Optum Series

FACT SHEET

Sanitary Spiral Wound Membranes that Reduce Costs and Deliver Against Multiple Environmental Health and Safety Initiatives



Optum Series spiral wound membranes are used for critical food and dairy separation processes where high production yields and state-of-the-art sanitary construction is required. This series includes Optum Reverse Osmosis (RO) and Optum Nanofiltration (NF) models.

The Optum Series features the next level of performance including:

- **Reduced energy consumption and carbon footprint** of the recirculation pump by up to 9% versus other shelled spiral wound membranes and up to 25% versus standard cage-wrapped models.(1) The Optum Series has an innovative design that creates shelled ends by the use of two engineered sleeves that minimize fluid bypass; thereby reducing recirculation pump requirements
- **Improved employee ergonomics** with 10-20% less force required during installation and removal. Optum Series spiral wound membranes also maintain better element scroll integrity during operation than standard cage-wrapped models leading to easier removal and improved operational lifetime
- **Blister-free construction** from previous generations of products in our sanitary portfolio is also utilized in the Optum Series
- **Reduced plastic waste** versus other shelled spiral wound membranes. In a plant with 200 elements, using the Optum Series for 10 years will keep over 1,100 lbs (500 kg) of plastic out of landfills
- **High performance reverse osmosis membrane** used in the Optum RO Series maximizes concentration and dewatering with high rejection of dissolved solids and low molecular weight organic constituents such as lactose and those that create BOD/COD (biological oxygen demand/chemical oxygen demand)
- **Differentiated nanofiltration membrane**, as used in Durasan* DK Series and the Optum NF Series, is characterized by a molecular weight cut-off of 180-220 Dalton for uncharged organic molecules and its ability to preferentially reject divalent and multivalent ions while passing monovalent ions as needed for lactose and whey desalting
- **Extended shelf life** is provided through enhanced packaging techniques
- **Strict product compliance** is a foundation of our sanitary portfolio including use of materials compliant with US FDA 21 CFR (Subchapter B, Parts 175, 176, 177, 178, and 182) and EU regulations (1935/2004 and 10/2011). Optum Series spiral wound membranes also have kosher and halal certification.

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Table 1: Applications for the Optum Series

Applications	
Optum RO	**Optum NF HR**
Lactose recovery and concentration	Whey and milk demineralization and concentration
Whey and milk protein concentration	Lactose demineralization and concentration
Sugar and juice concentration	Acid whey deacidification
Protein and sugar isolation	Disaccharides concentration
Polishing of permeates for water recovery	MOS** & GOS** purification

** MOS: Mannan-oligosaccharide, GOS: Galacto-oligosaccharide

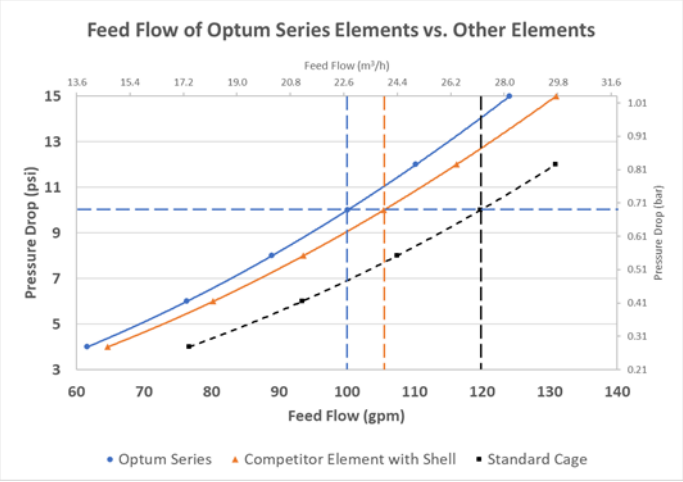


Figure 1: At 10 psi pressure drop in side-by-side testing, the Optum Series required ~5% less feed flow than other competitor models with shells, and ~20% less than Veolia standard cage models.(1)

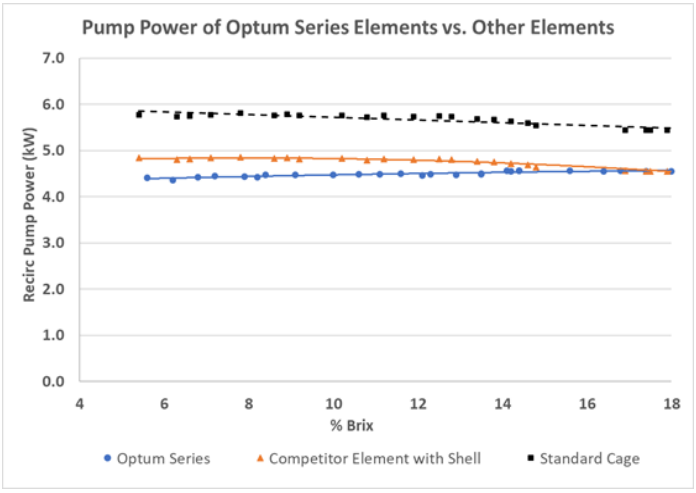


Figure 2: In side-by-side testing the Optum Series required up to 9% less energy than other competitor models with shells and up to 25% less than Veolia standard cage models.(1)

Table 2: Typical Properties (2)

Model	Spacer mil (mm)	Active Area ft^2 (m^2)	Part Number
Optum RO8038C30	30 (0.76)	390 (36.2)	3190374
Optum RO8038C50	50 (1.27)	300 (27.9)	3220814
Optum NF8038C30 HR	30 (0.76)	390 (36.2)	3195081
Optum NF8038C50 HR	50 (1.27)	300 (27.9)	3220815

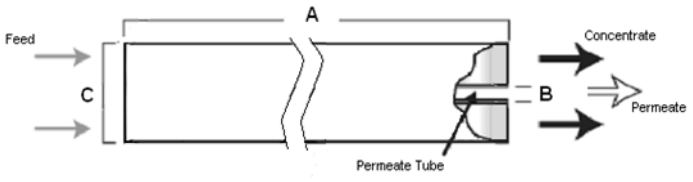


Figure 3: Dimensions diagram for All Optum Series Models

Table 3: Dimensions and Weight (2)

Model	Dimensions, inches (cm)			Boxed Weight lbs (kg)
	A	B	C (1)	
Optum 8038	38.00 (96.5)	1.125 (2.86)	7.95 (20.2)	35 (16)

(1) The spiral wound membrane diameter (dimension C) is tightly controlled through measurement of the circumference to a range of less than 1 mm of diameter as measured across the spans of the peaks of the sleeve at the midpoint of the sleeve length. Optum spiral wound membranes are designed to fit into standard 8-inch nominal pressure vessels. Tolerances of the spiral wound membrane diameter and pressure vessel inner diameter may result in variability in the bypass flow rate and changes in the magnitude of energy savings. The composition of the feed streams may also impact the magnitude of the energy savings.

Table 4: Clean-in-place (CIP) limits for the Optum Series

Temperature	pH Minimum	pH Maximum
95°F to 122°F (35°C to 50°C)	1.8	11.0
Less than 95°F (35°C)	1.8	11.5

Table 5: Typical Parameters (2)

	Optum RO	Optum NF HR
Typical Operating Pressure	200 - 500 psi (1,379-3,447 kPa)	70 - 400 psi (483-2,757 kPa)
Typical Operating Flux	5 - 20 GFD (8-34 LMH)	5 - 20 GFD (8-34 LMH)
Maximum Operating Pressure	800 psi (5,516 kPa)	800 psi (5,516 kPa)
Maximum Permeate Pressure (3)	60 psi (413 kPa)	60 psi (413 kPa)
Maximum Temperature	122°F (50°C)	122°F (50°C)
pH Range (4)	2.0 - 11.0	3.0 - 9.0
Recommended Pressure Drop	Over an element: 12 psi (83 kPa)	Over an element: 12 psi (83 kPa)
Maximum Pressure Drop	Over an element: 15 psi (103 kPa) Per housing: 60 psi (414 kPa)	Over an element: 15 psi (103 kPa) Per housing: 60 psi (414 kPa)
Chlorine Tolerance	1,000 ppm-hours dechlorination recommended	500 ppm-hours dechlorination recommended

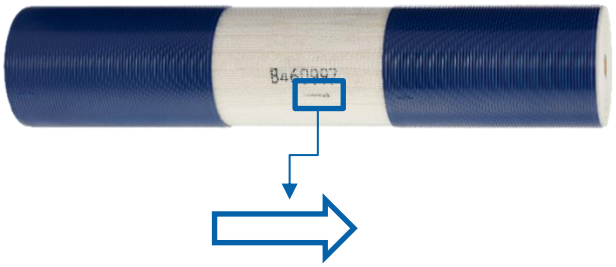
(2) Spiral wound membrane properties & parameters are indicative numbers. Values by spiral wound membrane may vary within normal manufacturing tolerances.
(3) Permeate pressure should never exceed the concentrate pressure
(4) Range of pH during continuous operation

Loading Instructions

1. Remove from package
2. Record serial number relative to position in housing



3. Follow approved gasket and seal lubrication procedures
4. Insert the Optum Series spiral wound membrane so that flow arrows are in alignment with the direction of feed flow



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