

# KMS MFK™ FOOD & DAIRY MF ELEMENTS

*Microfiltration 4" and 8" Spiral Element for High Temperature Operation*

## PRODUCT DESCRIPTION

Membrane Chemistry: Proprietary semi-permeable polyethersulfone (PES)  
 Membrane Type: MFK™-603 with observed separation range of 0.1 micron  
 Construction: Sanitary spiral wound with net outer wrap  
 Regulatory Status: Conform to USDA 3-A standards and FDA regulations (CFR Title 21)

## SPECIFICATIONS

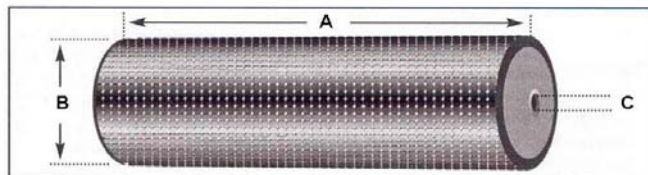
KMS Part Number	Model	Active Membrane Area		Feed Spacer
		ft <sup>2</sup>	(m <sup>2</sup> )	mil (mm)
0757063	3838 MFK-603-FYV	33	(3.0)	80 (2.0)
0750703	8338 MFK-603-FYT	181	(16.8)	80 (2.0)

## OPERATING AND DESIGN INFORMATION\*

Typical Operating Pressure: 30 - 120 psi (2.1 - 8.3 bar)  
 Maximum Operating Pressure: 140 psi (9.7 bar)  
 Maximum Operating Temperature: 176°F (80°C)  
 Cleaning (CIP) Temperature Range: 104 - 122°F (40 - 50°C) for chlorine cleaning  
 104 - 176°F (40 - 80°C) for cleaning not involving chlorine  
 Allowable pH - Continuous Operation: 2.0 - 10.0  
 Allowable pH - Clean-In-Place (CIP): 1.8 - 11.0  
 Design Pressure Drop Per Element: 10-20 psi (0.7-1.4 bar)  
 Maximum Pressure Drop Per Vessel: 60 psi (4.2 bar)

\* Consult KMS Process Technology Group for specific applications.

## NOMINAL DIMENSIONS



Model	A inches (mm)	B inches (mm)	C inches (mm)
3838 MFK-603	38.0 (965)	3.8 (96)	0.831 (21.1)
8338 MFK-603	38.0 (965)	8.3 (211)	1.138 (28.9)

**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-603 membrane is 2.0-4.4 gfd/psi at 77°F (25°C).

**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 a housing is also listed.
- **Temperature:** Maximum operating temperature is 176°F (80°C) during process.
- **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:**

- **Guidelines:** Refer to KMS “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.
- KMS 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.

- Maximum cleaning temperature is 122°F (50°C) when chlorine is used. Maximum cleaning temperature is 176°F (80°C) for cleaning cycles not involving chlorine.
- 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:**

- Water Quality Guidelines for CIP and Diafiltration

**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 for the development of new applications. KMS also offers a complete line of KOCHKLEEN® membrane pretreatment, 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.

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*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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