

DK 400 series

industrial high rejection nanofiltration elements

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.

Among other applications DK High Rejection NF Elements are used for dye brine purification, demineralization / concentration of organic solutions and metals recovery.

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) |
| DK-400 | 9,500 (36.0) | 98% |
| DK-440 | 10,500 (39.7) | 98% |

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

(2) 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) | Outer wrap | Part number |
|--------|-----------------|---|------------|-------------|
| DK-400 | 34 (0.86) | 400 (37.2) | Fiberglass | 3154589 |
| DK-440 | 28 (0.71) | 440 (40.9) | Fiberglass | 3154650 |

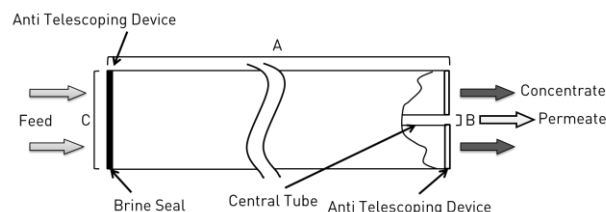


Figure 1: Element Dimensions Diagram - Female

Table 2: Dimensions and Weight

| Model | Fig. | Dimensions, inches (cm) | | | Boxed Weight lbs (kg) |
|--------|------|-------------------------|-----------------|---------------|-----------------------|
| | | A | B | C | |
| DK-400 | 1 | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (15.9) |
| DK-440 | 1 | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (15.9) |

Table 3: Operating and CIP parameters

| | |
|-----------------------------------|--|
| Typical Operating Flux | 5 - 20 GFD (8 - 34 LMH) |
| Maximum Operating Pressure | 600psi (4,137kPa) if T<95°F (35°C) 435psi (3,000kPa) if T>95°F (35°C) |
| 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 hours, dechlorination recommended |
| Feed water | NTU < 1 SDI ₁₅ < 5 |

(1) Refer to Cleaning Guidelines Technical Bulletin TB1194.

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