

SR3D FOOD & DAIRY NF ELEMENTS

Nanofiltration 4" and 8" Sanitary Element Series

PRODUCT DESCRIPTION

Membrane Chemistry:	Proprietary TFC® polyamide
Membrane Type:	SR3D - selective rejection nanofiltration
Molecular weight cut-off:	200 Daltons
Construction:	Sanitary spiral wound elements with net outerwrap
Regulatory Status:	Compliant with US FDA CFR Title 21, EC Reg. No. 1935/2004, and EU Reg. No. 10/2011. Halal-certified by the Islamic Food and Nutrition Council of America (IFANCA)
Application:	Desalting and separation of proteins, sugars and carbohydrates
Options:	Diameter: 3.8", 7.8" or 8.0" Length: 38" or 39" Feed Spacer: N (31 mil) or V (46 mil)

NOMINAL PERFORMANCE

Part Number	Model	MgSO ₄ Rejection [%]	Active Membrane Area ft ² (m ²)	Feed Spacer mil (mm)
8383808	3838 SR3D-NYV	> 99.0	76 (7.1)	31 (0.8)
8383904	3839 SR3D-NYV	> 99.0	76 (7.1)	31 (0.8)
8383809	3838 SR3D-VYV	> 99.0	61 (5.7)	46 (1.1)
8383905	3839 SR3D-VYV	> 99.0	61 (5.7)	46 (1.1)
8783802	7838 SR3D-NYV	> 99.0	350 (32.5)	46 (1.1)
8783801	7838 SR3D-VYV	> 99.0	278 (25.8)	46 (1.1)
8803803	8038 SR3D-NYV	> 99.0	371 (34.5)	31 (0.8)
8803804	8038 SR3D-VYV	> 99.0	291 (27.0)	46 (1.1)

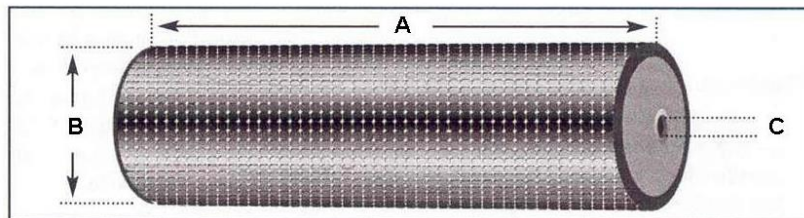
Test Conditions: 5,000 mg/l MgSO₄ in deionized water at 95 psi (6.5 bar) applied pressure, 15% recovery, 77°F (25°C), pH 7.5

OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure:	200 - 450 psi (13.8 - 31.0 bar)
Maximum Operating Pressure:	650 psi (44.8 bar)
Operating Temperature Range:	40 - 122°F (5 - 50°C)
Maximum Cleaning Temperature:	122°F (50°C)
Allowable pH - Continuous Operation:	4.0 - 10.0
Allowable pH - Clean-In-Place (CIP):	1.8 - 11.0
Design Pressure Drop Per Element:	6 - 10 psi (0.4 - 0.7 bar)
Design Pressure Drop Per Vessel:	30 - 50 psi (2.1 - 3.4 bar)

* Consult KMS Process Technology Group for specific applications.

NOMINAL DIMENSIONS



Model	A inches (mm)	B inches (mm)	C inches (mm)
3838 SR3D	38.0 (965)	3.8 (96)	0.831 (21.1)
3839 SR3D	38.8 (984)	3.8 (96)	0.831 (21.1)
7838 SR3D	38.0 (965)	7.7 (197)	1.125 (28.6)
8038 SR3D	38.0 (965)	7.9 (201)	1.125 (28.6)

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Membrane Characteristics:

SR3D elements are selected when desalting and organic concentration is the objective. SR3D nanofiltration elements provide high retention of divalent salts, proteins, and sugars while preferentially passing monovalent salts such as sodium chloride.

Operating Limits:

- **Operating Pressure:** Maximum operating pressure for the SR3D elements is listed in the first page of this document. Actual operating pressure is dependent upon system flux rate (appropriate for feed source) as well as feed, recovery and temperature conditions.
- **Permeate Pressure:** Permeate pressure should not exceed baseline (concentrate) pressure at any time (including online, off-line and during transition). Reverse pressure will damage the element.
- **Differential Pressure:** Maximum differential pressure limit is 10 psi (0.7 bar) per element. Maximum differential pressure for any length vessel is 50 psi (3.4 bar).
- **Temperature:** Maximum operating and cleaning temperature is 122°F (50°C).
- **pH:** Allowable range for continuous operation is 4.0 to 10.0. Allowable pH range for cleaning is 1.8 to 11.0.

Water Quality for Cleaning & Diafiltration:

- **Turbidity and SDI:** Maximum feed turbidity is 1 NTU. Maximum feed Silt Density Index (SDI) is 5.0 (15-minute test).
- **Guidelines:** Please refer to the KMS "Water Quality Guidelines for CIP and Diafiltration" for more detailed information.

Chlorine and Chemical Exposure:

- KMS recommends removing residual free chlorine prior to membrane exposure to prevent premature membrane failure.
- Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or similar oxidizers in the feed.

Cationic Polymers and Surfactants:

SR3D membranes may be irreversibly fouled if exposed to cationic (positively charged) polymers or surfactants. Exposure to these chemicals during operation or cleaning is not recommended and will void the warranty.

Lubricants:

For element installation, use only water or glycerin to lubricate seals. The use of petroleum or vegetable-based oils or solvents may damage the element and will void the warranty.

Supplemental Technical Bulletins:

- RO/NF Element Cleaning Procedures
- Water Quality Guidelines for CIP and Diafiltration

Service and Ongoing Technical Support:

Koch Membrane Systems (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 KOCHKLEEN® cleaning and maintenance chemicals.

KMS Capability

KMS is the leader in crossflow membrane technology, manufacturing reverse osmosis, nanofiltration, microfiltration, and ultrafiltration membranes and membrane systems. The industries we serve include food, dairy and beverage, semiconductors, automotive, water and wastewater, chemical and general manufacturing. KMS adds value by providing top quality membrane products and by sharing our experience in the design and supply of thousands of crossflow membrane systems worldwide.

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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