Pharma Elements

FACT SHEET

Concentration and purification of pharmaceutical ingredients

The Pharma elements enable the purification and concentration of high value organic molecules used in the synthesis of pharmaceutical ingredients. These elements are used in applications requiring stringent sanitary procedures.

The Pharma elements feature a patented Durasan* cage outer wrap, a selection of feed spacers and polysulfone parts.

The Pharma elements comply with:

- FDA Regulations relevant sections of 21CFR
- EU Framework 1935/2004/EC

Table 1: Element Specification

Membrane	Thin film membrane (TFM*)

Model	Average permeate flow gpd (m^3/day)	Minimum rejection
PHARMA NF2 3838C30(1)(3)	1,800 (6.8)	96.0%
PHARMA RO3 3840C30(1)(2)	1,650 (6.2)	98.5%
PHARMA RO3 8038C35(1)(2)	6,750 (25.5)	98.5%

(1) Average salt rejection after 24h operation. Individual flow rate may vary ±25%.

(2) Testing conditions: 2,000ppm NaCl solution at 425psi (2,930kPa) operating pressure, 77°F (25°C), pH6.5 and 15% recovery.

(3) Testing conditions: 2,000ppm MgSO4 solution at 110psi (760kPa) operating pressure, 77 °F (25°C), 15 % recovery.

Model	Spacer mil (mm)	Active area ft^2 (m^2)	Part number
PHARMA NF2 3838C30	30 (0.76)	75 (7.0)	1232576
PHARMA RO3 3840C30	30 (0.76)	77 (7.2)	1223957
PHARMA RO3 8038C35	35 (0.89)	340 (31.6)	3021475
PHARMA UF1 3840C30	30 (0.76)	77 (7.2)	1207089

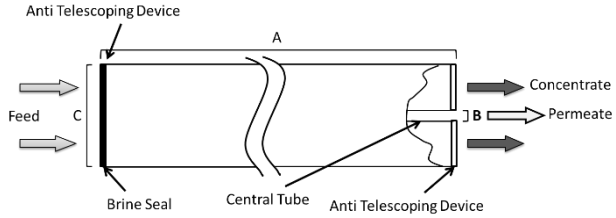

Figure 1 : Element Dimensions Diagram (Female)

Table 2: Dimensions and Weight

Model	Dimensions, inches (cm)			Boxed Weight lbs (kg)
	A	B	C	
PHARMA NF2 3838C30	38.00 (96.5)	0.833 (2.12)	3.79 (9.6)	7 (3.2)
PHARMA RO3 3840C30	38.75 (98.4)	0.833 (2.12)	3.79 (9.6)	7 (3.2)
PHARMA RO3 8038C35	38.0 (96.5)	1.125 (2.86)	7.91 (20.1)	29 (13.2)
PHARMA UF1 3840C30	38.75 (98.4)	0.833 (2.12)	3.79 (9.6)	7 (3.2)

Table 3: Operating and CIP parameters

Typical Operating Flux	5-20GFD (8-34 LMH)
Maximum Operating Pressure	600 psi (4,137 kPa)
Maximum Temperature	Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C)
pH Range	Continuous operation: 3.0-10.0, Clean-In-Place (CIP): 2.0-10.5
Maximum Pressure Drop	Over an element: 15psi (103 kPa) Per housing: 60 psi (414 kPa)
Chlorine Tolerance	500+ ppm x hours, Dechlorination recommended

Veolia Water Technologies
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