

HYDRAPro[®] 400 Series

The HYDRAPro 400 series is a unique set of spiral wound membranes customized specifically for industrial process applications. These membranes are based on existing Hydranautics high performance membrane products which have been specially designed to treat a variety of challenging industrial feed streams including high fouling, high salinity feeds, or having special ion separation requirements.

Specified Performance:

| Model | Area, ft ² | Feed Spacer (mil) | Permeate Flow | SO ₄ Rej. % (avg) |
|-------------------|-----------------------|-------------------|------------------------------------|------------------------------|
| HYDRAPro 402-4040 | 75 | 34 | 2000 gpd (7.6 m ³ /d) | 99.7 |
| HYDRAPro 402-8040 | 400 | 34 | 11000 gpd (41.6 m ³ /d) | 99.7 |
| HYDRAPro 421-4040 | 75 | 34 | 2000 gpd (7.6 m ³ /d) | 99.7 |
| HYDRAPro 421-8040 | 400 | 34 | 11000 gpd (41.6 m ³ /d) | 99.7 |

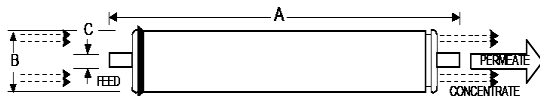
HYDRAPro 402

2000 ppm MgSO₄
 110 psi (0.76 MPa) Applied Pressure
 77°F (25 °C) Operating Temperature
 15% Permeate Recovery
 6.5-7.0 Feed pH

HYDRAPro 421

2000 ppm MgSO₄
 130 psi (0.9 MPa) Applied Pressure
 77°F (25 °C) Operating Temperature
 15% Permeate Recovery
 6.5-7.0 Feed pH

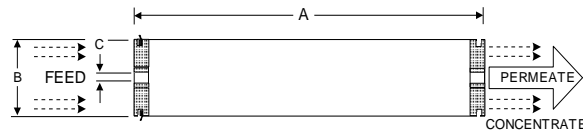
4040



| A, inches (mm) | B, inches (mm) | C, inches (mm) |
|----------------|----------------|----------------|
| 40.0 (1016) | 3.95 (100.3) | 0.75 (19.05) |

Core Tube Extension = 1.05" (26.7 mm)

8040



| A, inches (mm) | B, inches (mm) | C, inches (mm) |
|----------------|----------------|----------------|
| 40.0 (1016) | 7.89 (200.0) | 1.125 (28.6) |

Core tube ID = 1.125" (28.6 mm)

The Specified Performance is based on data taken after approximately 30 minutes of operation. Actual testing of elements may be done at conditions which vary from these exact values; in which case, the performance is normalized back to these standard conditions. Permeate flow for individual elements may vary from the stated value with a range of + or -20%.

General Product Description*

Configuration:

Low Fouling Spiral Wound

Membrane Polymer:

Composite Polyamide

Maximum Applied Pressure:

600 psig (4.1 MPa) for HYDRAPro 402

1200 psig (8.3 MPa) for HYDRAPro 421

Maximum Chlorine Concentration:

< 0.1 PPM

Maximum Operating Temperature:

113 °F (45 °C)

pH Range, Continuous (Cleaning):

3.0 - 9.0 (1.0 - 11.5)

Maximum Feedwater Turbidity:

1.0 NTU

Maximum Feedwater SDI (15 mins):

5.0

Maximum Feed Flow for **4040**:

16 GPM (3.6 m³/h)

Maximum Feed Flow for **8040**:

85 GPM (19.30 m³/h)

Maximum Pressure Drop for Each Element:

15 psi

*The Limitations shown here are for general use. For specific projects, operating at more conservative values may ensure the best performance and longest life of the membrane. See Hydranautics Technical Bulletin and design guidelines for more detail on operation limits, cleaning pH, and cleaning temperatures.

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8/17/18