Nitto

HYDRANAUTICS
Nitto Group Company

ESPA2-LD MAX

Highest membrane area RO product with 34 mil spacer

Designers will no longer have to sacrifice membrane area to have thicker feed spacers for high fouling applications. Innovations have enabled us to offer the ESPA2-LD MAX membranes which have a membrane area of 440 ft^2 (40.9 m^2) and use 34 mil feed spacer. Increasing the membrane area of a standard 400 ft^2 (37.2 m^2) by 10%, to 440 ft^2 (40.9 m^2) offers the following benefits:

- CAPEX benefits like reducing the total number of elements, pressure vessels etc. and equipment with smaller footprint
- OPEX benefits like reduced energy consumption and lower differential pressure

The energy saving properties of the ESPA membranes along with lower colloidal fouling properties of the LD Technology®, ensure that this element provides optimum performance with greater cost savings.

Features and benefits:

- **Enhanced membrane chemistry** for best permeate quality at lower feed pressure
- **Improved chemical resistance** for increased membrane life
- **Innovative feed spacer design** to reduce cleaning frequency and costs
- **Proprietary vented seal carrier** to eliminate pressure-shock damage during system startup

Key features:

- **High permeate flow – 12,000 gpd (45.4 m^3/d)**
- **High salt rejection – 99.6% (99.5% minimum)**
- **High rejection of TOC, boron, silica and nitrate**
- **Lower energy consumption**
- **Lower operating pressure, differential pressure**
- **Reduced colloidal fouling**

Applications:

- Municipal drinking water treatment
- Wastewater treatment
- Treated Sewage Effluent (TSE) applications
- Second pass RO
- Water treatment for irrigation
- Bottled water and food and beverages industry
- Light industrial use for treating water low in biodegradable organics

Performance:

Permeate Flow	12,000 gpd (45.4 m^3/d)
Salt Rejection	99.6% (99.5% minimum)

Applications Data:

pH Range, Continuous (Cleaning)	2 – 10.6 (1 – 12)
Maximum Feedwater SDI (15 mins)	5.0
Maximum Feed Flow	85 gpm (19.3 m^3/h)

Test Conditions:

- 1500 ppm NaCl solution
- 150 psi (1.03 MPa) Applied Pressure
- 77 °F (25 °C) Operating Temperature
- 15% Permeate Recovery
- 6.5 – 7.0 pH Range

ESPA2-LD MAX, Energy Saving Polyamide RO Membranes, for Your Water Treatment Needs!

Hydranautics – A Nitto Group Company is a global leader in research, including reverse osmosis, nanofiltration, ultrafiltration, and microfiltration. Our membrane products (CPA, ESPA, LFC, SWC, ESNA, HYDRAcapMAX and HYDRAsub) are used extensively in municipal & industrial water and wastewater treatment.

Hydranautics has over 40 years experience in the membrane technology arena and are committed to creating innovative membrane technologies which provide clean water to a thirsty world.

Our Global Membrane Division is headquartered in Oceanside, CA, USA. With three state-of-the-art manufacturing sites located in Oceanside – CA – USA, Shiga – Japan and Shanghai – China, Hydranautics has a combined manufacturing area in excess of 1,400,000 ft^2 (130,064 m^2). Our world-wide sales and customer service offices are located throughout Europe, Asia, the Middle East, North America and South America.

Solutions You Need.
Technologies You Trust!

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