

More than just pure water

Membrane technology



Effective water treatment

Membrane filtration ensures efficient yet environmentally-sound water treatment, requiring virtually no chemicals. Depending on the specific job in hand, the user always receives the optimum solution for removing particles and salts – with minimum operating costs. Thanks to comprehensive knowledge about output and applications of the different types of membrane, we have developed preparation systems with precisely coordinated pre- and post-treatment. Our focus is on efficiency aspects, such as the durability of the membranes, energy-efficiency and process automation.

Type	ecoPRO	TW	BW	SW
Permeate-output [m ³ /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

Ultrafiltration systems Dulcoclean® UF

are used in water treatment to separate the finest particles and turbidity. The membranes provide a safe barrier, so that bacteria, parasites and viruses are safely removed from the water – even with fluctuating water quality, as can occur after heavy rainfall.

Ultrafiltration has not just established itself as effective in potable water treatment; the process is becoming increasingly important in pre-treatment prior to desalination or in the treatment of swimming pool water.



Reverse osmosis systems Dulcosmose® ecoPRO

are ideal for the desalination of potable water for industrial purposes.

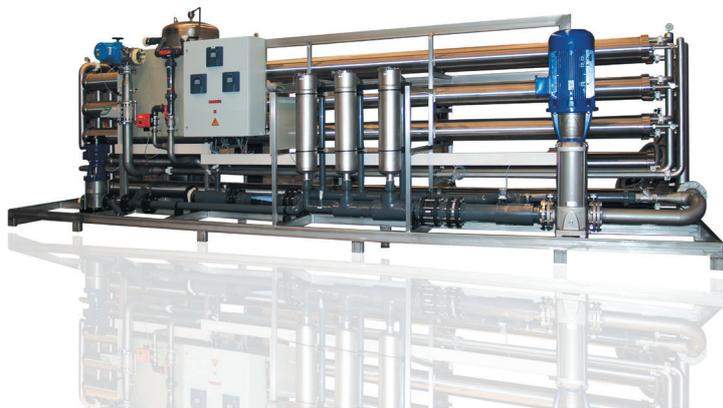
The product range ecoPRO offers outstanding value-for-money thanks to its excellent degree of standardisation. These systems achieve maximum permeate output at low operating pressures, thereby guaranteeing low investment and operating costs.



Nanofiltration and reverse osmosis systems Dulcosmose®



Reverse osmosis systems Dulcosmose® series TW are ideal all-purpose systems for the desalination of potable water for the most diverse industrial applications. The latest low-pressure membranes guarantee excellent availability and output combined with high levels of salt retention. The systems deliver maximum permeate outputs at low operating pressures.



Reverse osmosis systems Dulcosmose® series BW were developed in-house for the desalination of brackish water for the supply of potable water and for industrial applications. By using the latest low-pressure membranes it is possible to obtain up to 99% salt retention from the system and an output of up to 80%.

Reverse osmosis systems Dulcosmose® series SW are specifically designed for generating potable water by desalinating sea water and have salt water-resistant stainless steel pipework on the high-pressure side. The system retains up to 99% salt. This is also where the integrated cleaning concept and energy-recovery especially pays for itself.



Nanofiltration systems Dulcosmose® series NF present a cost-effective alternative to reverse osmosis systems for specific tasks. Applications include the partial softening and elimination of multiple charged anions (e.g. sulphates, phosphates).

Compact and economical

Ultrafiltration systems **Dulcoclean® UF**

Dulcoclean® UF are ultrafiltration systems in the higher output segment, which have been customised to meet specific customer requirements.

Benefits

- Removal of turbidity with constant filtrate quality independently of the turbidity of the raw water
- Very high retention rates for bacteria and viruses (calculated for MS2 phages) with removal of 99.999 % and 99.99 % respectively
- Minimal consumption of energy and water by economical dead-end operation

- Maximum operating safety thanks to fully automated system control with the integration of pre- and post-treatment
- Compact design can be installed in existing plant rooms or in a container

Features

- User-friendly system, thanks to PLC Programmable Logic Controller with touch panel. Monitoring and storage of all relevant operating parameters

- Constant filtrate output and efficient back flushing by speed-controlled filtration and backwash pumps
- Tough PES membranes in a PVC housing with DVGW recommendation
- Option: PROFIBUS interface
- Optimum adaptation to changing raw water quality by variable cleaning concept



Dulcoclean® type	Filtrate output* at 15 °C	Backwash water per flush approx. [m³]	Raw water/rinsing water connector* [DN]	Dimensions* approx. L x W x H [mm]
	[m³/h]			
UF 2	8 - 15	0.34	1 1/2 2	1,200 x 920 x 2,100
UF 3	12 - 22	0.51	2 / DN65	1,600 x 920 x 2,100
UF 4	16 - 30	0.68	2 / DN80	1,600 x 920 x 2,100
UF 6	24 - 45	1.02	DN65 / DN80	2,800 x 920 x 2,100
UF 8	32 - 60	1.36	DN80 / DN100	3,000 x 920 x 2,100
UF 10	40 - 75	1.70	DN100 / DN125	3,400 x 920 x 2,100

* Technical data depends on raw water quality. Systems are adjusted to the customer's requirements.

High-performance and cost-effective

Reverse osmosis systems **Dulcosmose® ecoPRO**

Reverse osmosis systems Dulcosmose® ecoPRO are standard systems for modern potable water demineralisation in industrial applications. Equipped with "ultra low pressure" membranes, these systems achieve maximum permeate output at low operating pressures with up to 95% salt retention, thereby guaranteeing low investment and operating costs.

- The ecoPRO 100 – 1500 models are mounted on a stable and corrosion-free polypropylene frame
- Larger ecoPRO 1800 – 2700 models are mounted on a high-quality, double powder-coated steel frame
- Simple and reliable operation, thanks to microprocessor control with versatile programming options and clear text display of the operating status
- Conductivity measurement and temperature monitoring
- Optionally available: Integral cleaning concept and flushing options to improve the lifespan of the membranes



System type	Permeate output at 15 °C water temperature l/h	Number of membranes 2.5" or 4" No	Power input kW	Dimensions H x W x D mm
ecoPRO 100	100	1	0.37	1,400 x 500 x 320
ecoPRO 200	200	2	0.55	1,400 x 500 x 320
ecoPRO 300	300	1	1.10	1,500 x 600 x 400
ecoPRO 550	550	2	1.10	1,500 x 600 x 400
ecoPRO 600	600	2	1.50	1,850 x 800 x 800
ecoPRO 900	900	3	1.50	1,850 x 800 x 800
ecoPRO 1200	1,200	4	1.50	1,850 x 800 x 800
ecoPRO 1500	1,500	5	2.20	1,850 x 800 x 800
ecoPRO 1800	1,800	6	2.20	1,750 x 2,500 x 750
ecoPRO 2400	2,400	8	3.00	1,750 x 2,600 x 750
ecoPRO 2700	2,700	9	3.00	1,800 x 3,500 x 750

The right system for every application

Reverse osmosis systems Dulcosmose® series TW, BW and SW

ProMaqua reverse osmosis systems are designed according to the different types of raw water.

The TW product range is the all-purpose model for modern potable water desalination. The BW product range is designed for the desalination of brackish water and product range SW for the desalination of sea water.

We are your one-stop shop: from defining the task to comprehensive after-sales service.

Thanks to comprehensive knowledge about output and applications of the different types of membrane, we have developed preparation systems with precisely coordinated pre- and post-treatment.

Our focus is on efficiency aspects, such as the durability of the membranes, energy-efficiency and process automation.

- High system salt retention of up to 99%
- Output of up to 80% depending on raw water
- Easily accessible and service-friendly construction



- Central control by the company's in-house developed microprocessor control with graphic display or industrial PLC with touch panel and integrated conductivity measurement
- Long operational lifetime of the membranes thanks to integrated cleaning concept and automatic flushing system
- Sea water desalination systems with energy recovery from the concentrated flow
- No interface problems and seamless process with short project run times
- Joint on-site commissioning and training of personnel on the handling of the system provided on request

System type	Permeate output at 15 °C water temperature l/h	Number of membranes 4" or 8" No	Power input kW	Dimensions H x W x D mm
PRO 0300TW - PRO 0400TW	3,000 - 4,000	3 and 4	3	1,800 x 3,000 x 1,000
PRO 0500TW - PRO 1500TW	5,000 - 15,000	5 - 12	3 - 11	1,800 x 4,000 x 1,000
PRO 2000TW - PRO 5000TW	20,000 - 50,000	18 - 48	11 - 12	1,800 x 7,000 x 1,200
PRO 0200BW	2,000	9	4	1,800 x 3,500 x 750
PRO 0300BW - PRO 0400BW	3,000 - 4,000	3 - 4	6 - 8	1,800 x 3,000 x 1,000
PRO 0500BW - PRO 1100BW	5,000 - 11,000	5 - 11	8 - 15	1,800 x 4,000 x 1,000
PRO 1200BW - PRO 1500BW	12,000 - 15,000	12 - 15	15 - 19	1,800 x 5,000 x 1,000
PRO 2000BW - PRO 3000BW	20,000 - 30,000	21 - 29	19 - 30	1,800 x 6,000 x 1,200
PRO 4000BW - PRO 5000BW	40,000 - 50,000	42 - 51	37 - 45	1,800 x 7,000 x 1,200

System type	Permeate output at 15 °C water temperature l/h	Number of membranes 4" or 8" No	Power input		Dimensions H x W x D mm
			with energy recovery kW	without energy recovery kW	
PRO 0078SW	780	6	5.5		1,800 x 3,500 x 1,000
PRO 0185SW - PRO 0360SW	1,850 - 3,600	3 - 6	11 - 18.5	6.8 - 8.6	1,800 x 4,000 x 1,000
PRO 0490SW - PRO 0610SW	4,900 - 6,100	8 - 10	22 - 40.5	13.2	1,800 x 5,000 x 1,200
PRO 0730SW	7,300	12	44	17.2	1,800 x 5,000 x 1,400
PRO 0920SW	9,200	15	60	21.5	1,800 x 6,000 x 1,500
PRO 0980SW	9,800	16	60	25.0	1,800 x 5,000 x 1,500
PRO 1230SW	12,300	20	75	34.0	1,800 x 6,000 x 1,500
PRO 1470SW - PRO 2900SW	14,700 - 29,000	24 - 48	90 - 160	49.5 - 82.5	1,800 x 7,000 x 1,500

Proven worldwide

References

Selected references from different industrial applications:

Technology	Type of raw water	Industry	Country	Capacity m ³ /d
Dulcoclean UF eco	Spring water	Municipal water supply	Germany	80
Dulcoclean UF	Karst water	Municipal water supply	Slovenia	5200
Dulcosmose NF	Well water	Municipal water softening	Italy	72
Dulcosmose TW	Municipal water	Electroplating	Germany	132
Dulcosmose TW	Municipal water	Cosmetics	Germany	600
Dulcosmose TW	Municipal water	Power plant/Electricity generation	Peru	144
Dulcosmose TW	Municipal water	Automotive	Slovakia	3600
Dulcosmose TW	Municipal water	Beverages/Bottled water	Germany	408
Dulcosmose TW	Municipal water	Beverages/Soft drinks	Bulgaria	4800
Dulcosmose TW	River water	Power plant/Electricity generation	Hungary	624
Dulcosmose TW/EDI	Municipal water	Printed circuit boards	Slovakia	800
Dulcosmose BW	Brackish water	Brewery	Thailand	720
Dulcosmose BW	Brackish water	Irrigation	Ethiopia	720
Dulcosmose SW	Sea water	Hotel	Mauritius	800
Dulcosmose SW	Sea water	Hotel	Greece	1800



Contact worldwide



Experts in Chemical Feed and Water Treatment

ProMaqua, a brand of the ProMinent group of companies, is at home in over 100 countries across the globe. We supply products, systems and service solutions with the same standards all

over the world: quality and reliability. All our experience and expertise in water treatment and chemical feeding is at your disposal – any time, anywhere.

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