

Membrane Element ESPA1

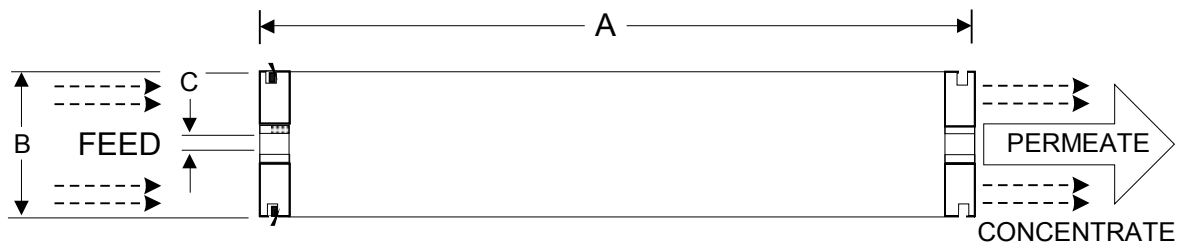
Performance:	Permeate Flow:	12,000 gpd (45.4 m ³ /d)
	Salt Rejection:	99.3% (99.0% minimum)
Type	Configuration:	Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	400 ft ² (37.1m ²)
Application Data*	Maximum Applied Pressure:	600 psig (4.14 MPa)
	Maximum Chlorine Concentration:	< 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 Ratio of Concentrate to Permeate Flow for any Element:	5:1
	Maximum Pressure Drop for Each Element:	10 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 Bulletins for more detail on operation limits, cleaning pH, and cleaning temperatures.

Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

- 1500 PPM NaCl solution
- 150 psi (1.05 MPa) Applied Pressure
- 77 °F (25 °C) Operating Temperature
- 15% Permeate Recovery
- 6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	36 (16.4)

Notice: Permeate flow for individual elements may vary + 25 or - 15 percent. Element weight may vary. 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 10% propylene glycol, and then packaged in a cardboard box.

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Membrane Element

ESPA2 MAX

Performance

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

Type

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

Application Data*

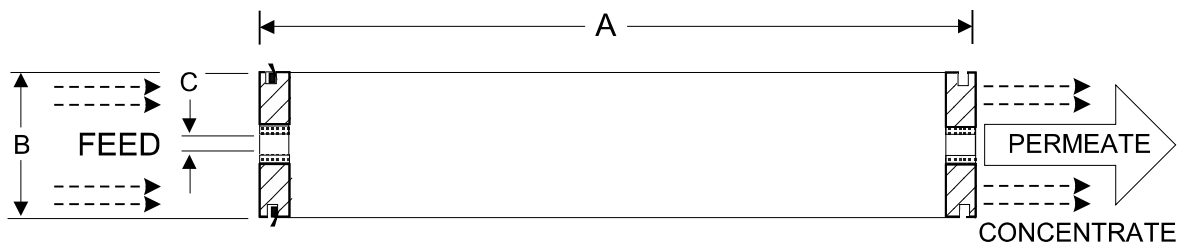
Maximum Applied Pressure:	600 psig (4.14 MPa)
Maximum Chlorine Concentration:	< 0.1 PPM
Maximum Operating Temperature:	113 °F (45 °C)
pH Range, Continuous (Cleaning):	2-10.6 (1-12)*
Maximum Feedwater Turbidity:	1.0 NTU
Maximum Feedwater SDI (15 mins):	5.0
Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
Maximum Pressure Drop for Each Element:	15 psi

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Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

- 1500 PPM NaCl solution
- 150 psi (1.05 MPa) Applied Pressure
- 77 °F (25 °C) Operating Temperature
- 15% Permeate Recovery
- 6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	36 (16.4)

Notice: Permeate flow for individual elements may vary + or - 15 percent. Membrane active area may vary +/-4%. Element weight may vary. 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.

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Membrane Element

CPA2

Performance:	Permeate Flow:	10,000 gpd (37.9 m ³ /d)
	Salt Rejection:	99.7 % (99.5 % minimum)

Type	Configuration:	Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	365 ft ² (33.9m ²)
	Feed/Brine Spacer Thickness:	34 mil (0.87 mm)

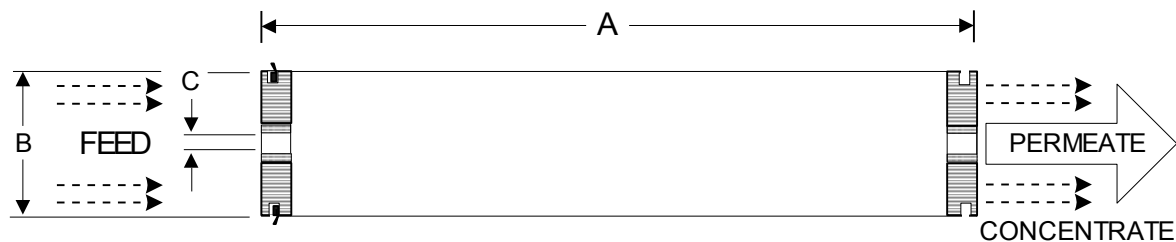
Application Data*	Maximum Applied Pressure:	600 psig (4.16 MPa)
	Maximum Chlorine Concentration:	< 0.1 PPM
	Maximum Operating Temperature:	113 °F (45 °C)
	pH Range, Continuous (Cleaning):	2-10 (1-12)*
	Maximum Feedwater Turbidity:	1.0 NTU
	Maximum Feedwater SDI (15 mins):	5.0
	Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
	Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
	Maximum Pressure Drop for Each Element:	10 psi

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Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

1500 PPM NaCl solution
225 psi (1.55 MPa) Applied Pressure
77 °F (25 °C) Operating Temperature
15% Permeate Recovery
6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	36 (16.4)

Note: Permeate flow for individual elements may vary + 25 or - 15 percent. Membrane active area may vary +/-4%. 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.

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Membrane Element

CPA3

Performance:	Permeate Flow:	11,000 gpd (41.6 m ³ /d)
	Salt Rejection:	99.7% (99.6% minimum)

Type	Configuration:	Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	400 ft ² (37.1 m ²)
	Feed Spacer:	31 mil (0.787mm)

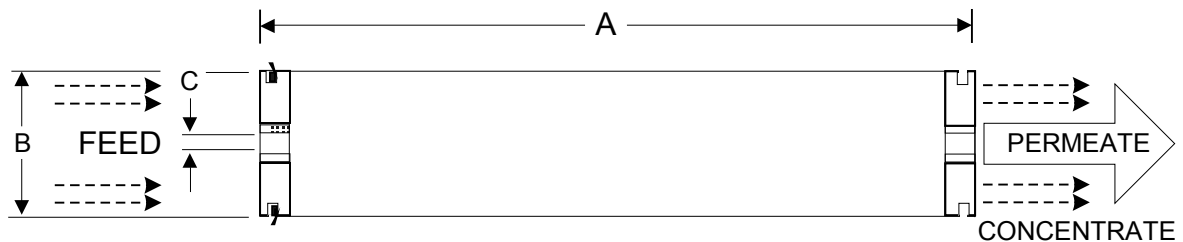
Application Data*	Maximum Applied Pressure:	600 psig (4.14 MPa)
	Maximum Chlorine Concentration:	< 0.1 PPM
	Maximum Operating Temperature:	113 °F (45 °C)
	pH Range, Continuous (Cleaning):	2-10.8 (1-12.5)*
	Maximum Feedwater Turbidity:	1.0 NTU
	Maximum Feedwater SDI (15 mins):	5.0
	Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
	Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
	Maximum Pressure Drop for Each Element:	15 psi

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Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

1500 PPM NaCl solution
 225 psi (1.55 MPa) Applied Pressure
 77 °F (25 °C) Operating Temperature
 15% Permeate Recovery
 6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	36 (16.4)

Notice: Permeate flow for individual elements may vary ±15 percent. Membrane active area may vary +/-4%. Element weight may vary. 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.

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Membrane Element

CPA5-LD (Low Fouling Technology)

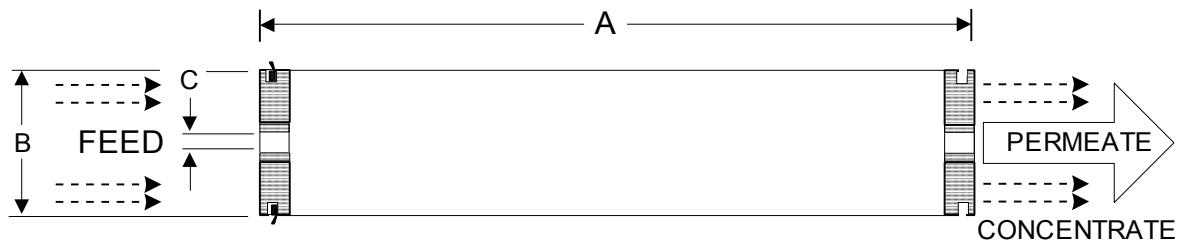
Performance:	Permeate Flow:	11,000 gpd (41.6 m ³ /d)
	Salt Rejection:	99.7 % (99.6 % minimum)
Type	Configuration:	Low Fouling Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	400 ft ² (37.1m ²)
	Feed Spacer:	34 mil (0.864 mm) with biostatic agent
Application Data*	Maximum Applied Pressure:	600 psig (4.16 MPa)
	Maximum Chlorine Concentration:	< 0.1 PPM
	Maximum Operating Temperature:	113 °F (45 °C)
	pH Range, Continuous (Cleaning):	2-11 (1-13)*
	Maximum Feedwater Turbidity:	1.0 NTU
	Maximum Feedwater SDI (15 mins):	5.0
	Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
	Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
Maximum Pressure Drop for Each Element:	10 psi	

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Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

1500 PPM NaCl solution
 225 psi (1.55 MPa) Applied Pressure
 77 °F (25 °C) Operating Temperature
 15% Permeate Recovery
 6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	33 (15)

Notice: Permeate flow for individual elements may vary ±15 percent. Membrane active area may vary +/-4%. Element weight may vary. 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.

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Membrane Element

SWC5-LD (Low Fouling Technology)

Performance:	Permeate Flow:	9,000 gpd (34.1 m ³ /d)
	Salt Rejection:	99.8% (99.7% minimum)
	Boron Rejection (Typical):	92.0% [†]

Type	Configuration:	Low Fouling Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	400 ft ² (37.1m ²)
	Feed Spacer:	34 mil (0.864 mm) with biostatic agent

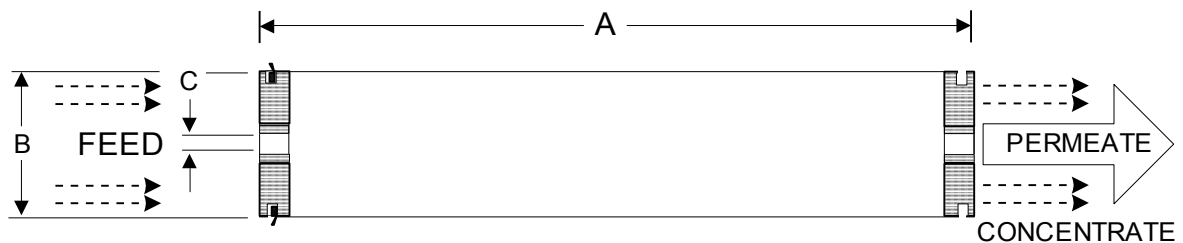
Application Data*	Maximum Applied Pressure:	1200 psig (8.27 MPa)
	Maximum Chlorine Concentration:	< 0.1 PPM
	Maximum Operating Temperature:	113 °F (45 °C)
	pH Range, Continuous (Cleaning):	2-11 (1-13)*
	Maximum Feedwater Turbidity:	1.0 NTU
	Maximum Feedwater SDI (15 mins):	5.0
	Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
	Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
	Maximum Pressure Drop for Each Element:	10 psi

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Test Conditions

The stated performance is initial (data taken after 30 minutes of operation), based on the following conditions:

32,000 ppm NaCl
800 psi (5.5 MPa) Applied Pressure
77 °F (25 °C) Operating Temperature
10% Permeate Recovery
6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
40.0 (1016)	7.89 (200)	1.125 (28.6)	33 (15)

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[†] When tested at standard test conditions with 5.0 ppm Boron in feed solution.

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Membrane Element SWC5

Performance:	Permeate Flow:	9,000 gpd (34.1 m ³ /d)
	Salt Rejection:	99.8 % (99.7 % minimum)
	Boron Rejection (Typical):	92.0% [†]

Type	Configuration:	Spiral Wound
	Membrane Polymer:	Composite Polyamide
	Membrane Active Area:	400 ft ² (37.1m ²)

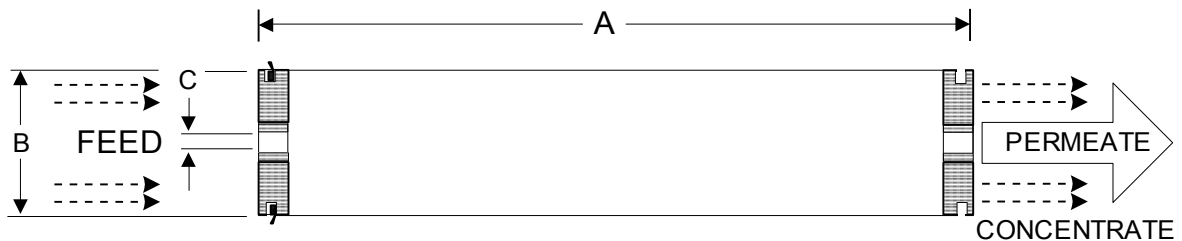
Application Data*	Maximum Applied Pressure:	1200 psig (8.27 MPa)
	Maximum Chlorine Concentration:	< 0.1 PPM
	Maximum Operating Temperature:	113 °F (45 °C)
	pH Range, Continuous (Cleaning):	2-11 (1-13)*
	Maximum Feedwater Turbidity:	1.0 NTU
	Maximum Feedwater SDI (15 mins):	5.0
	Maximum Feed Flow:	75 GPM (17.0 m ³ /h)
	Minimum Ratio of Concentrate to Permeate Flow for any Element:	5:1
	Maximum Pressure Drop for Each Element:	10 psi

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Test Conditions

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- 32,000 ppm NaCl
- 800 psi (5.5 MPa) Applied Pressure
- 77 °F (25 °C) Operating Temperature
- 10% Permeate Recovery
- 6.5 - 7.0 pH Range



A, inches (mm)	B, inches (mm)	C, inches (mm)	Weight, lbs. (kg)
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[†]When tested at standard test conditions with 5.0ppm Boron in feed solution.

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