

# Sani-Pro<sup>®</sup> MFK-618 Microfiltration Elements

## Sanitary Microfiltration Spiral Element Series

### PRODUCT DESCRIPTION

<b>Membrane Chemistry:</b>	Proprietary semi-permeable polyethersulfone (PES)
<b>Membrane Type:</b>	Microfiltration membrane with nominal pore size of 0.1 micron
<b>Construction:</b>	Sanitary spiral wound element with net outer wrap and BAND-TITE <sup>®</sup> straps
<b>Regulatory Status:</b>	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).
<b>Applications:</b>	Clarification of fermentation broth, sugar and sweetener clarification

### NOMINAL SPECIFICATIONS

Model	Membrane Area					
	30-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )	45-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )	62-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )	80-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )	100-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )	135-mil Spacer ft <sup>2</sup> (m <sup>2</sup> )
3838 K618	67 (6.2)	57 (5.3)	41 (3.8)	33 (3.1)	--	--
6338 K618	--	172 (16.0)	--	--	--	--
8038 K618	--	--	--	174 (16.2)	--	119 (11.1)
8338 K618	--	298 (27.7)	229 (21.3)	185 (17.2)	159 (14.8)	128 (11.9)

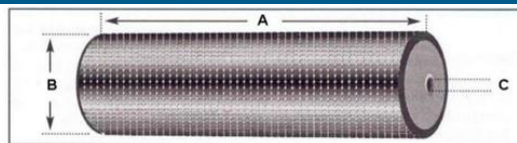
Not all options are available. Please check with KSS about spacer and outer wrap availability.

### OPERATING AND DESIGN INFORMATION\*

<b>Typical Operating Pressure:</b>	30 - 120 psi (2.1 - 8.3 bar)
<b>Maximum Operating Pressure:</b>	140 psi (9.7 bar)
<b>Typical Operating Temperature Range:</b>	41 - 131°F (5 - 55°C)
<b>Maximum Operating Temperature:</b>	At pH 6.0 - 7.5: 150°F (65.5°C) At pH 3.5 - 6.0: 140°F (60°C) At pH 2.0 - 3.5 and 7.5 - 10.0: 131°F (55°C)
<b>Cleaning (CIP) Temperature Range:</b>	104 - 122°F (40 - 50°C)
<b>Allowable pH - Continuous Operation:</b>	2.0 - 10.0
<b>Allowable pH - Clean-In-Place (CIP):</b>	1.8 - 11.0
<b>Design Pressure Drop Per Element:</b>	30-mil spacer: 5-15 psi (0.3-1.0 bar) 45-mil spacer: 5-20 psi (0.3-1.4 bar) 62, 80, 100 or 135-mil spacer: 10-20 psi (0.7-1.4 bar)
<b>Design Pressure Drop Per Vessel (3 In Series):</b>	30-mil spacer: 15-45 psi (1.0-3.1 bar) 45-mil spacer: 15-60 psi (1.0-4.1 bar) 62, 80, 100 or 135-mil spacer: 30-60 psi (2.1-4.2 bar)

\*Consult KSS Process Technology Group for specific applications.

### NOMINAL DIMENSIONS



Model	A		B		C	
	inches	(mm)	inches	(mm)	inches	(mm)
3838	38.0	(965)	3.8	(96)	0.831	(21.1)
6338	38.0	(965)	6.4	(162)	1.138	(28.9)
8038	38.0	(965)	7.9	(201)	1.138	(28.9)
8338	38.0	(965)	8.3	(211)	1.138	(28.9)

## OPERATING GUIDELINES

**Membrane Characteristics:**

- The membrane used in these elements consists of a semipermeable polyethersulfone (PES) layer on a polyester backing material.
- Pure water flux of the MFK-618 membrane is 2.0-4.4 gfd/psi at 77°F (25°C).

**Options:**

- Diameter: 3.8", 6.3", 8.0" or 8.3"
- Outer wrap: Controlled or trimmable (-T)
- Feed Spacer: 30, 45, 60, 80, 100 or 135-mil

**Operating Limits:**

- **Operating Pressure:** Maximum operating pressure is 140 psi (9.7 bar).
- **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 membrane.
- **Differential Pressure:** The maximum differential pressure per module is listed on the reverse side of this sheet for the different feed spacer elements. The maximum differential pressure for 3-in-series housings is also listed.
- **Temperature:** Maximum operating temperature is 150°F (65.5°C), at pH 6.0-7.5. Maximum cleaning temperature is 122°F (50°C).
- **pH:** Allowable range for continuous operation is 2.0 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 SDI is 5.0 (15-minute test).
- **Guidelines:** Refer to KSS "Water Quality Guidelines for CIP and Diafiltration" for more detailed information.

**Chlorine and Chemical Exposure:**

- Adherence to cleaning and sanitizing procedures including chemical concentrations, pH, temperature, and exposure time is necessary to achieve maximum useful element life. Accurate records should be maintained.
- KSS Standard cleaning procedures for dairy applications should be followed. Recommended chlorine exposure time at the defined conditions is 30 minutes per day.

- Residual chlorine concentration during cleaning cycle (CIP) should be 150 ppm @ pH 10.5 or higher. Chlorine concentration should never exceed 200 ppm.
- Chlorine should only be added to the cleaning solution after the pH has been adjusted to 10.5 or higher.
- Iron or other catalyzing metals in the presence of free chlorine or hydrogen peroxide will accelerate membrane degradation.
- Sanitizing should be done only after a complete cleaning cycle and with water of acceptable quality. Refer to cleaning instructions and feedwater quality technical bulletins.

**Cationic Polymers and Surfactants:**

MFK 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 module 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:**

- MF Element Cleaning Procedures
- Water Quality Guidelines for CIP and Diafiltration

**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 for the development of new applications. KSS also offers a complete line of KOCHKLEEN® membrane pretreatment, cleaning, and maintenance chemicals.

**KSS Capability:**

KSS 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. KSS 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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