Energy Saving Polyamide Membrane Elements

Hydranautics offers a complete line of energy saving polyamide ESPA reverse osmosis membrane elements for a wide range of water treatment applications. Energy saving ESPA elements are available from Hydranautics in both 4-inch and 8-inch diameters by 40-inch long spiral wound configurations for many treatment applications. ESPA’s unparalleled performance characteristics can provide a significant cost savings due to the lower operating pressures required, while still providing optimal flow as well as high salt and boron rejection. Hydranautics has several installations around the world for these and other applications that combine their patented RO, NF, UF and MF membrane technologies in the unique Hydranautics process- Integrated Membrane Solutions® (IMS) - to create the perfect water treatment solution for their customer.

Applications:
- The treatment of well, surface and wastewater with high salt rejection requirements
- High purity industrial applications
- Seawater desalination plants requiring high boron rejection

ESPA Product Offerings:

ESPA1
The world's leading high productivity, energy-saving polyamide membrane

ESPA2 LD
ESPA2 LD has minimized biofouling, minimized colloidal fouling and enhanced cleanability

ESPA2 MAX
Offers the same rejection characteristics as ESPA2 but with even higher flow rates

ESPA4 MAX
Highest productivity & rejection with next-generation performance

ESPAB
Provides a new option for communities where boron levels are naturally high or for manufacturers challenged by boron contamination issues

ESPAB MAX
Increased active surface area for higher flux and rejection, with the same superior boron rejection as the ESPAB
Performance for Ultra Low Pressure Membranes:

<table>
<thead>
<tr>
<th>Element Type</th>
<th>Min. Salt Rej., %</th>
<th>Norm. Salt Rej., %</th>
<th>Permeate Flow GPD</th>
<th>Permeate Flow (m³/d)</th>
<th>Membrane Active Area ft² (m²)</th>
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</thead>
<tbody>
<tr>
<td>ESPA1</td>
<td>99.0</td>
<td>99.3</td>
<td>12,000</td>
<td>45.5</td>
<td>400 (37.1)</td>
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<tr>
<td>ESPA2-LD</td>
<td>99.5</td>
<td>99.6</td>
<td>10,000</td>
<td>37.9</td>
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<td>99.2</td>
<td>12,000</td>
<td>45.4</td>
<td>400 (37.1)</td>
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<td>45.4</td>
<td>440 (40.8)</td>
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<td>99.3</td>
<td>34,000</td>
<td>128.7</td>
<td>1700 (158)</td>
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</tbody>
</table>

Membrane of choice for low pressure water application

Selected ESPA Project References

Ulu Pandan, Singapore
45 MGD (170.00 m³/d) of industrial water from a wastewater source

West Basin, California
5 MGD (19,000 m³/d) of industrial water from a wastewater source

Orange County, California
70 MGD (265,000 m³/d) of reclaimed wastewater source

Alameda County water
8 MGD (30,000 m³/d) of potable water from a well water source

Solutions You Need.
Technologies You Trust!

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