

# FLUID SYSTEMS<sup>®</sup> TFC<sup>®</sup> - SR<sup>™</sup> 100 4" ELEMENT

*Low Pressure, Selective Rejection Nanofiltration Elements*

## PRODUCT DESCRIPTION

Membrane Chemistry: Proprietary TFC<sup>®</sup> polyamide  
 Membrane Type: SR<sup>™</sup>100 – selective rejection nanofiltration membrane  
 Construction: Spiral wound with fiberglass outerwrap  
 Applications: Separation of higher molecular weight components (>200 dalton) and multivalent ions from various feed solutions  
 Options: Feed spacer: 28 mil (standard) or 46 mil (N2)

## SPECIFICATIONS

Part Number	Model	Permeate Flow gpd (m <sup>3</sup> /d)	Rejection percent	Active Membrane Area		Feed Spacer	
				ft <sup>2</sup>	(m <sup>2</sup> )	mil	(mm)
8472002	4040-SR100	1,275 (4.8)	> 99.0	85	(7.9)	28	(0.7)
8472005	4040-SR100-N2	870 (3.3)	> 99.0	58	(5.4)	46	(1.2)

Test Conditions: 5,000 mg/l MgSO<sub>4</sub> 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 Process Technology Group for specific information.

## NOMINAL DIMENSIONS AND WEIGHT\*



Model	Dimensions				Weight lbs (kg)	Part Numbers		
	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)		Interconnector	O-ring	Brine Seal
4040-SR100	40 (1,016)	4 (101.6)	0.75 (19.0)	1.0 (25.4)	10 (4.5)	0035267	0035458	0035702
4040-SR100-N2	40 (1,016)	4 (101.6)	0.75 (19.0)	1.0 (25.4)	10 (4.5)	0035267	0035458	0035702

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

### 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.

Selective Rejection (SR™100) nanofiltration membrane performance is highly dependent on water chemistry, temperature, pH, and solution concentration. Performance can only be accurately known through pilot study. KMS strongly recommends that the appropriate pilot studies be conducted to determine suitability for a given application.

System operating data should be normalized and key performance parameters tracked using KMS NORMPRO® software.

### Operating Limits:

- **Operating Pressure:** Maximum operating pressure is 600 psi (4,140 kPa). Typical operating pressure for TFC®-SR100 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 TFC-SR100 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). 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 TFC-SR100 membrane to free chlorine or other oxidizing agents such as permanganate, ozone, bromine and iodine is not recommended. TFC-SR100 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. TFC-SR100 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:** TFC-SR100 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:

KMS 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, KMS also offers a complete line of KOCHTREAT® and KOCHKLEEN® RO pretreatment and maintenance chemicals.

*The information contained in this publication is believed to be accurate and reliable, but is not to be construed as implying any warranty or guarantee of performance. We assume no responsibility, obligation or liability for results obtained or damages incurred through the application of the information contained herein. Refer to Standard Terms and Conditions of Sale and Performance Warranty documentation for additional information.*

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