

DK 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 removal/concentration, sodium chloride diafiltration and metals recovery.

Table 1: Element Specification

Membrane		
D-Series, Thin-film membrane (TFM*)		
Model	Average permeate flow gpd (m3/day) ^{1,2}	Minimum MgSO ₄ rejection ^{1,2}
DK2540C1076	560 (2.1)	98%
DK2540C1077	350 (2.3)	98%
DK2540F1072	540 (2.0)	98%
DK2540F1073	340 (1.3)	98%
DK4040C1024	2,000 (7.6)	98%
DK4040C1025	1,300 (4.9)	98%
DK4040F1020, Stinger	2,000 (7.6)	98%
DK4040F1021, Stinger	1,300 (4.9)	98%
DK8040C-30D	6,900 (21.1)	98%
DK8040C-50P	5,400 (20.4)	98%
DK8040F1001	7,800 (30.0)	98%
DK8040F1002	5,400 (20.4)	98%
DK8040F1071	6,400 (24.2)	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
DK2540C1076	30 (0.76)	28 (2.6)	Cage	1206918
DK2540C1077	50 (1.27)	18 (1.6)	Cage	1206919
DK2540F1072	30 (0.76)	28 (2.6)	Fiberglass	1206925
DK2540F1073	50 (1.27)	18 (1.6)	Fiberglass	1206926
DK4040C1024	30 (0.76)	98 (9.1)	Cage	1206945
DK4040C1025	50 (1.27)	65 (6.0)	Cage	1206946
DK4040F1020, Stinger	30 (0.76)	98 (9.1)	Fiberglass	3050075
DK4040F1021, Stinger	50 (1.27)	65 (6.0)	Fiberglass	3050073
DK8040C-30D	30 (0.76)	347 (32.1)	Cage	1206978
DK8040C-50P	50 (1.27)	270 (25.1)	Cage	1206979
DK8040F1001	30 (0.76)	390 (36.2)	Fiberglass	1206993
DK8040F1002	50 (1.27)	272 (25.3)	Fiberglass	1206994
DK8040F1071	30 (0.76)	320 (29.7)	Fiberglass	1206997

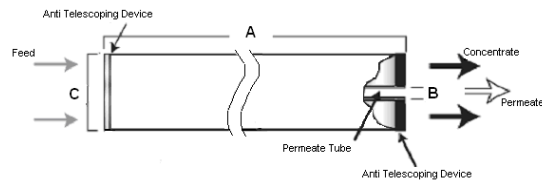


Figure 1: Element Dimensions Diagram – Female

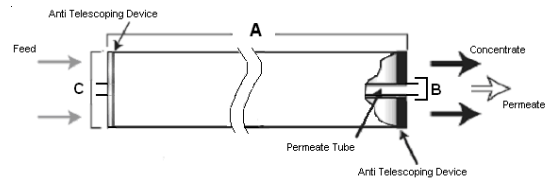


Figure 2: Element Dimensions Diagram – Male, Stinger

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Table 2: Dimensions and Weight

Model ¹	Dimensions, inches (cm)			Boxed
	A	B ²	C ³	Weight lbs (kg)
DK2540C1076	40.0 (101.6)	0.75 (1.90) OD	2.4 (6.1)	4 (1.8)
DK2540C1077	40.0 (101.6)	0.75 (1.90) OD	2.4 (6.1)	4 (1.8)
DK2540F1072	40.0 (101.6)	0.75 (1.90) OD	2.4 (6.1)	4 (1.8)
DK2540F1073	40.0 (101.6)	0.75 (1.90) OD	2.4 (6.1)	4 (1.8)
DK4040C1024	40.0 (101.6)	0.625 (1.59)	3.9 (9.9)	9 (4.1)
DK4040C1025	40.0 (101.6)	0.625 (1.59)	3.9 (9.9)	9 (4.1)
DK4040F1020, Stinger	40.0 (101.6)	0.75 (1.9)	3.9 (9.9)	9 (4.1)
DK4040F1021, Stinger	40.0 (101.6)	0.75 (1.9)	3.9 (9.9)	9 (4.1)
DK8040C-30D	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	29 (13.2)
DK8040C-50P	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	29 (13.2)
DK8040F1001	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	29 (13.2)
DK8040F1002	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	29 (13.2)
DK8040F1071	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	29 (13.2)

¹These elements are dried then bagged before shipping.

²Internal diameter unless specified OD (outside diameter).

³The element diameter (dimension C) is designed for optimum performance in GE pressure vessels. Other pressure vessel dimension and tolerance may result in excessive bypass and loss of capacity.

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): 104°F (50°C)
pH Range	Continuous operation: 3-9 Clean-In-Place (CIP): 2-10.5
Maximum Pressure Drop	Over an element: 15psi (103kPa) Per housing: 60psi (414kPa)
Chlorine Tolerance	500 ppm hours, dechlorination recommended