

# KMS HpHT™ HFK™131 FOOD & DAIRY UF ELEMENTS

## High pH and Temperature Cleanable Ultrafiltration Spiral Element Series

### PRODUCT DESCRIPTION

**Membrane Chemistry:** Proprietary semi-permeable polyethersulfone (PES)  
**Membrane Type:** HpHT™ HFK™-131 with observed separation range of 10,000 Daltons  
**Construction:** Sanitary spiral wound with net outer wrap  
**Regulatory Status:** Conform to USDA 3-A standards and FDA regulations (CFR Title 21)  
**Options:** Diameter: 3.8, 4.3, 6.4 and 8.0 inches  
 Length: 36 or 38 inches  
 Feed Spacer: N (31 mil), V (46 mil), H (62 mil) or F (80 mil)  
 Outer wrap: Controlled (e.g. NYV) or trimmable (e.g. NYT)

### SPECIFICATIONS

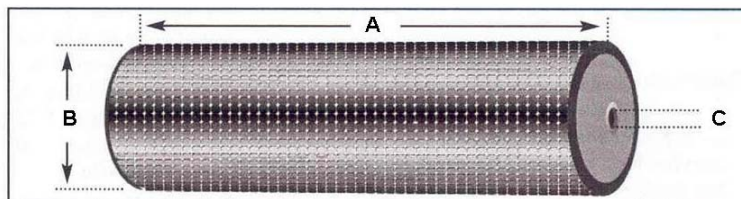
Part Number	Model	Feed Spacer	Active Membrane Area
			ft <sup>2</sup> (m <sup>2</sup> )
0757632	HpHT 3838-K131-NYV	31 mil	66 (6.1)
0757631	HpHT 3838-K131-VYV	46 mil	54 (5.0)
0740611	HpHT 4336-K131-VYV	46 mil	79 (7.3)
0757626 / 0750626	HpHT 6438-K131-NYV / NYT	31 mil	206 (19.1)
0757606 / 0750606	HpHT 6438-K131-VYV / VYT	46 mil	167 (15.5)
0757602 / 0750602	HpHT 6438-K131-HYV / HYT	62 mil	137 (12.7)
0757608 / 0750608	HpHT 6438-K131-FYV / FYT	80 mil	112 (10.4)
0750672	HpHT 8038-K131-NYT	31 mil	330 (30.7)
0750671	HpHT 8038-K131-VYT	46 mil	265 (24.6)

### OPERATING & DESIGN INFORMATION\*

**Typical Operating Pressure:** 30 - 120 psi (2.1 - 8.3 bar)  
**Operating Temperature Range:** 41 - 140°F (5 - 60°C)  
**Cleaning Temperature Range:** 105 - 185°F (40 - 85°C)  
**Allowable pH - Continuous Operation:** 2.0 - 10.0  
**Allowable pH - Clean-In-Place (CIP):** 1.8 - 12.5  
**Design Pressure Drop below 140°F (60°C):**  
     Pressure Drop Per Element:  
         N spacer: 12-15 psi (0.8-1.0 bar)  
         V spacer: 15-20 psi (1.0-1.4 bar)  
         H or F spacer: 15-25 psi (1.0-1.7 bar)  
     Pressure Drop Per Vessel (3 in series):  
         N spacer: 36-45 psi (2.5-3.1 bar)  
         V spacer: 45-60 psi (3.1-4.1 bar)  
         H or F spacer: 45-75 psi (3.1-5.2 bar)  
     Pressure Drop Per Vessel (4 in series):  
         N spacer: 48-60 psi (3.3-4.1 bar)  
         V spacer: 60-68 psi (4.1-4.7 bar)  
**Maximum Pressure Drop above 140°F (60°C):** 10 psi (0.7 bar) per element for N and V spacers  
 15 psi (1.0 bar) per element for H and F spacers

\* Consult KMS Process Technology Group for specific applications.

### NOMINAL DIMENSIONS



Model	A	B	C
	inches (mm)	inches (mm)	inches (mm)
HpHT 3838-K131	38.0 (965)	3.8 (96)	0.831 (21.1)
HpHT 4336-K131	35.5 (902)	4.3 (109)	0.831 (21.1)
HpHT 6438-K131	38.0 (965)	6.37 (162)	1.138 (28.9)
HpHT 8038-K131	38.0 (965)	7.9 (201)	1.138 (28.9)

### Membrane Characteristics:

- The membrane used in these modules consists of a semipermeable polyethersulfone (PES) layer on a polyolefin backing material.
- Pure water flux of these HpHT HFK131 membranes is 1.0-2.2 gfd/psi (24-53 l/m<sup>2</sup>/h/bar) 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 element is listed in the front of this document, including design values for multi-element housings. Maximum differential pressure per element at temperature higher than 140°F (60°C) is 10 psi (0.7 bar) for all feed spacers.
- **Temperature:** Maximum operating temperature is 140°F (60°C); maximum cleaning temperature is 185°F (85°C).
- **pH:** Allowable range for continuous operation is 2.0 to 10.0. Allowable pH range for cleaning is 1.8 to 12.5.

### 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.

### Chemical Exposure:

- **Chlorine:** Exposure of HpHT membrane to free chlorine or other oxidizing agents such as permanganate, ozone, bromine and iodine is not recommended.
- Cleaning and sanitizing limits for chemical concentrations, pH, temperature and exposure time must be observed in order to achieve maximum useful module life and to maintain the warranty.
- 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:

PES 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 module and will void the warranty.

### Supplemental Technical Bulletins:

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

### 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® 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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