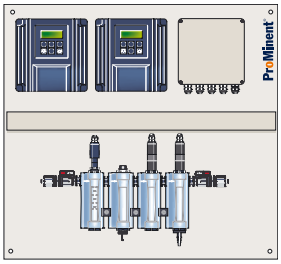
DULCOTROL® measuring/control stations are complete and compact online process measuring/control stations mounted on a PE panel which can be installed as plug&play modules into a process water by-pass. They are divided into the following series which are assigned to the important applications of water treatment and which include customised components suitable for the target application.

- DULCOTROL® drinking water/ F&B
- DULCOTROL® cooling water
- DULCOTROL® waste water

In these model series, 1-3 measured variables can be configured specific to the sample water on one panel. The measuring devices can be equipped with a measuring function or numerous control functions as required. A compatible filter, pressure reducer, heat exchanger, a sample water pump and a peristaltic pump can be optionally ordered for sample water conditioning. Measurement panels from two controllers onward include a terminal box for a safe electrical connection. All connecting cables are routed in a cable conduit.

- DULCOTROL® Free chlorine - pH-independent

For all DULCONTROL® series, the required equipment layout of the measuring station can be simply configured based on a user-orientated Identcode system.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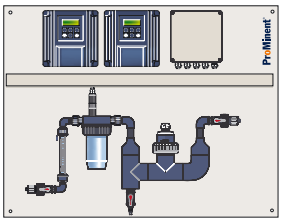
DULCOTROL® Drinking Water/F&B

The measuring/control stations DULCOTROL® drinking water/F&B are specifically designed for the drinking water industry as well as the food and beverages industry (F&B = Food&Beverage). Furthermore, the special requirements are met which are given on the part of the drinking water / product water treatment and the rinsing water, service water, and process water treatment.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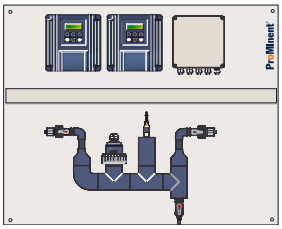
DULCOTROL® Cooling Water

The measuring/control stations DULCOTROL® cooling water are used in all industry segments where cooling water is treated. The following applications are covered:

- In the closed cooling circuit, the conditioning of the cooling water through pH value adjustment, metering of corrosion inhibitors, and the disinfection of the cooling water with non-oxidative biocides and oxidative disinfectants.
- In the open cooling circuit (cooling tower), in addition to the functions mentioned above the automatic desalination (blow down) of the cooling water.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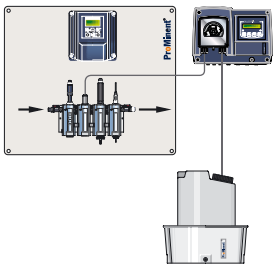
DULCOTROL® Waste Water

The measuring/control stations DULCOTROL® waste water are used in all industry segments where waste water is treated. The following applications may e.g. be covered:

- pH neutralisation and pH value adjustment
- Disinfection of clarified water
- Decontamination of waste water by eliminating reductives and oxidants
- Monitoring of rinsing water
- Desalination of process water
- Control of the dissolved oxygen in the biologic clarification stage

6.0 Overview Panel-Mounted Measuring/Control Stations



DULCOTROL_freies_Chlor

DULCOTROL® Free chlorine – pH-independent*

The measuring/control stations DULCOTROL® free chlorine - pH-independent is used wherever free chlorine needs to be measured and in applications where pH-values are either unstable or higher than 8.0.

6.0.2 Selection Guide

Measuring, control, monitoring tasks in water treatment

DULCOTROL® Drinking Water/F&B	DULCOTROL® Cooling Water	DULCOTROL® Waste Water
Treatment of drinking water, water similar to drinking water, and treatment of rinsing water, service and processs water in the food and beverages industry ■ Disinfection ■ CIP ■ pH value adjustment ■ Monitoring	Treatment of cooling water in open cooling water circuits and closed cooling water circuits ■ Desalination (blow down) ■ Disinfection ■ pH value adjustment ■ Metering of corrosion inhibitors	Treatment of industrial and municipal waste water ■ pH neutralisation ■ Disinfection ■ Decontamination ■ Desalination of process water ■ Control of dissolved oxygen ■ Monitoring

7.0 Overview Measuring And Control Technology

7.0.1 Overview Measuring And Control Technology

DULCOMETER® D1C and DULCOMETER® D2C


pk_5_055

The DULCOMETER® D1C and D2C controllers form the core of the comprehensive range of ProMinent controllers and measurement transducers. They are reliable, are used in universal applications and can control many different measured variables.

DULCOMETER® D1Cb

- Equipped to meet the most important standard requirements in water treatment applications
- All measured variable and languages resident in the controller as standard
- Subsequent function enabling options simplify storage

DULCOMETER® D1Ca

- Used universally for 14 different measured variables
- Optimised process flows ensured by special functions such as disturbance variable compensation, pH compensation for chlorine, base load metering and many limit value functions
- Special “Cool-Control” version tailored to the specific requirements of cooling tower conditioning applications

DULCOMETER® D2Ca

- Efficient solution for simultaneous control/measurement of: pH/ORP, pH/chlorine, pH/pH, chlorine/chlorine and pH/chlorine dioxide
- Optimised process flows ensured by special functions such as base load metering and many limit value functionsas

DULCOMETER® DMT Measurement Transducer DULCOTEST® Transducer


pk_5_056

Type DMT DULCOMETER® measurement transducers are designed as compact two-wire measurement transducers for the measured variables pH, ORP, chlorine, conductivity and temperature. They convert the primary sensor signal into a standard 4-20mA signal and provide interference-free connection of the sensor to distant controls (e.g. PLC) or DULCOMETER® controllers.

DULCOMETER® DMT Measurement Transducer

- Display of measured value allows it to be checked at the sensor site
- Near-sensor calibration function
- Version for connection to PROFIBUS® DP

DULCOTEST® PHV1, RH V1, Pt 100 V1 Transducer

- For pH, ORP, and temperature
- Space-saving connection to sensor
- Inexpensively priced measurement transducer with no display and calibration function

DULCOMARIN® II Swimming Pool Controller


pk_5_057

DULCOMARIN® II for efficient swimming pool control. The first bus system for effective networking of swimming pool facilities. Simple operation via large illuminated colour display. For the control of up to 16 filtration cycles.

- Videographic recorder/data logger integrated as standard to reduce costs
- An optionally installed web server provides visualisation via PC without the need for special software
- Simple integration in visualisation system for building installations via optiona OPC® interface

7.0 Overview Measuring And Control Technology

7.0.2 Selection Guide

	pH	ORP	Chlorine	Conductive Conductivity	Inductive Conductivity	Chlorine dioxide	Chlorite	Bromine	Ozone	Hydrogen Peroxide	Peracetic acid	Fluoride	Dissolved oxygen	Temperature	General standard signal
1 Variable to measure ■ Temperature correction variable ■ To transfer measured values to PLC via 2-wire connection	DMTa	DMTa	DMTa	DMTa										DMTa	
1 Variable to measure ■ Temperature correction variable ■ To transfer measured values to PLC via Profibus-DP®	DMTa	DMTa	DMTa	DMTa										DMTa	
1 Variable to measure ■ Temperature correction variable ■ Actuating 2 metering pumps ■ Monitoring 2 limit values ■ Switching 2 limit value relays ■ Alarm output via alarm relay ■ 1 analogue output ■ Controller external stop	D1Cb	D1Cb	D1Cb			D1Cb	D1Cb	D1Cb	D1Cb	D1Cb	D1Cb	D1Cb		D1Cb	D1Cb
1 Variable to measure ■ Temperature correction variable ■ pH correction variable for chlorine ■ To monitor 2 limit values ■ To switch 2 limit value relays ■ Alarm output via alarm relay ■ Up to 2 analogue outputs	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca
1 Variable to measure ■ Temperature correction variable ■ pH correction variable for chlorine ■ To control 2 metering pumps ■ To monitor 2 limit values ■ To switch 2 limit value relays ■ Alarm output via alarm relay ■ Up to 2 analogue outputs ■ To process disturbance variable ■ Controller external stop	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca
1 Variable to measure ■ Temperature correction variable ■ pH correction variable for chlorine ■ To control 2 solenoid valves ■ To monitor 2 limit values ■ Alarm output via alarm relay ■ Up to 2 analogue outputs ■ To process disturbance variable ■ Controller external stop	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca

7.0 Overview Measuring And Control Technology

	pH	ORP	Chlorine	Conductive Conductivity	Inductive Conductivity	Chlorine dioxide	Chlorite	Bromine	Ozone	Hydrogen Peroxide	Peracetic acid	Fluoride	Dissolved oxygen	Temperature	General standard signal
1 Variable to measure	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca	D1Ca
■ To control 1 actuator ■ 2 limit values ■ Alarm output via alarm relay ■ Up to 2 analogue outputs ■ To process disturbance variable ■ Controller external stop															
2 Variables to measure	D2Ca	D2Ca	D2Ca			D2Ca									
■ Temperature correction variable ■ To control 2 metering pumps ■ To monitor 2 limit values ■ To switch 2 limit value relays ■ Alarm output via alarm relay ■ 2 analogue outputs ■ Controller external stop															
2 Variables to measure	D2Ca	D2Ca	D2Ca			D2Ca									
■ Temperature correction variable ■ To control 2 solenoid valves ■ To monitor 2 limit values ■ Alarm output via alarm relay ■ 2 analogue outputs ■ Controller external stop															

8.0 Overview Of DULCOTEST® Sensors

8.0.1 Product Overview

DULCOTEST® Sensors

DULCOTEST® sensors supply exact, reliable and application-specific measured values in real time for the purpose of effectively monitoring or controlling processes. The sensors can be optimally integrated in the ProMinent® control circuit together with controllers and metering pumps. Many different types of fitting are available for optimum integration in specific processes. The measurement methods

- Potentiometry (pH, redox, fluoride)
- Amperometry (disinfectant)
- Conductivity (salinity, alkalinity, acidity)

cover the most important measurement parameters found in water treatment applications. The sensors are stable in the long term, require minimum maintenance and are easy to install, calibrate and service.

pk_6_095_2

Potentiometric DULCOTEST® Sensors

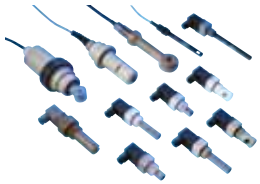
The DULCOTEST® pH and redox electrodes represent a comprehensive range of electrodes for solving all measurement tasks. The range of applications extends from simple use in water treatment systems through to industrial process applications with demanding requirements in terms of temperature, pressure as well as resistance to soiling and chemicals.

- Long service life ensured by premium glass quality and an optimum combination of automated and manual production
- Precise and reliable measurement for efficient processes and maximum process reliability
- Tailored process integration guaranteed by special versions with individual installation lengths, cable lengths and connectors
- Short delivery and storage times ensure optimum electrode life

pk_6_096_2

Amperometric DULCOTEST® Sensors

The amperometric sensors of the DULCOTEST® product line supply measured values for the most diverse range of disinfectants such as e.g. chlorine, bromine, chlorine dioxide, ozone. The selective and exact measured values ensure maximum process reliability and are made available round the clock in real time either for monitoring or controlling applications. ProMinent sets standards with its sensor systems: Innovative sensors such as for chlorite, total chlorine, peracetic acid, hydrogen peroxide and dissolved oxygen enhance the product range. The sensors are available for different measuring ranges, in different connection variants for DULCOMETER® measuring and control devices and as special versions for specific applications.



pk_6_097

DULCOTEST® Sensors for Electrolytic Conductivity

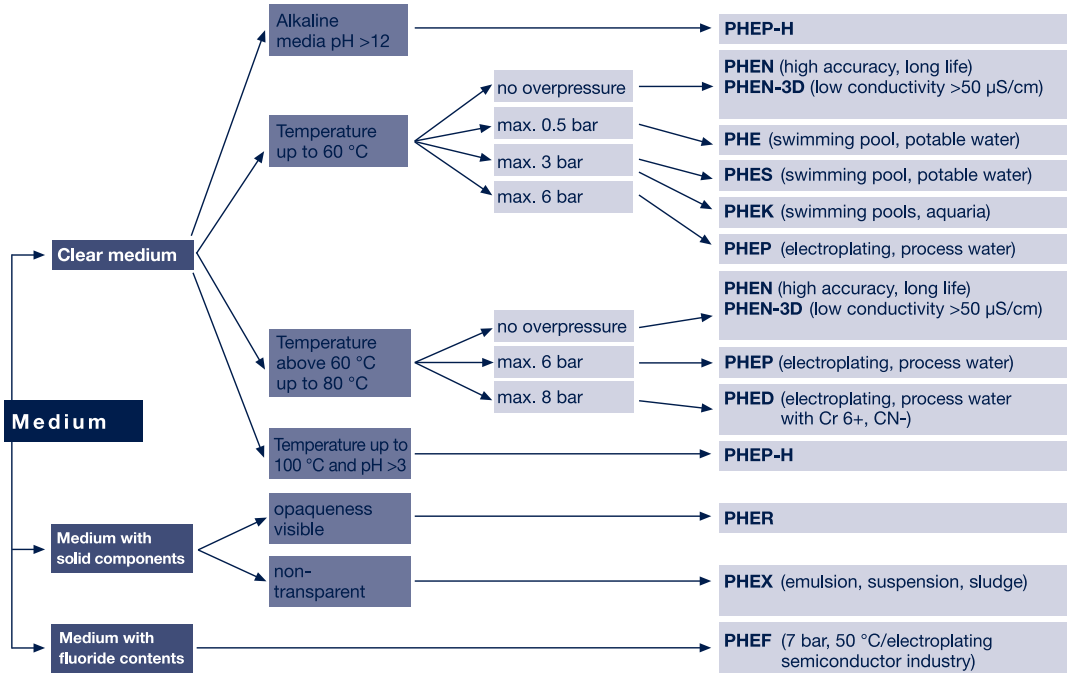
The comprehensive product line of DULCOTEST® conductivity sensors ensures the right sensor is selected with optimum price/performance ratio in applications ranging from simple water treatment through to intricate industrial process waste water processing. 27 different types of sensor tailored to the most diverse range of requirements: Measuring range, temperature, chemical resistance, soiling compatibility and process integration

- From simple conductometric 2-electrodes through to inductive high-end sensors
- Precise and reliable measurement for efficient process control and maximum process reliability
- Long service life and long maintenance intervals reduce downtimes and increase the availability of the measured values
- Completely preassembled fitting and sensor sets for simple, fast and flawless installation

8.0 Overview Of DULCOTEST® Sensors

8.0.2 Selection Guide

Selection Guide DULCOTEST® pH Electrodes



Selection guide - Amperometric sensors

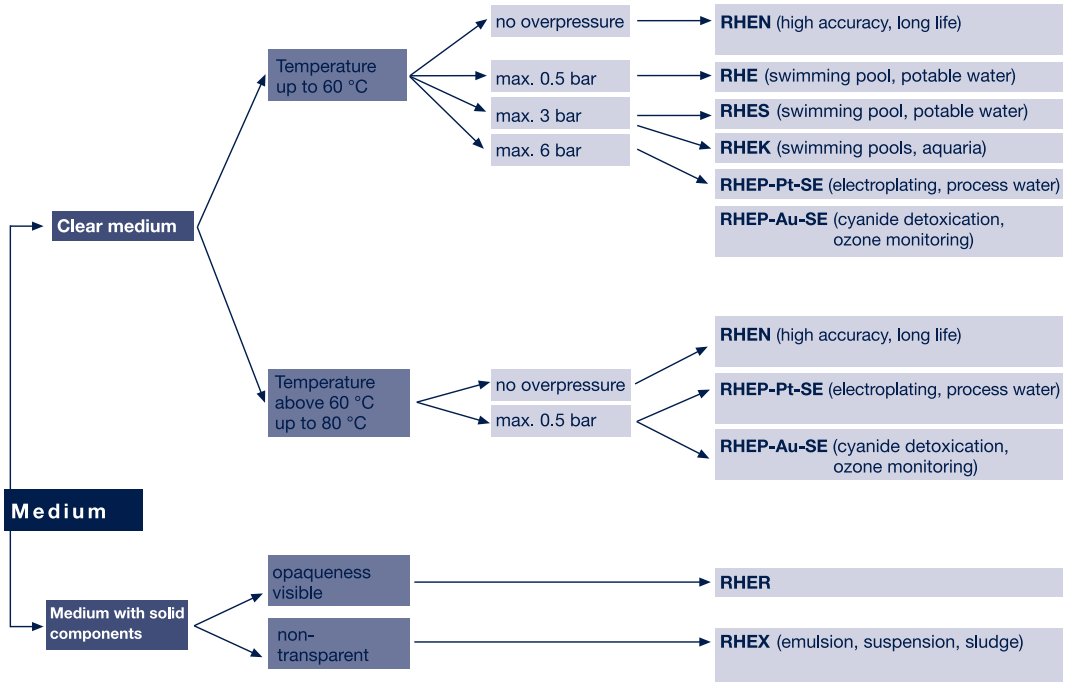
Measured variable	Applications	Graduated measuring range	Connection to DULCOMETER®	Sensor type
Free chlorine	Drinking, swimming pool, process, service water	0.01–100 mg/l	D1C, D2C, DULCOMARIN®	CLE 3-mA-xppm, CLE 3.1-mA-xppm
Free chlorine	Drinking, swimming pool, process, service water	0.01–50 mg/l	DMT	CLE 3-DMT-xppm
Free chlorine	Drinking, swimming pool, process, service water	0.01–10 mg/l	DULCOMARIN® II	CLE 3-CAN-xppm, CLE 3.1-CAN-xppm
	Swimming pool water with chlorine-organic disinfectants	0.02–10 mg/l	D1C, D2C, DULCOMARIN®	CGE 2-mA-xppm
	Swimming pool water with chlorine-organic disinfectants	0.01–10 mg/l	DULCOMARIN® II	CGE 2- CAN-xppm
Total chlorine	Drinking, service, process and cooling water	0.01–10 mg/l	D1C, D2C, DULCOMARIN®	CTE 1-mA-xppm
Total chlorine	Drinking, service, process and cooling water	0.01–10 mg/l	DMT	CTE 1-DMT-xppm
Total chlorine	Drinking, service, process and cooling water	0.01–10 mg/l	DULCOMARIN® II	CTE 1-CAN-xppm
	Swimming pool water	0.02–2 mg/l	D2C	CTE 1-mA-2 ppm + CLE 3.1-mA-2 ppm
Combined chlorine	Swimming pool water	0.01–10 mg/l	DULCOMARIN® II	CTE 1-CAN-xppm + CLE 3.1-CAN-xppm
Bromine	Cooling, swimming pool, whirlpool water	0.2–10 mg/l	D1C	Bromine measured variable 1-mA-xppm
Bromine	Cooling, swimming pool, whirlpool water	0.2–10 mg/l	D1C	Bromine measured variable 2-mA-xppm
Chlorine dioxide	Drinking, service, process water	0.01–10 mg/l	D1C	CDE 2-mA-xppm
Chlorine dioxide	Bottle washer system	0.02–2 mg/l	D1C	CDP 1-mA-2 ppm
Chlorite	Drinking, wash water	0.02–2 mg/l	D1C	CLT 1-mA-xppm

8.0 Overview Of DULCOTEST® Sensors

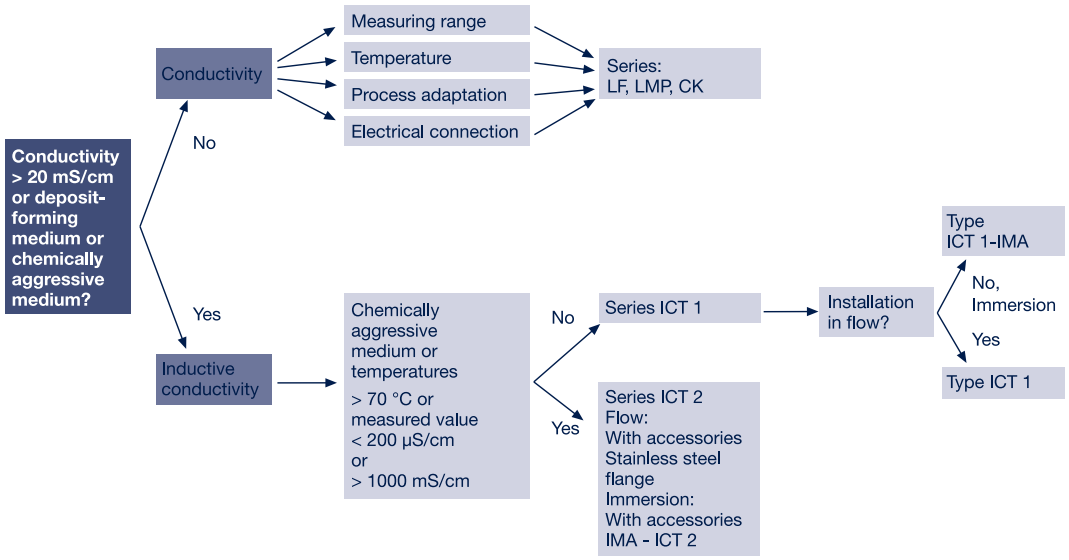
Measured variable	Applications	Graduated measuring range	Connection to DULCOMETER®	Sensor type
Ozone	Drinking, service, process, swimming pool water	0.02–2 mg/l	D1C	OZE 3-mA-xppm
Dissolved oxygen	Drinking, surface water	2–20 mg/l	D1C	DO 1-mA-xppm
Dissolved oxygen	Activated sludge tank, sewage treatment plant	0.1–10 mg/l	D1C	DO 2-mA-xppm
Peracetic acid	CIP, antiseptic food filling process	1–2000 mg/l	D1C	PAA 1-mA-xppm
Hydrogen peroxide	Clear water, fast control	1–2,000 mg/l	PEROX controller	Perox sensor PEROX-H2.10-P
Hydrogen peroxide	Process, swimming pool water	2–20,000 mg/l	D1C	PER1-mA-xppm

8.0 Overview Of DULCOTEST® Sensors

Selection guide - DULCOTEST® Redox Electodes



Selection guide - DULCOTEST® Conductivity sensors



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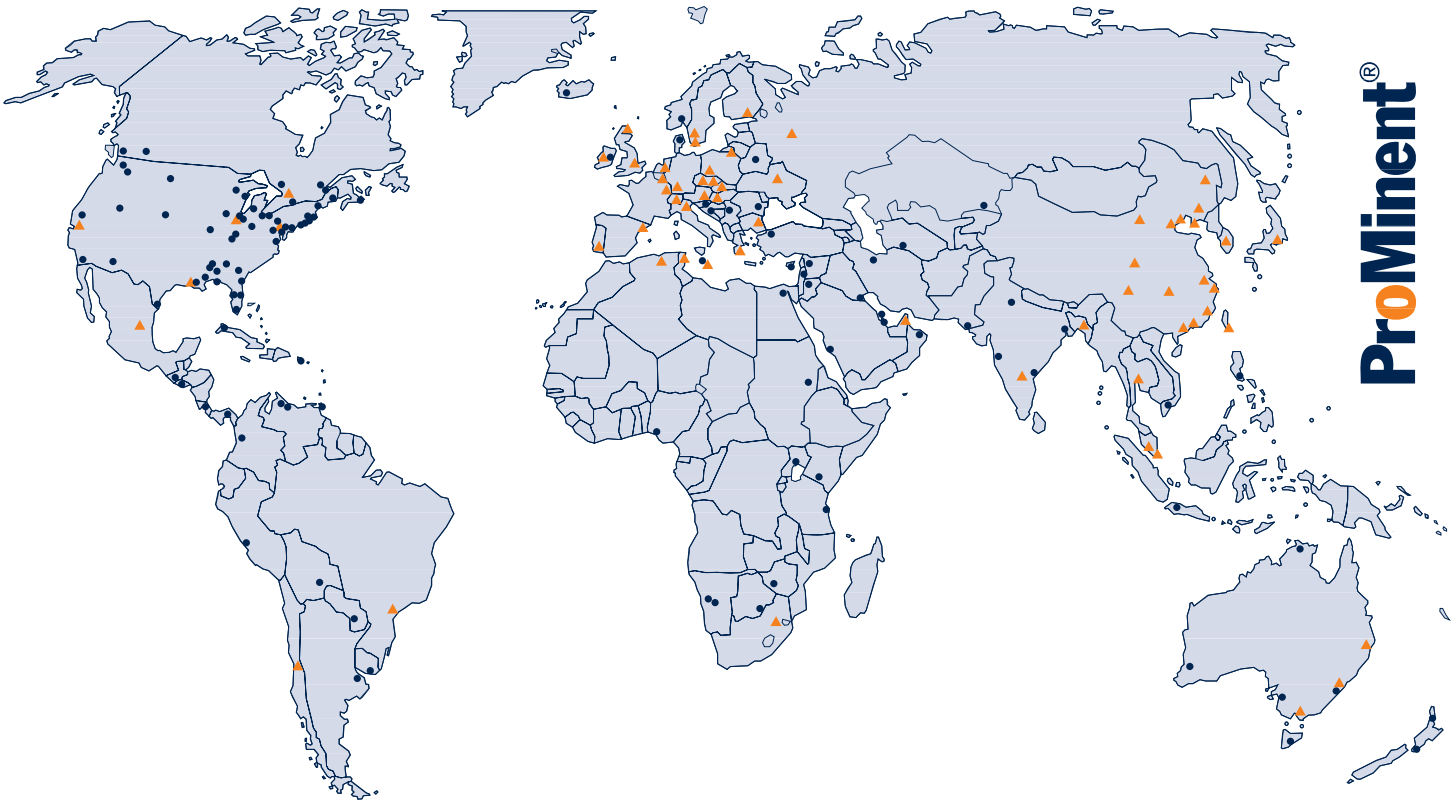

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