Dairy DL Series

FACT SHEET

Dairy Processing Sanitary Nanofiltration

The D-Series family of proprietary thin-film nanofiltration membrane elements is characterized by an approximate molecular weight cut-off of 150-300 Dalton for uncharged organic molecules. Divalent and multivalent anions are preferentially rejected by the membrane while monovalent ion rejection is dependent upon feed concentration and composition. Since monovalent ions pass through the membrane, they do not contribute to the osmotic pressure, thus enabling D-Series nanofiltration membrane systems to operate at feed pressures below those of RO systems.

The DL membrane has a minimum rejection of 96% on 2,000 ppm MgSO4 at 25°C and 110 psi operating pressure.

The Dairy Processing DL Elements are typically used in food related processes requiring stringent sanitary procedures. Applications include lactose desalting, deacidification and demineralization of whey or UF permeate.

These elements feature a Durasan* Cage patented outer wrap, a selection of feed spacers, and polysulfone parts.

The Dairy DL elements comply with:

- FDA Regulations relevant sections of 21CFR
- EU Framework 1935/2004/EC
- Halal & Kosher certifications

Table 1: Element Specification (1)

Membrane	D-Series, Thin Film Membrane (TFM)

Model	Spacer mil (mm)	Active Area ft^2 (m^2)	Part Number
Dairy DL3838C30	30 (0.76)	75 (7.0)	3062683
Dairy DL3840C30	30 (0.76)	77 (7.2)	1207023
Dairy DL8038C30	30 (0.76)	372 (34.6)	1244333

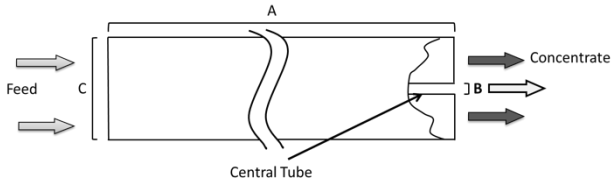

Figure 1: Element dimensions diagram

Table 2: Dimensions and Weight (1)

Model	Dimensions, Inches (cm)			Boxed
	A	B	C	Weight lbs (kg)
DL3838C30	38.00 (96.5)	0.833 (2.12)	3.79 (9.6)	7 (3.2)
DL3840C30	38.75 (98.4)	0.833 (2.12)	3.79 (9.6)	7 (3.2)
DL8038C30	38.00 (96.5)	1.125 (2.86)	7.91 (20.1)	29 (13.2)

Table 3: Operating Parameters (1)

Typical Operating Pressure	70-400 psi (483-2,757 kPa)
Typical Operating Flux	5-20 GFD (8-34 LMH)
Clean Water Flux (CWF) (2)	18 GFD (30 LMH) @ 110 psi
Maximum Operating Pressure	800 psi (5,516 kPa)
Maximum Temperature	122°F (50°C)
pH Range	3.0-9.0
Maximum Pressure Drop	Over an element: 15 psi (103 kPa) Per housing: 60 psi (414 kPa)
Chlorine Tolerance	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 cleaning (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%.

Table 4: CIP limits for NF elements

Temperature	pH Minimum	pH Maximum
50°C (122°F)	3.0	10.0
45°C (113°F)	2.0	10.5
35°C (95°F)	1.5	11.5
25°C (77°F)	1.0	11.5

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