Nitto
Innovation for Customers

HYDRANAUTICS

ESNA

Energy Saving Nanofiltration Membranes

High performance energy saving ESNA nanofiltration membranes are ideal for softening applications and the removal of pesticides, pathogens, bacteria or viruses. ESNA provides optimum salt rejection with ultra-low-pressure operations, increased energy savings, and significantly lower installation and operating costs. ESNA can effectively remove organics that can form disinfection by-products in municipal water.

Suitable Applications:

- Brackish water softening
- Drinking water from surface water
- Removal of NOM, TOC, PFAS, and other organics
- Industrial wastewater reclamation to achieve high recovery

Product Offerings:

ESNA1-LF-LD

ESNA1-LF-LD provides 50-90% salt rejection with ultra-low-pressure operations and significantly lower operating costs.

Key Benefits:

- Ideal for softening application
- Removal of pesticides, bacteria and viruses

Permeate Flow, gpd (m^3/d)	9,500 (36.0)
$CaCl_2$ Rejection	93%

Test Condition:
500ppm $CaCl_2$ solution, 75psig (0.52MPa) Applied Pressure, 77°F (25°C) Operating Temperature, 15% Permeate Recovery, 6.5-7.0 pH Range

ESNA1-LF2-LD

ESNA1-LF2-LD provides superior Natural Organic Matter (NOM) rejection and moderate hardness rejection, operating at <100 psi.

Key Benefits:

- High NOM and color rejection
- Lower operating cost

Permeate Flow, gpd (m^3/d)	12,000 (45.4)
$CaCl_2$ Rejection	91%

Test Condition:
500ppm $CaCl_2$ solution, 75psig (0.52MPa) Applied Pressure, 77°F (25°C) Operating Temperature, 15% Permeate Recovery, 6.5-7.0 pH Range

ESNA4-LD

ESNA4-LD's selective separation capability can be used to deliver high quality permeate while removing specific contaminants.

Key Benefits:

- Removal of nitrates and large organic compounds
- Sulfate removal from wastewater

Permeate Flow, gpd (m^3/d)	11,500 (43.5)
Salt Rejection	>99.0%

Test Condition:
2,000ppm $MgSO_4$ solution, 100psig (0.69MPa) Applied Pressure, 77°F (25°C) Operating Temperature, 15% Permeate Recovery, 7.0-7.5 pH Range

ESNA5-LD New

ESNA5-LD provides optimum salt rejection and excellent removal of organics with ultra-low-pressure operations.

Key Benefits:

- Ideal for drinking water application
- Excellent removal of NOM, TOC, PFAS and other organics

Permeate Flow, gpd (m^3/d)	12,000 (45.4)
Salt Rejection	≧97.0%

Test Condition:
500ppm NaCl solution, 70psig (0.48MPa) Applied Pressure, 77°F (25°C) Operating Temperature., 15% Permeate Recovery, 6.5-7.0 pH Range

Permeate Flow, gpd (m^3/d)	11,500 (43.5)
$MgSO_4$ Rejection	≧99.0%

Reference Test Water ($MgSO_4$) Test Condition: 2,000 ppm $MgSO_4$ Solution, 70 psi (0.48 MPa), 77°F (25°C), 15% Permeate Recovery, 6.5-7.0 pH Range

Solutions You Need.

Technologies You Trust!

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