LG Chem

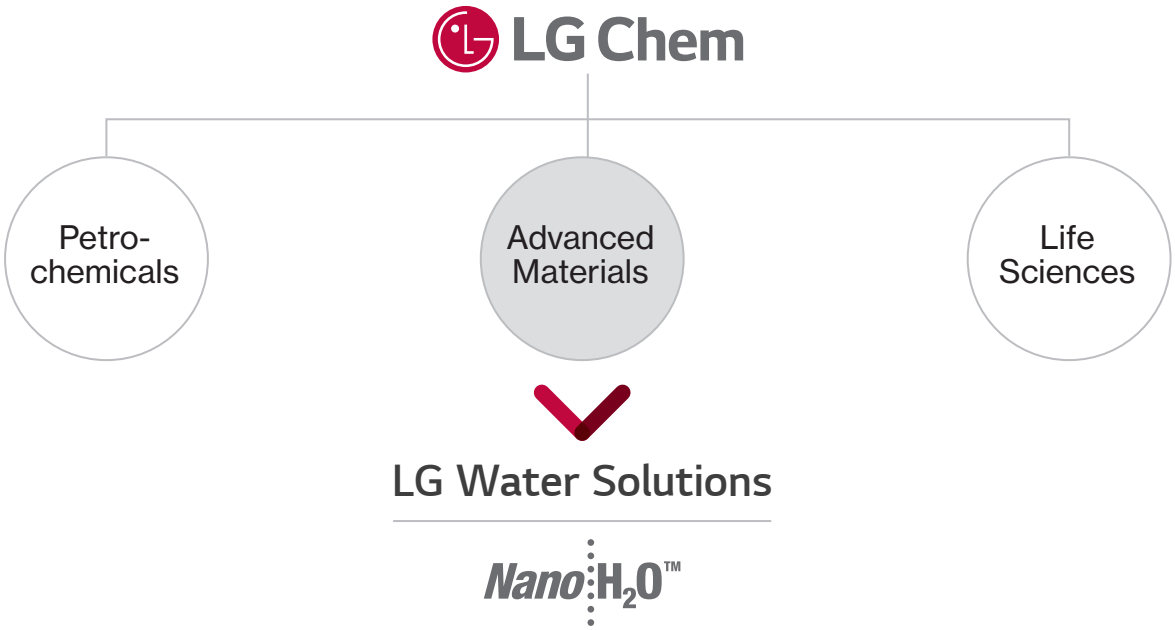
ATS WATER TECHNOLOGY

LG Water Solutions

TFN RO Membrane Technology

Nano H$_2$O™

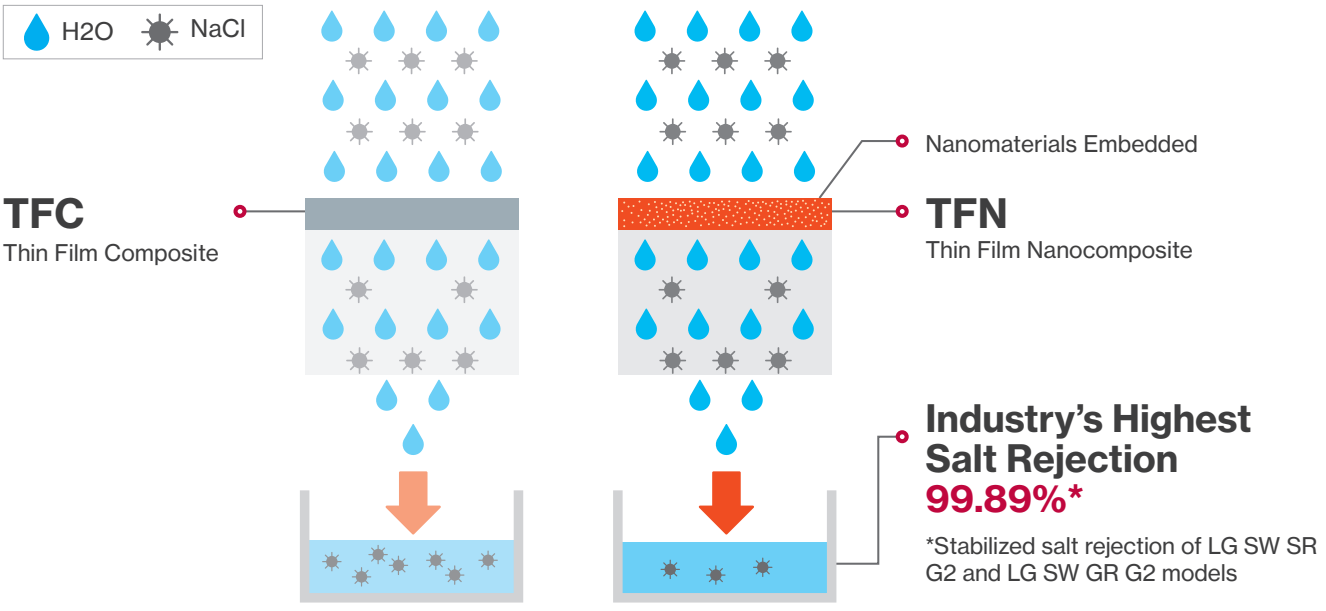
LG Water Solutions



LG Water Solutions, a division of LG Chem, manufactures NanoH_2O™ seawater and brackish water reverse osmosis (RO) membrane elements based on the breakthrough Thin-Film Nanocomposite (TFN) technology.

Technology

Thin Film Nanocomposite (TFN) technology improves membrane performance by embedding benign nanomaterials on the membrane surface. This innovative approach increases flux in seawater RO membranes by up to 20% without compromising salt rejection.



Seawater Reverse Osmosis (RO) Membranes

Global Project Wins Driven by Performance

Overview

LG Water Solutions' NanoH_2O™ seawater RO membranes deliver the industry's highest salt rejection and 20% more flow than the membranes based on conventional technologies. Our seawater RO membranes significantly reduce the cost of desalination while delivering superior water quality. With state-of-the-art manufacturing and a customer-centric approach, LG Waer Solutions has contracted more than 4,000 million litres per Day (MLD) in seawater projects in the past three years (2021).

LG SW SR G2, GR G2 and R G2
Next generation membranes with industry-leading salt rejection up to 99.89%

LG SW SR, GR and R
High-rejection membrane ideal for high feed TDS and high permeate quality requirements

LG SW ES
Energy saving membranes ideal for low feed TDS and low temperature seawater applications

Brackish Water Reverse Osmosis (RO) Membranes

Engineered for OPEX Savings

Overview

LG Water Solutions' NanoH_2O™ brackish water RO membranes are gaining traction with major utilities and industrial end-users worldwide. The TFN technology, coupled with intrinsic anti-fouling properties, delivers reliable performance and reduced operational downtime, leading to a lower total cost of plant ownership.

LG BW AFR G2
Anti-Fouling, High Rejection, High Flow, High Durability

LG BW R G2
Superior Rejection, High Flow, High Durability

LG BW R Dura
High Rejection, High Durability

LG BW R
High Rejection

LG BW AFR
Anti-Fouling, High Rejection

LG BW ES
Energy Saving

LG BW UES
Ultra Low Energy

LG SW G2 Membranes

With industry's **highest** salt rejection, LG SW G2 membranes can provide:

- **Improved permeate quality** without increasing operating pressure
- **Reduced energy cost** without sacrificing the permeate quality
- **Reduced capital and operation costs** for multi-pass SWRO systems

Model	Active Membrane Area, ft^2 (m^2)	Permeate Flow Rate, GPD (m^3/d)	Stabilized Salt Rejection, %	Minimum Salt Rejection, %	Boron Rejection, %	Feed Spacer, mil
LG SW 440 SR G2	440 (41)	6,600 (25.0)	99.89	99.75	93	28
LG SW 400 SR G2	400 (37)	6,000 (22.7)	99.89	99.75	93	34
LG SW 440 GR G2	440 (41)	8,250 (31.2)	99.89	99.75	93	28
LG SW 400 GR G2	400 (37)	7,500 (28.4)	99.89	99.75	93	34
LG SW 440 R G2	440 (41)	9,900 (37.5)	99.88	99.75	93	28
LG SW 400 R G2	400 (37)	9,000 (34.1)	99.88	99.75	93	34

Test Conditions : 32,000 ppm NaCl, 5 ppm Boron at 25°C (77°F), 800 psi (55 bar), pH 8, Recovery 8%

LG SW G1 Membranes

Model	Active Membrane Area, ft^2 (m^2)	Permeate Flow Rate, GPD (m^3/d)	Stabilized Salt Rejection, %	Minimum Salt Rejection, %	Boron Rejection, %	Feed Spacer, mil
LG SW 440 SR	440 (41)	6,600 (25.0)	99.85	99.7	93	28
LG SW 400 SR	400 (37)	6,000 (22.7)	99.85	99.7	93	34
LG SW 440 GR	440 (41)	8,250 (31.2)	99.85	99.7	93	28
LG SW 400 GR	400 (37)	7,500 (28.4)	99.85	99.7	93	34
LG SW 440 R	440 (41)	9,900 (37.5)	99.85	99.7	93	28
LG SW 400 R	400 (37)	9,000 (34.1)	99.85	99.7	93	34
LG SW 440 ES*	440 (41)	7,480 (28.3)	99.60	99.3	81	28
LG SW 440 ES	440 (41)	15,070 (57.0)	99.80	99.6	89	28
LG SW 400 ES*	400 (37)	6,800 (25.7)	99.60	99.3	81	34
LG SW 400 ES	400 (37)	13,700 (51.9)	99.80	99.6	89	34

Test Conditions : 32,000 ppm NaCl, 5 ppm Boron at 25°C (77°F), 800 psi (55 bar), pH 8, Recovery 8%
*Specifications for when test conditions performed at 600 psi (4.1 MPa)

LG BWRO Membranes

Model	Active Membrane Area, ft^2 (m^2)	Permeate Flow Rate, GPD (m^3/d)	Stabilized Salt Rejection, %	Minimum Salt Rejection, %	Feed Spacer, mil	Test Pressure, psi (bar)
High Rejection Anti-fouling						
LG BW 400 R G2	400 (37)	11,500 (43.5)	99.8	99.65	34, low dP	225 (15.5)
LG BW 400 AFR G2	400 (37)	11,500 (43.5)	99.7	99.6	34, low dP	225 (15.5)
LG BW 400 R Dura	400 (37)	10,500 (39.7)	99.7	99.6	34, low dP	225 (15.5)
LG BW 400 AFR	400 (37)	10,500 (39.7)	99.6	99.5	34	225 (15.5)
High Rejection Standard						
LG BW 440 R G2	440 (41)	12,650 (47.9)	99.8	99.65	28	225 (15.5)
LG BW 440 R Dura	440 (41)	11,550 (43.7)	99.7	99.6	28	225 (15.5)
LG BW 440 R	440 (41)	11,550 (43.7)	99.6	99.5	28	225 (15.5)
LG BW 400 R	400 (37)	10,500 (39.7)	99.6	99.5	34	225 (15.5)
Energy Saving						
LG BW 440 ES	440 (41)	11,550 (43.7)	99.6	99.5	28	150 (10.3)
LG BW 400 ES	400 (37)	10,500 (39.7)	99.6	99.5	34	150 (10.3)
LG BW 400 ES L	400 (37)	10,500 (39.7)	99.6	99.5	34, low dP	150 (10.3)
Ultra Energy Saving						
LG BW 440 UES	440 (41)	12,650 (47.9)	99.0	98.0	28	125 (8.6)
LG BW 400 UES	400 (37)	11,500 (43.5)	99.0	98.0	34, low dP	125 (8.6)
Test Conditions : 2,000 ppm NaCl at 25°C (77°F), pH 7, Recovery 15%						

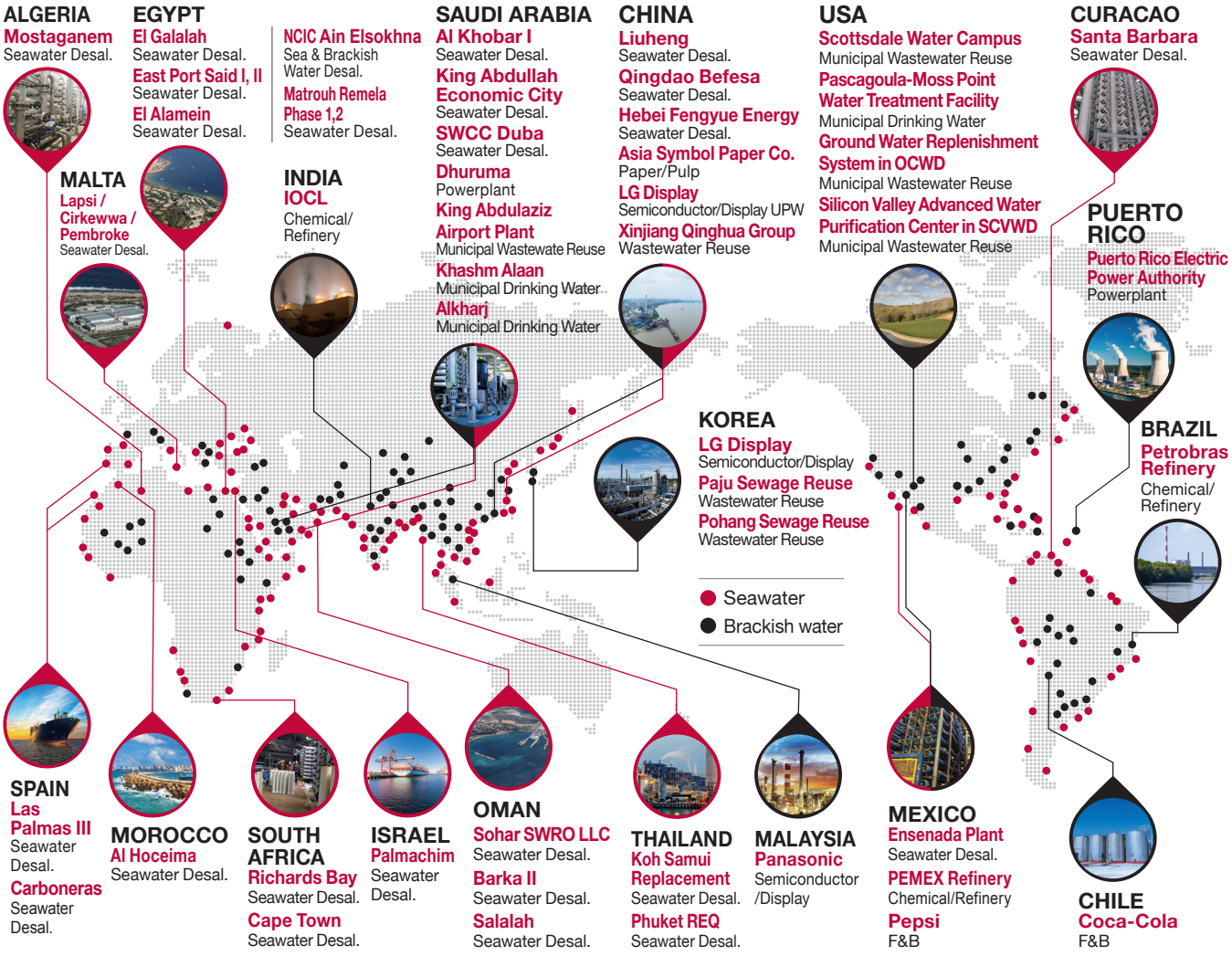
Light Commercial RO Membranes

Model	Active Membrane Area, ft^2 (m^2)	Permeate Flow Rate, GPD (m^3/d)	Stabilized Salt Rejection, %	Minimum Salt Rejection, %	Recovery, %	Test Pressure, psi (bar)
Seawater[1]						
LG SW 4040 R	80 (7.4)	1,950 (7.4)	99.7	99.5	8	800 (55)
High Rejection[2]						
LG BW 4040 R	85 (7.9)	2,500 (9.5)	99.6	99.3	15	225 (15.5)
LG BW 4021 R	34 (3.2)	1,000 (3.8)	99.6	99.3	8	225 (15.5)
LG BW 2540 R	22 (2.0)	750 (2.8)	99.6	99.3	15	225 (15.5)
LG BW 2521 R	9 (0.9)	345 (1.3)	99.6	99.3	8	225 (15.5)
Low Pressure[2]						
LG BW 4040 ES	85 (7.9)	2,500 (9.5)	99.5	99.2	15	150 (10.3)
LG BW 4021 ES	34 (3.2)	1,000 (3.8)	99.5	99.2	8	150 (10.3)
LG BW 2540 ES	22 (2.0)	750 (2.8)	99.5	99.2	15	150 (10.3)
LG BW 2521 ES	9 (0.9)	345 (1.3)	99.5	99.2	8	150 (10.3)
Ultra Low Pressure[3]						
LG CW 4040 SF*	85 (7.9)	2,900 (11.0)	99.0	98.0	15	100 (6.9)
LG BW 4040 UES	85 (7.9)	2,700 (10.2)	99.0	98.0	15	100 (6.9)
LG BW 4021 UES	34 (3.2)	1,000 (3.8)	99.0	98.0	8	100 (6.9)
LG BW 2540 UES	21 (2.0)	800 (3.0)	99.0	98.0	15	100 (6.9)
LG BW 2521 UES	9 (0.9)	345 (1.3)	99.0	98.0	8	100 (6.9)

[1]Test conditions: 32,000 ppm NaCl at 25°C (77°F), pH 8
[2]Test conditions: 2,000 ppm NaCl at 25°C (77°F), pH 7
[3]Test conditions: 500 ppm NaCl at 25°C (77°F), pH 7
*Shipped dry

Proven Track Record
of Performance and Quality

Selected Global References



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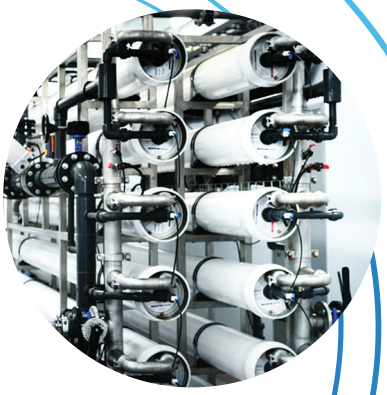
Nano H_2O™



www.lgwatersolutions.com

Contact LG Water Solutions Today!

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