Industrial NF1 Series

FACT SHEET

Industrial High-Pressure Nanofiltration Elements

The Industrial NF1 nanofiltration elements feature a D-Series proprietary thin-film membrane to remove low solubility salts and organics from concentrated effluents and brines.

The Industrial NF1 will permeate sodium chloride NaCl and reject the sodium sulfate Na_2SO_4. The Industrial NF1 elements are high pressure elements that can operate up to 80 bar. This salt segregation combined with a high-pressure construction enables production of a pure highly concentrated (> 150 g/L) single salt. The thermal process for Zero Liquid Discharge or Minimum Liquid Discharge projects can greatly be simplified to a crystallizer only, strongly reducing the investment and the operational costs.

Table 1: Element Specification

Membrane	D-Series, Thin-film membrane (TFM*)

Model	Average permeate flow gpd (m^3/day) (1)(2)	Minimum $MgSO_4$ rejection (1)(2)
INDUSTRIAL NF1 4040F35	1,600 (6.1)	98.0%
INDUSTRIAL NF1 8040F35	6,600 (25.0)	98.0%

(1) Average salt rejection after 24h operation. Individual flow rate may vary ±25%.
(2) Testing conditions: 2,000 ppm $MgSO_4$ solution at 110psi (760kPa) operating pressure, 77°F, pH 7.5 and 15% recovery.

Model	Spacer	Active area	Outer wrap	Part
INDUSTRIAL NF1 4040F35	35 (0.89)	75 (7.0)	Fiberglass	3154540
INDUSTRIAL NF1 8040F35	35 (0.89)	330 (30.7)	Fiberglass	3148906

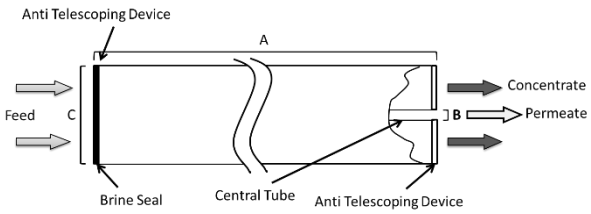

Figure 1 : Element Dimensions Diagram – Female

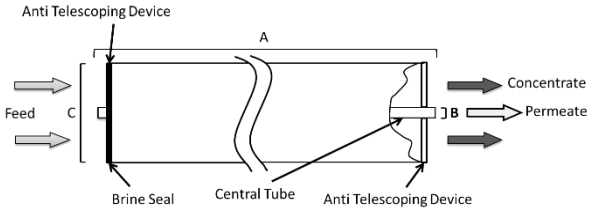

Figure 2: Element Dimensions Diagram – Male

Table 2: Dimensions and Weight

Model	Type	Dimensions, inches (cm)			Boxed Weight lbs. (kg)
		A	B	C	
4040F	Male	40.0 (101.6)	0.75 (1.90)	3.9 (9.9)	11 (5)
8040F	Female	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)

Table 3: Operating and CIP parameters

Typical Operating Flux	5 - 20 GFD (8 – 34 LMH)
Maximum Operating Pressure	See Table 4
Maximum Temperature	Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C)
pH Range	Continuous operation: 3.0 – 9.0 Clean-In-Place (CIP): 2.0 – 11.0 (1)
Maximum Pressure Drop	Over an element: 15psi (103kPa) Per housing: 60psi (414kPa)
Chlorine Tolerance	500 ppm x hours, Dechlorination recommended
Feedwater	NTU < 1 SDI_{15} < 5

(1) Refer to Cleaning Guidelines Technical Bulletin TB1194.

Table 4: Maximum Operating Pressure

Temperature	Maximum Operating Pressure
< 77°F (25°C)	1,200psi (8,253kPa)
< 86°F (30°C)	1,000psi (6,895kPa)
< 95°F (35°C)	850psi (5,860kPa)
< 104°F (40°C)	750psi (5,171kPa)
< 113°F (45°C)	670psi (4,619Pa)
< 122°F (50°C)	600psi (4,137kPa)

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