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HYDRANAUTICS

Product Data Sheet

ESPA1

Specified Performance*

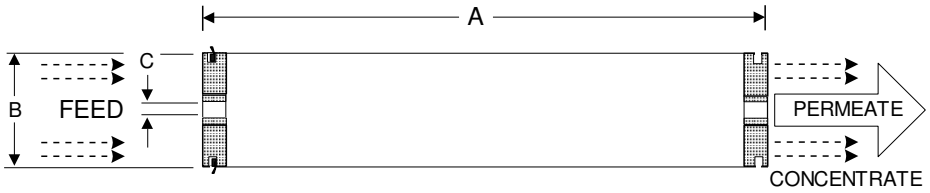
Permeate Flow:	12,000 gpd (45.4 m^3/d)
Salt Rejection:	99.4% (99.2% minimum)
Test Conditions:	1,500 ppm NaCl solution 150 psig (1.03 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 +25 / -15 percent from the value specified.

General Product Description**

Configuration:	Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	400 ft^2 (37.2 m^2)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	75 gpm (17.0 m^3/h)
Minimum Brine Flow:	12 gpm (2.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

^The limitations shown here are for general use. For specified projects, operation at more conservative values may ensure the best performance and longest life of the membrane. See Hydranautics Technical Bulletins for more details.

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Product Data Sheet

ESPA1-LD-4040

Specified Performance*

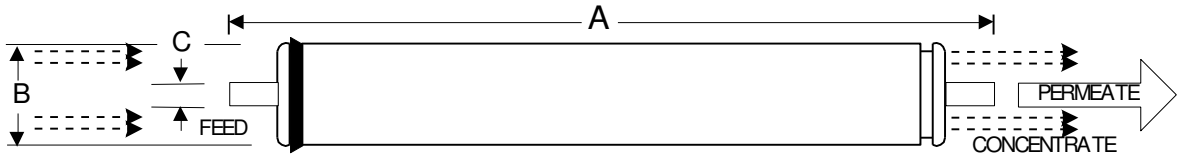
Permeate Flow:	2,450 gpd (9.27 m^3/d)
Salt Rejection:	99.4% (99.2% minimum)
Test Conditions:	1500 ppm NaCl solution 150 psig (1.05 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 + or -15 percent from the value specified.

General Product Description**

Configuration:	Low Fouling Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	80 ft^2 (7.43 m^2)
Feed Spacer:	34 mil (0.86 mm)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	3.95 (100.3)	0.75 (19.1)

Core tube extension = 1.05" (26.7 mm)

** Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	16 gpm (3.6 m^3/h)
Minimum Brine Flow:	3 gpm (0.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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Product Data Sheet

ESPA2-LD

Specified Performance*

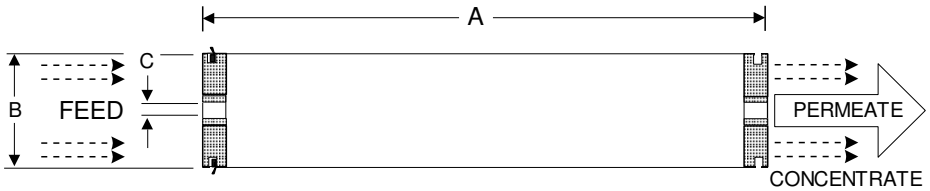
Permeate Flow:	10,000 gpd (37.9 m^3/d)
Salt Rejection:	99.6% (99.5% minimum)
Test Conditions:	1,500 ppm NaCl solution 150 psig (1.03 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 ±15 percent from the value specified.

General Product Description**

Configuration:	Low Fouling Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	400 ft^2 (37.2 m^2)
Feed Spacer:	34 mil (0.86 mm)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10.6 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	85 gpm (19.3 m^3/h)
Minimum Brine Flow:	12 gpm 2.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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ESPA2-LD-4040

Specified Performance*

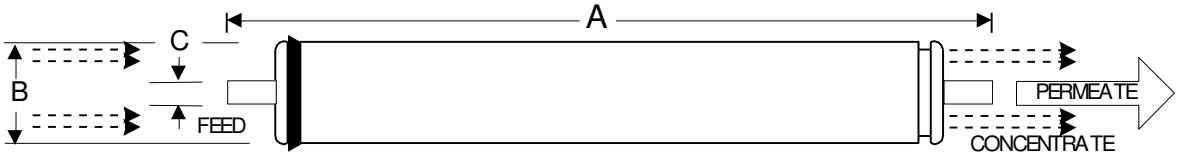
Permeate Flow:	2,000 gpd (7.57 m^3/d)
Salt Rejection:	99.6% (99.4% minimum)
Test Conditions:	1500 ppm NaCl solution 150 psig (1.03 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 + or -20 percent from the value specified.

General Product Description**

Configuration:	Low Fouling Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	80 ft^2 (7.43 m^2)
Feed Spacer:	34 mil (0.86 mm)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	3.95 (100.3)	0.75 (19.1)

Core tube extension = 1.05" (26.7 mm)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10.6 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	16 gpm (3.6 m^3/h)
Minimum Brine Flow:	3 gpm (0.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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Product Data Sheet

ESPA2-LD MAX

Specified Performance*

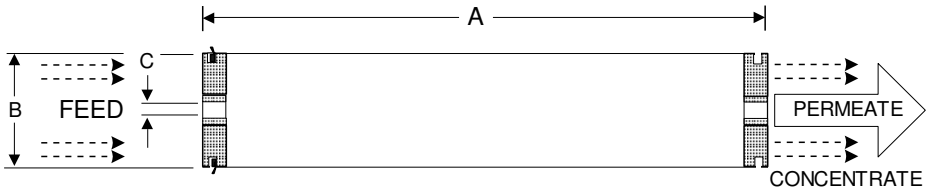
Permeate Flow:	12,000 gpd (45.4 m^3/d)
Salt Rejection:	99.6% (99.5% minimum)
Test Conditions:	1,500 ppm NaCl solution 150 psig (1.03 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 ±15 percent from the value specified.

General Product Description**

Configuration:	Low Fouling Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	440 ft^2 (40.9 m^2)
Feed Spacer:	34 mil (0.86 mm)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10.6 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	85 gpm (19.3 m^3/h)
Minimum Brine Flow:	12 gpm (2.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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Product Data Sheet

ESPA2 MAX

Specified Performance*

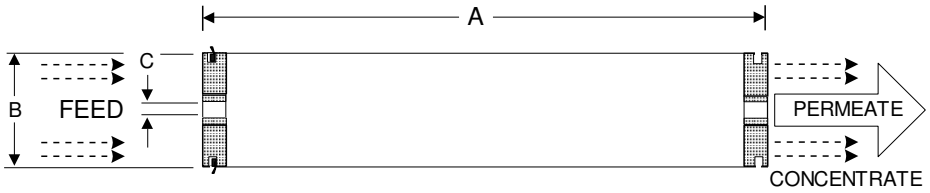
Permeate Flow:	12,000 gpd (45.4 m^3/d)
Salt Rejection:	99.6% (99.5% minimum)
Test Conditions:	1,500 ppm NaCl solution 150 psig (1.03 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

*The Specified Performance is based on data taken after a minimum of 10 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 ±15 percent from the value specified.

General Product Description**

Configuration:	Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	440 ft^2 (40.9 m^2)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10.6 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	75 gpm (17.0 m^3/h)
Minimum Brine Flow:	12 gpm (2.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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Product Data Sheet

ESPA4 MAX

Specified Performance*

Permeate Flow:	13,200 gpd (50 m^3/d)
Salt Rejection:	99.2% (99.0% minimum)
Test Conditions:	500 ppm NaCl solution 100 psig (0.7 MPa) Applied Pressure 77 °F (25 °C) Operating Temperature 15% Permeate Recovery 6.5 - 7.0 pH Range

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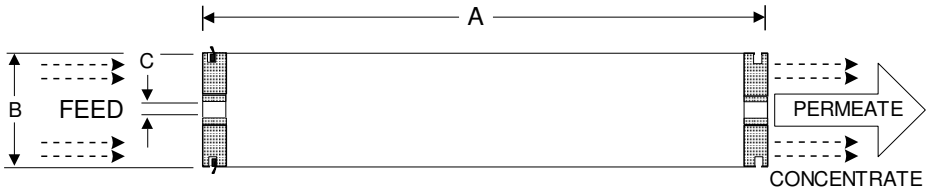
General Product Description**

Configuration:	Spiral Wound
Membrane Polymer:	Composite Polyamide
Membrane Active Area**:	440 ft^2 (40.9 m^2)

Packaging: All membrane elements are supplied with a brine seal, interconnector, and O-rings. Elements are enclosed in a sealed polyethylene bag containing less than 1.0% sodium meta-bisulfite solution, and then packaged in a cardboard box.



Element Details**

A, inches (mm)	B, inches (mm)	C, inches (mm)
40.0 (1016)	7.89 (200)	1.125 (28.6)

**Values listed are indicative, not specified. For more detailed specifications, see our Technical Service Bulletin documents or contact Hydranautics Technical Department.

Product Use and Restrictions^

Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 ppm
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10 (1-12)
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	75 gpm (17.0 m^3/h)
Minimum Brine Flow:	12 gpm (2.7 m^3/h)
Maximum Pressure Drop for Each Element:	15 psi (0.10 MPa)

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