Water Technologies & Solutions

fact sheet

SWSR series

seawater sulfate removal nanofiltration elements

The SUEZ SWSR-Series is our latest nanofiltration (NF) innovation. With nearly 30-years 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).

Figure 1: SWSR elements

Table 1: Element Specification

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

Model	Permeate flow gpd (m3/day)		Typical rejection	
	Average Flow NF Testing[1,2]	Typical Flow on Seawater[1,3]	Sulfate[1,2,3]	Chloride[1,3]
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 $MgSO_4$ 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

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Model	Spacer mil (mm)	Active area ft² (m²)	Outer wrap	Part number
SWSR-90	31 (0.79)	90 (8.4)	Fiberglass	TBD
SWSR-400	34 (0.86)	400 (37.2)	Fiberglass	3145520
SWSR-440	28 (0.71)	440 (40.9)	Fiberglass	3145521

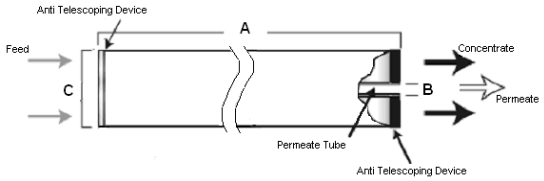

Figure 2: Element Dimensions Diagram – Female

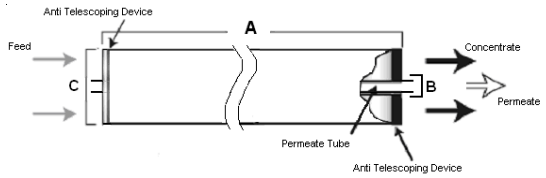

Figure 3: Element Dimensions Diagram – Stinger

Table 2: Dimensions and Weight

Model[1]	Type	Dimensions, inches (cm)			Boxed
		A	B[2]	C[3]	Weight lbs (kg)
SWSR-90 Stinger		40.0 (101.6)	0.75 (1.90) OD	3.9 (9.9)	9 (4.1)
SWSR-400		40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)
SWSR-440		40.0 (101.6)	1.125 (2.86)	7.9 (20.1)	35 (16)

[1]These elements are drip dried then bagged before shipping.
[2]Internal diameter unless specified OD (outside diameter).
[3]The element diameter (dimension C) is designed for optimum performance in SUEZ 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)
Maximum Temperature	Continuous operation: 113°F (45°C) Clean-In-Place (CIP): 95°F (35°C)
pH Range	Continuous operation: 5-9 Clean-In-Place (CIP): 2-11
Maximum Pressure Drop	Over an element: 10psi (69kPa) Per housing: 60psi (414kPa)
Chlorine Tolerance	0 ppm dechlorination required

contact us

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