Dairy-Pro™ UF-10K and UF-5K ELEMENTS

Ultrafiltration Sanitary Spiral Element Series

PRODUCT DESCRIPTION

Membrane Chemistry:	Proprietary semi-permeable polyethersulfone (PES)
Membrane Type:	UF-10K with observed separation range of 10,000 Daltons UF-5K with observed separation range of 5,000 Daltons
Construction:	Sanitary spiral wound element with net outer wrap
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).
Options:	Diameter: 6.3", 6.4", 7.8" or 8.0" Feed Spacer: 30 mil, 45 mil or 62 mil Outer wrap: Controlled or trimmable

NOMINAL SPECIFICATIONS

	Membrane Area					
	30-mil Spacer		45-mil Spacer		62-mil Spacer	
Model	ft²	(m²)	ft²	(m²)	ft²	(m²)
6338 UF 5K/10K	250	(23.2)	194	(18.0)	142	(13.2)
6438 UF 5K/10K	250	(23.2)	194	(18.0)	142	(13.2)
7838 UF 5K/10K	380	(35.3)	297	(27.6)		
8038 UF 5K/10K	400	(37.3)	308	(28.7)	215	(20.0)

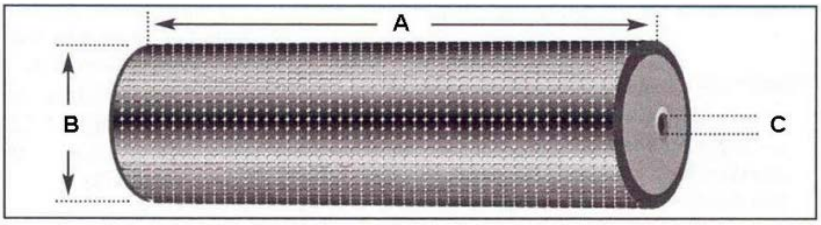
6438, 7838 and 8038 elements are only available in controlled OD configuration
6338 elements are only available in trimmable OD configuration

OPERATING AND DESIGN INFORMATION*

Typical Operating Pressure:	30 - 120 psi (2.1 - 8.3 bar)
Maximum Operating Pressure:	140 psi (9.7 bar)
Operating Temperature Range:	41 - 131°F (5 – 55°C)
Cleaning Temperature Range:	105 - 122°F (40 – 50°C)
Allowable pH - Continuous Operation:	2.0 - 10.0
Allowable pH - Clean-In-Place (CIP):	1.8 - 11.0
Design Pressure Drop Per Element:	30-mil: 12-15 psi (0.8-1.0 bar) 45 mil: 15-20 psi (1.0-1.4 bar) 62 mil: 15-25 psi (1.0-1.7 bar)
Design Pressure Drop Per Vessel (3 in series):	30 mil: 36-45 psi (2.5-3.1 bar) 45 mil: 45-60 psi (3.1-4.1 bar) 62 mil: 45-75 psi (3.1-5.2 bar)
Design Pressure Drop Per Vessel (4 in series):	30 mil: 48-60 psi (3.3-4.1 bar) 45 mil: 60-68 psi (4.1-4.7 bar)

* Consult KMS Process Technology Group for specific applications.

NOMINAL DIMENSIONS



	A		B		C	
Model	inches	(mm)	inches	(mm)	inches	(mm)
6338	38.0	(965)	6.3	(160)	1.138	(28.9)
6438	38.0	(965)	6.4	(162)	1.138	(28.9)
7838	38.0	(965)	7.7	(197)	1.138	(28.9)
8038	38.0	(965)	7.9	(201)	1.138	(28.9)

Membrane Characteristics:

- The membrane used in the Dairy-Pro™ UF elements consists of a semipermeable polyethersulfone (PES) layer on a polyester backing material.

Operating Limits:

- Operating Pressure: Maximum operating pressure is listed on the first page of this document. Actual operating pressure is dependent upon system flux rate (application specific) as well as feed, concentration and temperature conditions.
- Permeate Pressure: Permeate pressure should not exceed baseline (concentrate) pressure at any time (including on-line, off-line and during transition). Reverse pressure will damage the membrane.
- Differential Pressure: The maximum differential pressures per element are listed on the front of this document, including design values for multi-element housings.
- Temperature: Maximum operating and cleaning temperatures for the standard elements are shown on the first page of this document.
- pH: Allowable range for continuous operation and cleaning is shown in the first page of this document.

Water Quality for Cleaning & Diafiltration:

- Turbidity and SDI: Maximum feed turbidity is 1 NTU. Maximum feed 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:

- Adherence to cleaning and sanitizing procedures including chemical concentrations, pH, temperature, and exposure time is necessary to achieve maximum useful element life. Accurate records must 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 10.5-11.0. Chlorine concentration should never exceed 200 ppm.
- Chlorine should only be added to the cleaning solution after the pH has been adjusted to 10.5-11.0.
- 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:

Dairy-Pro™ UF 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:

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

Dairy-Assist℠ 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.

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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