



**Brackish Water
Reverse Osmosis (RO) Membranes
LG BW 400 ES L**

Overview

LG Chem, supplier of the full line of NanoH₂O™ reverse osmosis (RO) membranes introduces a new energy saving brackish water RO membrane LG BW ES L. The element's **low differential pressure** improves overall system performance and provides higher fouling resistance and cleanability. The membrane's high permeability at low feed pressure significantly reduces operating costs.

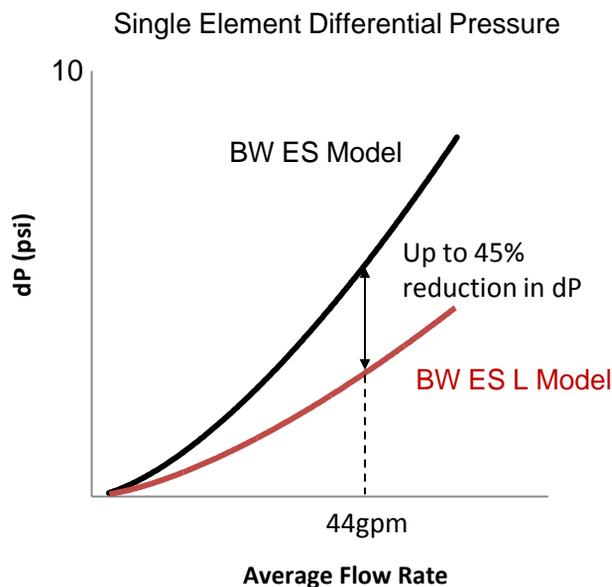
Specifications

Product	Active Membrane Area, ft ² (m ²)	Permeate Flow Rate, GPD (m ³ /d)	Stabilized Salt Rejection, %	Minimum Salt Rejection, %	Feed Spacer, mil
LG BW 400 ES L	400 (37)	10,500 (39.7)	99.60	99.50	34

Test Conditions: 2,000ppm NaCl at 25°C (77°F), 150 psi (10.3 bar), pH 7, Recovery 15%.
Permeate flows for individual elements may vary +/-15%

Low Differential Pressure Membrane Module

The Differential Pressure (DP) in the reverse osmosis membrane system is one of the key performance indicators of the system performance. Higher DP increases the energy cost of operating the system and can cause damage to the membranes. Therefore, it is important to reduce DP in RO systems with high system flux in energy-saving applications. The new membrane, LG BW ES L, addresses this problem by introducing the new feed spacer design to decrease the membrane DP. The letter "L" denotes the low differential pressure feed spacer used in the product.





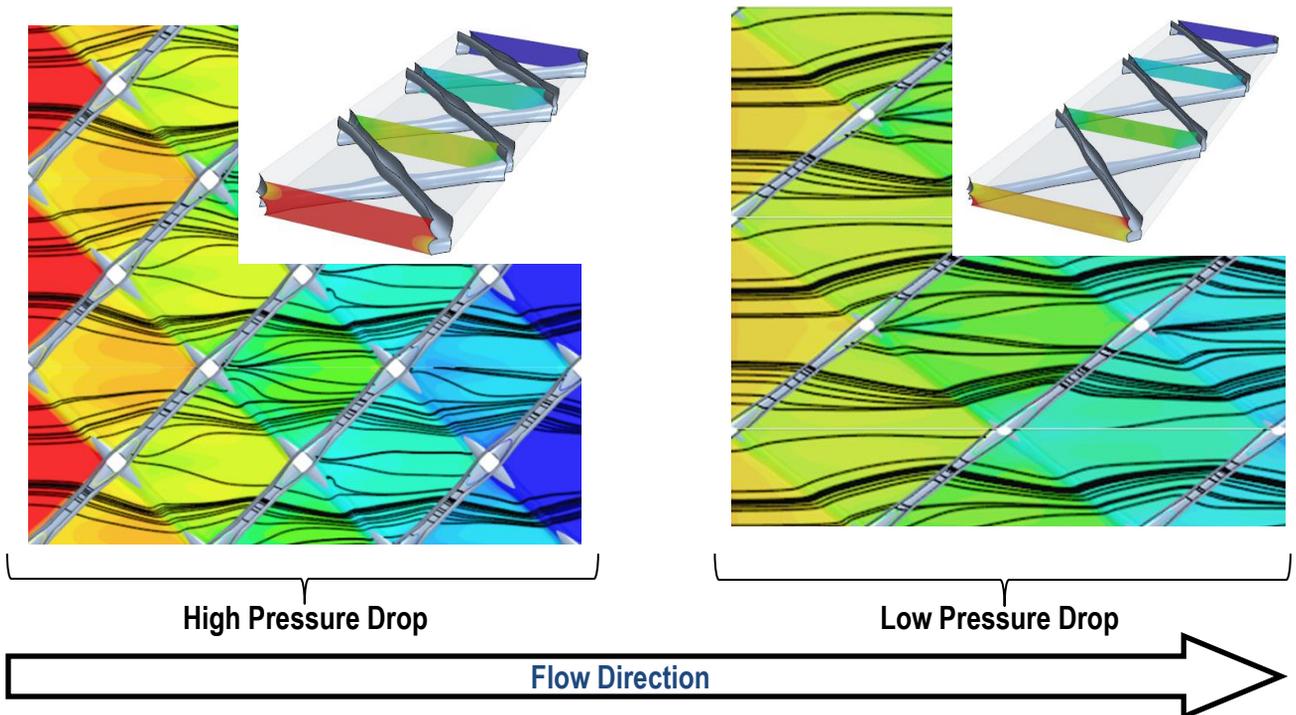
Brackish Water
Reverse Osmosis (RO) Membranes
LG BW 400 ES L

Key Features in New Spacer

The primary function of the feed spacer is to separate the two membrane leaves so the feed can freely flow between the leaves while creating turbulent flow to minimize concentration polarization (C_p) on the membrane surface. As the feed water passes through the system it loses its pressure due to friction, and this is how differential pressure between the feed and concentrate sides is formed. At constant operating conditions DP depends on the geometry of the membrane feed spacer: mesh size, thickness, strand diameter and angle. The new “L” spacer maintains the same thickness as the 34-mil standard spacer while optimizing the strand arrangement and thickness to streamline the flow and thus minimize the flow disturbance and pressure losses without increasing concentration polarization. The resulting design provides lower DP element with the same performance.

Standard 34-mil Spacer

34-mil “L” Spacer



Low [Static Pressure] High



Brackish Water
Reverse Osmosis (RO) Membranes
LG BW 400 ES L

Field Verification

Pilot Snapshot

- Location: USA
- Standalone pilot skid : 2 PV, 7 elements each
- Temperature: 10 – 22 °C
- Feed conductivity: ~ 1,000 ppm
- Permeate Flow: 23 gpm per PV
- Recovery: 50%

Results

Normalized Differential Pressure (psi)

