

SWSR series

seawater sulfate removal nanofiltration elements

The SUEZ SWSR-Series is our latest nanofiltration (NF) innovation. With nearly 30-year experience in NF membrane manufacturing, SUEZ has advanced the DK NF membrane. A membrane recognized for its low fouling properties. This is a result of an extremely smooth surface enabled by our unique 3-layer membrane design (Figure 1).

The SWSR-Series is designed to produce consistently low sulfate water for injection helping to:

- Prevent strontium and barium sulfate scale in injection wells
- Better mitigate well souring by reducing sulfate

The SWSR-Series incorporates a true Nanofiltration membrane that features:

- High rejection of sulfate and hardness meeting reservoir injection requirements
- High transmission of sodium chloride into the permeate minimizing the operating pressure
- Physical barrier for any suspended particles, bacteria, pyrogens and colloids

The SWSR-Series can be stored for a period of 12 months in its original packaging at ambient temperature up to 100°F (38°C).

Table 1: Element Specification

Membrane				
SWSR-Series, Thin-film membrane (TFM*)				
Model	Permeate flow gpd (m ³ /day)		Typical rejection	
	Average Flow NF Testing (1,2)	Typical Flow on Seawater (1,3)	Sulfate (1,2,3)	Chloride (1,3)
SWSR2540FM	540 (2.0)	440 (1.7)	99.6%	20%
SWSR-90	2,100 (7.9)	1,700 (6.5)	99.6%	20%
SWSR-400	9,500 (36.0)	7,700 (29.0)	99.6%	20%
SWSR-440	10,500 (39.7)	8,500 (32.1)	99.6%	20%

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

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

(3) Experimental data collected on synthetic seawater containing 2500ppm SO₄ at 225psi (1,550kPa) operating pressure, 77 °F (25°C), 20% recovery

Model	Spacer mil (mm)	Active area ft ² (m ²)	Outer wrap	Part number
SWSR2540FM	31 (0.79)	27 (2.5)	Fiberglass	3156904
SWSR-90	31 (0.79)	90 (8.4)	Fiberglass	3152753
SWSR-400	31 (0.79)	400 (37.2)	Fiberglass	3145520
SWSR-440	28 (0.71)	440 (40.9)	Fiberglass	3145521

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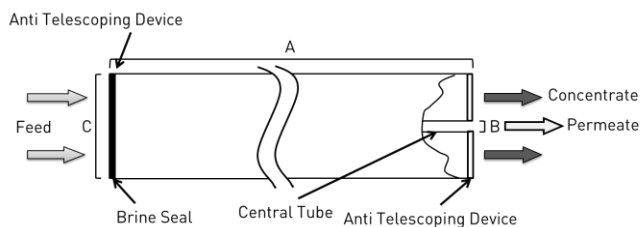


Figure 2: Element Dimensions Diagram – Female

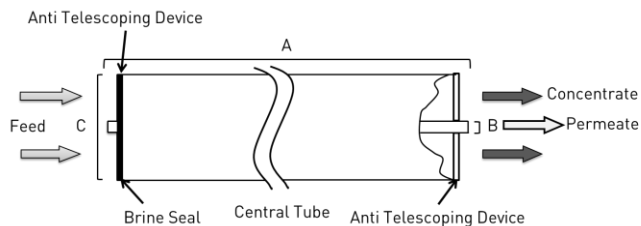


Figure 3: Element Dimensions Diagram – Male

Table 2: Dimensions and Weight

Model	Fig.	Dimensions, inches (cm)			Boxed Weight lbs (kg)
		A	B	C	
SWSR2540FM	3	40.0 (101.6)	0.75 (1.90)	2.4 (6.1)	7 (3)
SWSR-90	3	40.0 (101.6)	0.75 (1.90)	3.9 (9.9)	11 (5)
SWSR-400	2	40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
SWSR-440	2	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	600psi (4,137kPa)
Maximum Temperature	Continuous operation: 122°F (50°C) Clean-In-Place (CIP): 122°F (50°C)
pH Range	Continuous operation: 3 - 9 Clean-In-Place (CIP): 2 - 11 (1)
Maximum Pressure Drop	Over an element: 12 psi (82 kPa) Per housing: 50 psi (344 kPa)
Chlorine Tolerance	< 0.1 ppm

(1) Refer to Cleaning Guidelines Technical Bulletin TB1194.

contact us

If you would like more information about SUEZ's sulfate removal technologies, please contact your SUEZ account representative or visit us on www.suezwatertechnologies.com.