

Optum Series Elements

FACT SHEET

Energy efficient design reduces costs and delivers against multiple environmental health and safety initiatives in food processing applications



Optum Series Elements 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) elements.

The Optum Series elements feature the next level of performance including:

- **Reduced energy consumption and carbon footprint** of the recirculation pump by up to 9% versus other shelled elements and up to 25% versus standard cage-wrapped elements. The Optum Series elements have 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 elements also maintain better element scroll integrity during operation than standard cage-wrapped elements leading to easier removal and improved operational lifetime
- **Blister-free construction** from previous generations of products, in our sanitary portfolio, is utilized in the Optum Series elements, along with a Durasan* cage underneath the sleeves
- **Reduced plastic waste** versus other shelled elements. In a plant with 200 elements, using Optum Series elements 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 elements 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 Dairy D-Series elements and the Optum NF elements, is characterized by a molecular weight cut-off of 150-300 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 elements also have kosher and halal certification.

Table 1: Applications for Optum Series elements

Applications	
Optum RO	Optum NF
Lactose recovery and concentration	Whey and milk demineralization and concentration
Whey and milk protein concentration	Lactose demineralization and concentration
Sugar and juice concentration	Lactose-free milk
Protein and sugar isolation	MOS** & GOS** purification
Polishing of permeates for water recovery	** MOS: Mannan-oligosaccharide GOS: Galacto-oligosaccharide

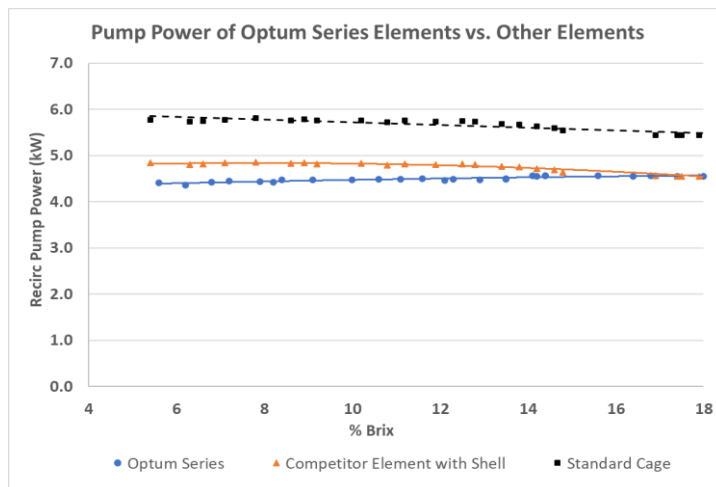


Figure 2: In side-by-side testing the Optum Series Elements required up to 9% less energy than other competitor elements with shells and up to 25% less than Veolia standard cage elements.

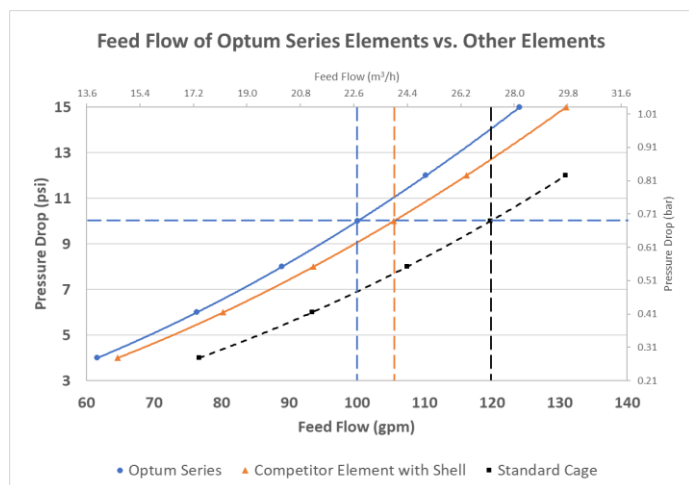


Figure 1: At 10 psi pressure drop in side-by-side testing, Optum Series Elements required ~5% less feed flow than other competitor elements with shells, and ~20% less than Veolia standard cage elements.

Table 2: Typical Properties (1)

Model	Spacer mil (mm)	Active Area ft² (m²)	Part Number
Optum RO8038C30	30 (0.76)	375 (34.8)	3190374
Optum NF8038C30 HR	30 (0.76)	375 (34.8)	3195081

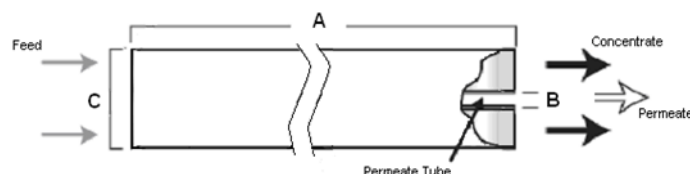


Figure 3: Element dimensions diagram

Table 3: Dimensions and Weight (1)

Model	Dimensions, inches (cm)			Boxed Weight lbs. (kg)
	A	B	C	
Optum RO8038C30	38.00 (96.5)	1.125 (2.86)	7.95 (20.2)	35 (16)
Optum NF8038C30 HR	38.00 (96.5)	1.125 (2.86)	7.95 (20.2)	35 (16)

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

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 ⁽¹⁾

	Optum RO	Optum NF
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)
Clean Water Flux (CWF) ⁽²⁾	14 GFD (24 LMH) @ 225 psi	14 GFD (24 LMH) @ 110 psi
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
Maximum Pressure Drop	Over an element: 15 psi (103kPa) 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

(1) Element properties & parameters are indicative numbers. Values by element may vary within normal element manufacturing tolerances.

(2) Clean water flux (CWF) is the rate of water permeability through the membrane after clean-in-place (CIP) at reproducible temperature and pressure. It is important to monitor CWF after each cleaning cycle to determine if the system is being cleaned effectively. CWF can vary ±25%.

(3) Permeate pressure should never exceed the concentrate pressure

(4) Range of pH during continuous operation

Element Load 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 Element so that flow arrows are in alignment with the direction of feed flow

