DATASHEET

KOCH SEPARATION SOLUTIONS

FLUID SYSTEMS® TFC® SR 8” Elements

Hard Overwrap Low Pressure, Selective Rejection Elements

PRODUCT DESCRIPTION	
Membrane Chemistry:	Proprietary TFC® polyamide chemistry
Membrane Type:	SR - selective rejection nanofiltration
Molecular weight cut-off:	200 Daltons
Construction:	Spiral wound with fiberglass Outerwrap
Regulatory Information:	Classified by UL to NSF/ANSI Standard 61 and in accordance with NSF/ANSI Standard 372
Applications:	Separation of higher molecular weight components (>200 Dalton) and multivalent ions from various feed solutions, hardness and sulfate removal from seawater and chloralkali process stream

SPECIFICATIONS

Model	Nominal Permeate Flow gpd (m^3/d)	Nominal Rejection	Feed Spacer mil (mm)	Active Membrane Area ft^2 (m^2)
8040-SR-400	6,200 (23.5)	99.4%	28 (0.7)	400 (37.2)
8040-SR-375	5,800 (21.9)	99.4%	31 (0.8)	375 (34.8)

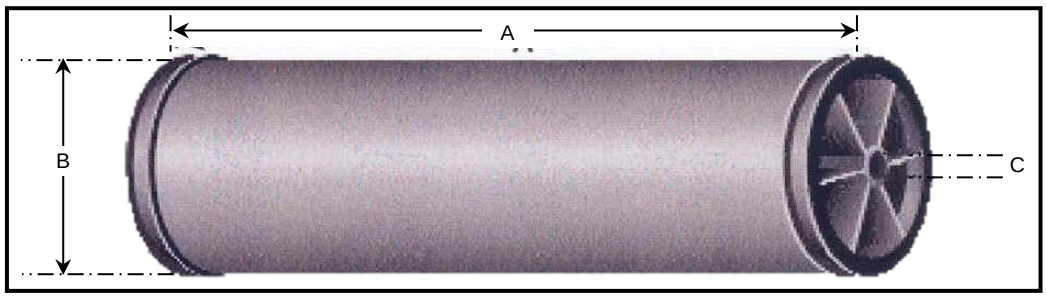
Test Conditions: 5,000 mg/l MgSO4 in deionized water at 95 psi (655 kPa) applied pressure, 15% recovery, 77°F (25°C), pH 7.5

OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure:	200 - 600 psi (1,380 - 4,140 kPa)
Maximum Operating Pressure:	600 psi (4,140 kPa)
Maximum Operating Temperature:	122°F (50°C)
Maximum Cleaning Temperature:	113°F (45°C)
Maximum Continuous Free Chlorine:	< 0.1 mg/l
Allowable pH – Continuous Operation:	4 - 10
Allowable pH – Short Term Cleaning:	1.7 - 11.5
Maximum Differential Pressure Per Element:	10 psi (69 kPa)
Maximum Differential Pressure Per Vessel:	60 psi (414 kPa)
Maximum Feed Turbidity:	1 NTU
Maximum Feed SDI (15 minute test):	5

*Consult KSS Process Technology Group for specific information.

NOMINAL DIMENSIONS



Model	A		B		C		Weight		Part Numbers		
	inches	(mm)	inches	(mm)	inches	(mm)	lbs	(kg)	Interconnector	O-ring	Brine Seal
All models	40	(1,016)	8	(203)	1.125	(29)	44	(20)	0035260	0035464	0035705

* Dimensions are provided for reference only and should not be interpreted as accurate specifications.

OPERATING GUIDELINES

Performance:

Performance specifications shown on the front side of this document are nominal values. Individual element permeate flows may vary +20/-15% from the values shown. Minimum magnesium sulfate rejection is 99.0% at the conditions shown.

Selective Rejection (SR) nanofiltration membrane performance is highly dependent on feed chemistry, temperature, pH, and solution concentration. Performance can only be accurately known through pilot study. KSS strongly recommends that the appropriate pilot studies be conducted to determine suitability for a given application.

Operating Limits:

- **Operating Pressure:** Maximum operating pressure is 600 psi (4,140 kPa). Typical operating pressure for SR systems is in the range of 150 psi (1,035 kPa) to 250 psi (1,725 kPa). Actual operating pressure is dependent upon system flux rate (appropriate for feed source) as well as feed salinity, recovery and temperature conditions.
- **Permeate Pressure:** Permeate pressure should not exceed feed-concentrate pressure by more than 5 psi (34 kPa) at any time (on-line, off-line and during transition).
- **Differential Pressure:** Maximum differential pressure limits are 10 psi (69 kPa) per element. Maximum differential pressure for pressure vessel is 60 psi (414 kPa).
- **Temperature:** Maximum operating temperature is 122°F (50°C). Maximum cleaning temperature is 113°F (45°C).
- **pH:** Allowable range for continuous operation is pH 4-10. Allowable range for short term cleaning is pH 1.7-11.5. It is recommended to limit the exposure of the SR membrane to the extended pH range to 4 hours, once per month.
- **Turbidity and SDI:** Maximum feed turbidity is 1 NTU. Maximum feed Silt Density Index (SDI) is 5.0 (15 minute test) while recommended SDI15 of feed is 3 or less. Experience has shown that feedwater with turbidity greater than 0.2 NTU generally results in frequent cleanings.
- **Recovery:** Maximum recovery is site and application specific. In general, single element recovery is approximately 15% per element.

Chemical Tolerance:

- **Chlorine**: Exposure of SR membrane to free chlorine or other oxidizing agents such as permanganate, ozone, bromine and iodine is not recommended. SR membrane has a free chlorine tolerance of approximately 2,000 ppm-hours based on testing at 77°F (25°C), pH 8. This tolerance may be significantly reduced if catalyzing metals such as iron are present or if the pH and/or temperature are different. Sodium metabisulfite (without catalysts such as cobalt) is the preferred reducing agent. SR membrane has a chloramine tolerance of approximately 60,000 ppm-hours in the absence of free chlorine based on testing at 77°F (25°C), pH 8.
- **Cationic (Positively Charged) Polymers and Surfactants:** SR membrane may be irreversibly fouled if exposed to cationic (positively charged) polymers or surfactants. Exposure to these chemicals during operation or cleaning is not recommended.

Lubricants:

For element loading, use only the recommended silicone lubricant (or approved equivalent), water or glycerin to lubricate O-rings and brine seals. The use of petroleum based lubricants or vegetable based oils may damage the element and void the warranty.

Service and Ongoing Technical Support:

KSS has an experienced staff of professionals available to assist end users and OEM’s for optimization of existing systems and support with the development of new applications. Along with the availability of supplemental technical bulletins, KSS also offers a complete line of KOCHKLEEN® membrane cleaners, RO pretreatment and maintenance chemicals.

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