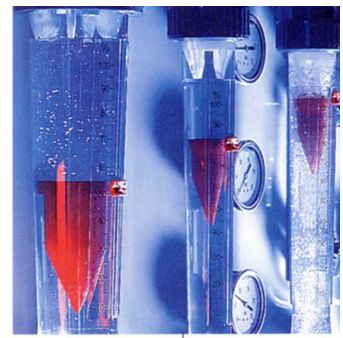
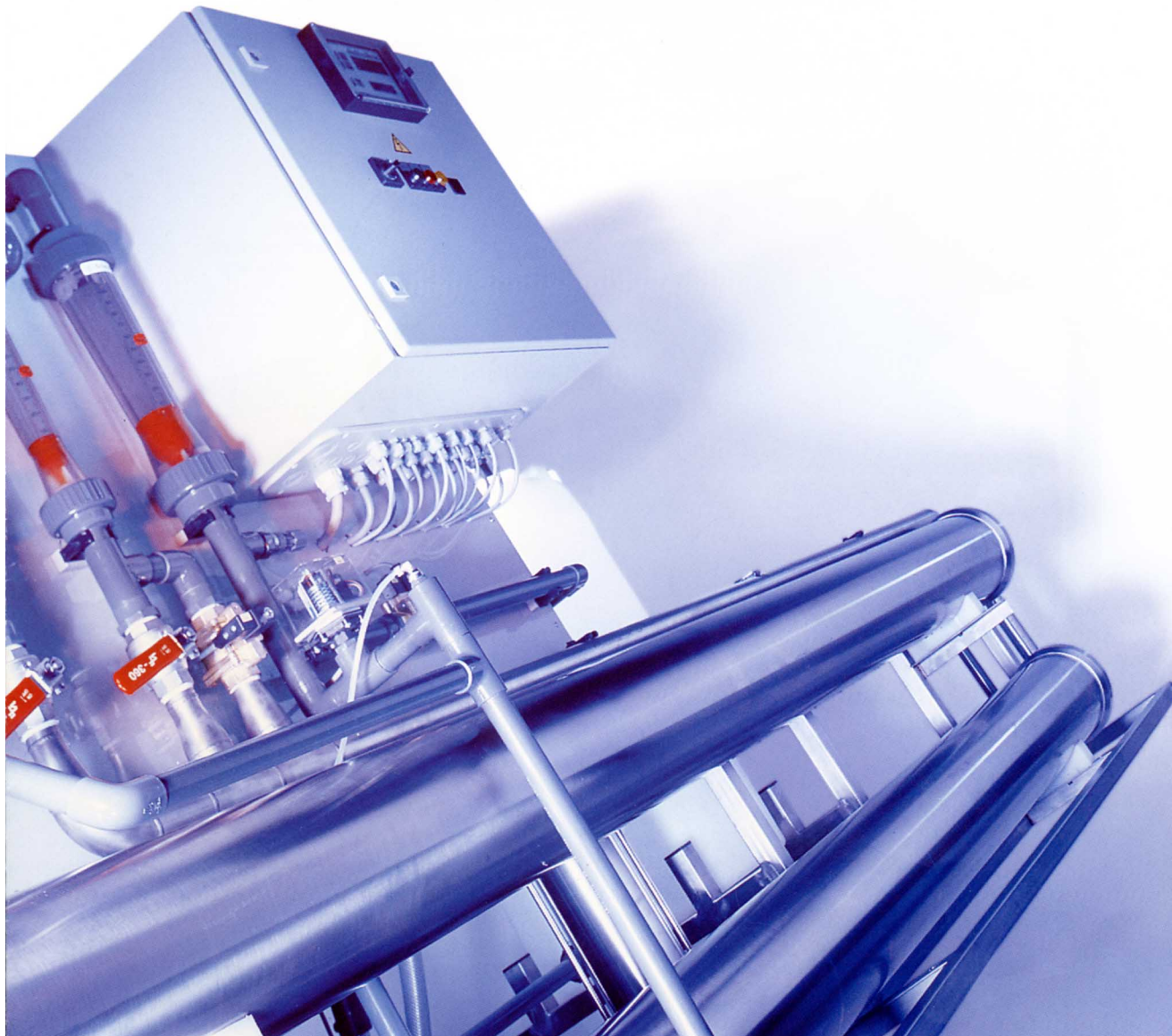


DULCOSMOSE® REVERSE OSMOSIS FROM ProMinent.  
THE HIGH QUALITY ROUTE TO CLEAN WATER.





# QUALITY VALUES



ProMinent®

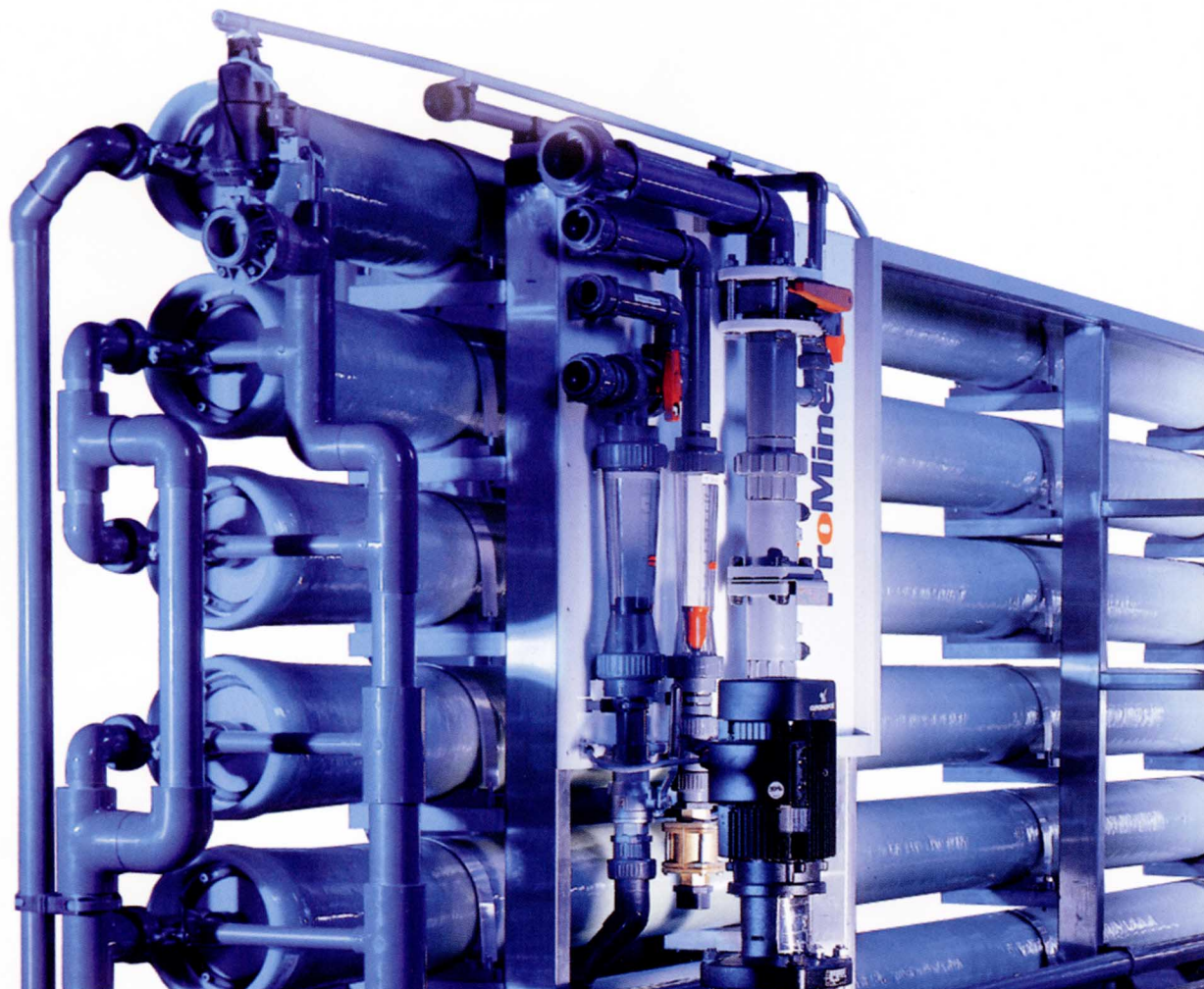
## REVERSE OSMOSIS – STATE-OF-THE-ART TECHNOLOGY: ENERGY-SAVING, ENVIRONMENTALLY FRIENDLY, DURABLE.

 Simple, reliable operation via a high quality microprocessor controller with integrated conductivity measurement. Clear display of operating status.

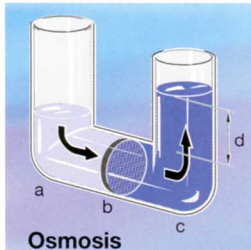
 More efficient operation with clean water yield of up to 80%. "Low energy" reverse osmosis membrane. Energy recovery from concentrate flow during seawater desalination.

 Well designed, maintenance friendly system construction on stainless steel framework. Integrated cleaning concept ensures long membrane operating life.

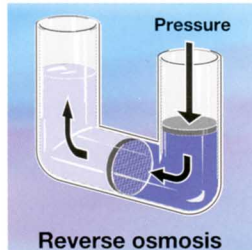
 Optional: solution sets – precisely measured pre treatment and post treatment solutions. Simple wetting and perfect functioning of different system components.







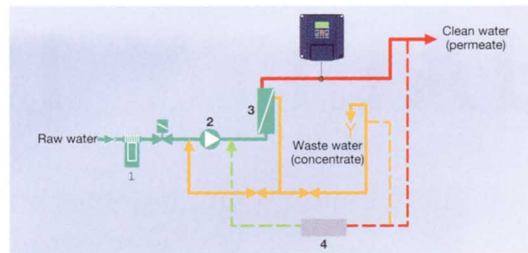
The principle of osmosis and reverse osmosis:  
 a) dilute solution  
 b) semi-permeable membrane  
 c) concentrated solution  
 d) water diffusion corresponding to osmotic pressure



In simple terms osmosis describes the diffusion of water through a semi-permeable, i.e. water permeable, membrane separating solutions with differing salt contents. Water from the solution with the lower salt content diffuses via osmotic pressure through the membrane until the salt concentration is the same on both sides. Reverse

Osmosis turns this principle on its head: pressure on the concentrated salt solution side causes pure water to diffuse to the other side of the membrane while the original solution becomes increasingly concentrated.

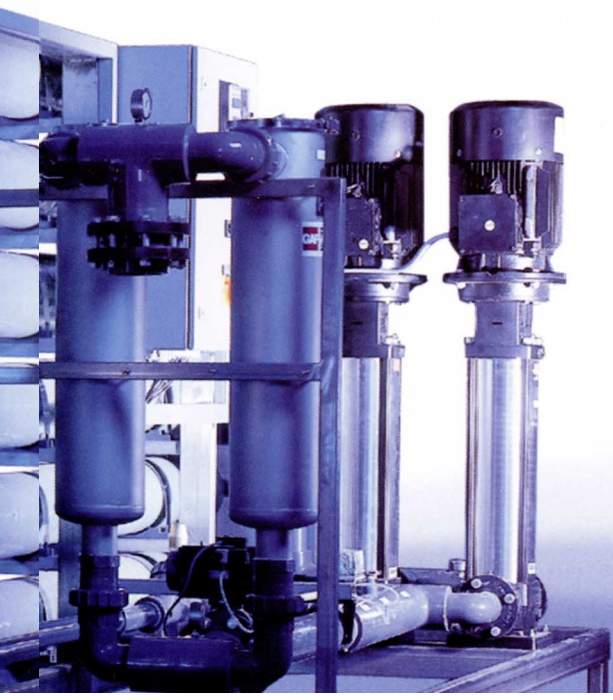
80% of the amount of raw water can be recovered as permeate via this process which removes more than 99% of the salt content. Cleaning equipment is also integrated into the system (4). This guarantees a long operating life



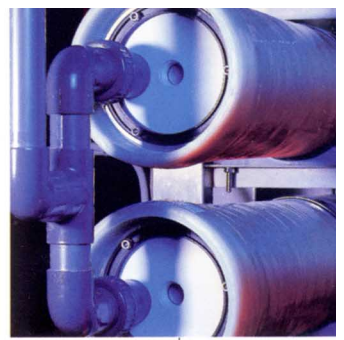
1. Particle filter
2. High-pressure pump
3. Membrane
4. Cleaning system

Our Dulcosmose® uses this principle in a series of stages as follows: firstly suspended particles are removed from pre-treated raw water with a particle filter (1). A high-pressure pump (2) then pumps the raw water to the reverse osmosis membrane (3) where the flow splits into two: the desalinated clean water – also known as the permeate – and the smaller split flow of now highly concentrated raw water which is then fed into the drainage system. Up to

for the reverse osmosis membranes.



**LESS ENVIRONMENTAL STRESS, LOWER COSTS.  
DULCOSMOSE® – EFFICIENT AND COMPACT.**



<p>The reverse osmosis process has significant advantages over traditional desalination. Clean water is produced continuously. There is no need to store potentially hazardous acids and alkalis.</p>	<p>The environmentally stressful waste water neutralisation process is avoided. Above all, the salt load in the waste water is reduced, an additional environmental argument. And a glance</p>	<p>at the operating costs reveals reductions of 10 to 20% – these are weighty arguments in favour of Dulcosmose® systems.</p>
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# QUALITY ANALYSIS

System type	Technical data for ProMinent standard reverse osmosis systems			
	Permeate capacity m³/h	Maximum yield %	Wattage kW	Dimensions approx. W x H x D/mm
<b>Raw water quality: softened or chemically conditioned drinking and mains water in accordance with drinking water directive</b>				
PRO0005TW – PRO0015TW	0.05 to 0.15	50 to 65	0.3 to 0.55	550 x 1800 x 650
PRO0030TW – PRO0300TW	0.3 to 3	75	1.5 to 4	550 x 1800 x 650 to 3000 x 1800 x 750
PRO0350TW – PRO5000TW	3.5 to 50	75 to 80	4 to 37	3000 x 1800 x 1000 to 7000 x 2000 x 1500
<b>Raw water quality: softened or chemically conditioned brackish water, TDS up to 10000 mg /l, SDI &lt; 3</b>				
PRO0015BW – PRO0200BW	0.15 to 20	35 to 50	0.55 to 4	750 x 1800 x 650 to 4500 x 2000 x 850
PRO0300BW – PRO2000BW	3 to 20	45 to 60	8 to 30	4000 x 2000 x 1000 to 7000 x 2000 x 1500
<b>Raw water quality: softened or chemically conditioned seawater, TDS ≥ 35000 mg/l, SDL &lt; 3</b>				
PRO0050SW – PRO0100SW	0.5 to 1	35	4 to 7.5	750 x 1800 x 650 to 4000 x 2000 x 1000
PRO0200SW – PRO1000SW	2 to 10	35 to 40	16 to 66	3000 x 2000 x 1000 to 7000 x 2000 x 1500
PRO1200SW – PRO2000SW	12 to 20	35 to 40	75 to 90	7000 x 2000 x 1500

**TDS** = total salt content, **SDI** = blockage index

**Power supply:** 230/50 Hz or 400/50 V/Hz, other voltages or frequencies on request.

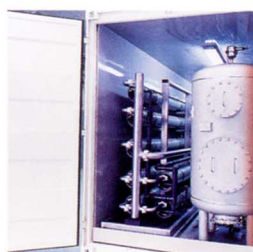
Other permeate capacities, two-stage systems and custom systems on request.





## HIGH PERFORMANCE AT MANY CAPACITY LEVELS: THE RIGHT SYSTEM FOR EVERY APPLICATION.

It couldn't be more compact: the seawater desalination system in a standard container



Clean water? In the context of Dulcosmose®

complete reverse osmosis system with integrated pre-and post treatments in a seawater container. There are numerous application opportunities both in industry and in the domestic sector. The

based on many years experience in the field of membrane technology. From ProMinent you can expect equally high quality, well matched and reliably functioning components.

# VALUABLE

Good health – Dulcosmose® systems achieve clean results in breweries



systems, clean water means free from saturated salts and bacterial and organic substances. Reverse osmosis provides not only desalinated water from various raw water types. It also produces, for example, drinking water from seawater or brackish water. For every important application sectors such as this, we don't just offer everyday systems: for flexibility of use ProMinent offers a

chemical and pharmaceutical industry employs Dulcosmose® systems as does the food and drinks industry and as do breweries. The systems are also used in electroplating companies, the metal working industry and in power stations for the treatment of boiler feed water.

The range of capacities corresponds to the variety of applications so that we can always offer the right solution for individual requirements. In every case you can rely on the knowledge of our specialists. Our reverse osmosis systems are

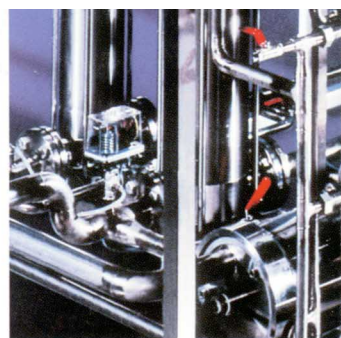


Sparkling electroplating results require the clean water from our systems

ProMinent Dulcosmose®, the standard system for international industrial companies in many sectors

Application	Example	Capacity in m³/d
Seawater desalination	Fiji Islands	36
Waste water treatment	Poland	144
Electroplating	Germany	132
Brewing and beverages industry	Thailand	720
Food and drinks industry	Germany	84
Chemical and pharmaceutical industry	Slovenia/Russia	48/12
Metal working industry	Chile	20
Power stations/boiler feed water	Peru	144

**AN ENTIRELY INTERNAL SYSTEM:  
FROM DESIGN TO SERVICING – ALL IN-HOUSE.**



Always near at hand:  
reliable and rapid  
technical servicing from  
ProMinent



ProMinent is known  
world-wide for offering

design and engineering of  
the system configuration  
to correspond to the ex-  
isting raw water quality.  
This design is very impor-  
tant as every application  
has differing demands.  
We will deliver the com-

wise we are always near  
by – with spare parts,  
qualified servicing per-  
sonnel and advice. And  
that's around the world  
and around-the-clock.

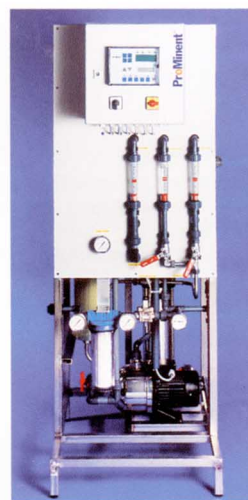
# QUALITY ISSUES

Reliable service  
from the start:  
our individual  
design service



complete solutions in the  
field of water treatment.  
Wherever you are in the  
world we are ready to  
provide individual advice  
in your neighbourhood  
with 33 branches and  
60 agents. We will be  
glad to carry out the

plete reverse osmosis  
system with precisely  
gauged pre-and post  
treatment solutions. We  
can save you discussions  
with other companies. If  
required we can be on  
site to commission your  
system with you. In order  
to guarantee long-term  
problem free operation,  
we will carry out training  
for your personnel in the  
handling and mainten-  
ance of the systems. Other-



Your application deter-  
mines the system and its  
construction – we will be  
glad to advise you



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**ProMinent®**