Product Data Sheet

FilmTec™ Hypershell™ Wide Feed Spacer NF and RO Membranes

Nanofiltration and Reverse Omosis Elements for Dairy Processing Applications

Description

IDEAL for: Dairy Process plant managers and operators looking for a state-of-the art Dewatering, Desalting and Protein Concentration solution to treat high viscose dairy streams for reducing CAPEX and OPEX while maximizing production yields and efficiency.

FilmTec™ Hypershell™ RO/48 and FilmTec™ Hypershell™ NF245/48 Reverse Osmosis (RO) and Nanofiltration (NF) Membrane Elements contain sanitary, high-rejection FT30 membrane that has been successfully used to process a wide range of food, beverage, and dairy streams.

FilmTec™ Hypershell™ RO-8038/48, FilmTec™ Hypershell™ NF245-8038/48 and FilmTec™ Hypershell™ NF245-3838/48 RO and NF Elements offer an industry wide unique combination of features:

- Designed to treat high viscous liquids as well as improve cleaning effectiveness,
- FilmTec™ Hypershell™ Reverse Osmosis technology, a machined polypropylene rigid outer shell to minimize channeling, improving hydrodynamics compared to mesh wrapped elements, improving processing and Clean In Place (CIP) efficiency and allowing safer and faster loading and unloading of elements,
- Sanitary element design: All materials of construction are compliant with U.S. Food and Drug Administration regulations for indirect contact with food. It is the responsibility of the user to meet any if there are additional regulatory requirements required for specific applications.
- 48-mil feed spacer to reduce the pressure drop across the pressure vessel.

Dairy systems are usually operated in feed and bleed mode to assure best possible hydrodynamics in each stage. Inner-stage recirculation pumps operate at the maximum allowable delta P per single stage to maintain a high cross flow and therefore minimize the fouling tendency. With increasing viscosity along the system the cross flow has to be reduced to stay within the maximum allowable delta P. The wide feed spacer geometry in the last two stages allows an increase of cross flow velocity thus reducing the fouling tendency in the rear part of the system. (Figure 1)

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February 2023

Description (Cont.)

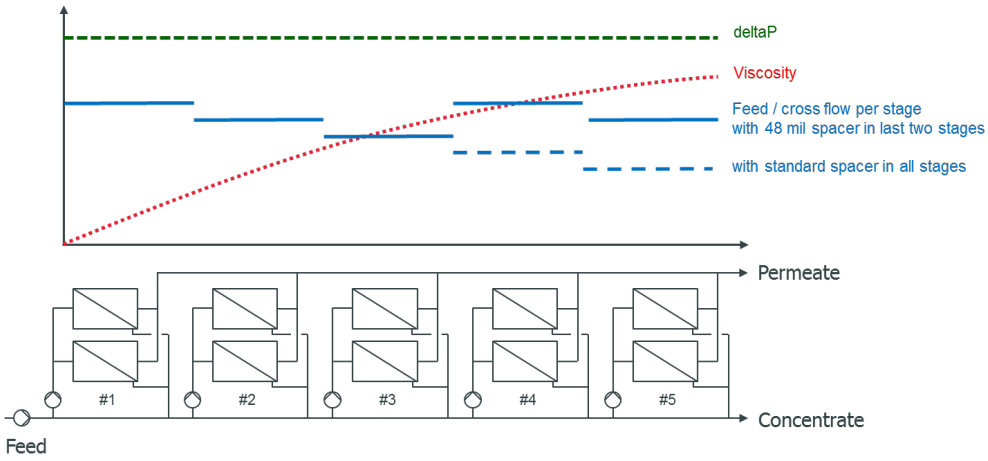
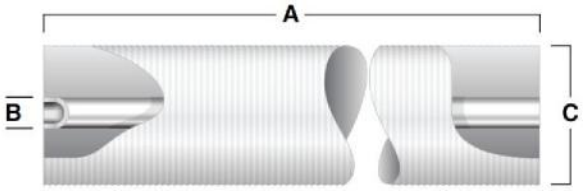


Figure 1: Staged feed and bleed system – feed/cross flow per stage with and without 48 mil feed spacer elements in the last two stages.

Product Overview

FilmTec™ Hypershell™ Membranes	Active Area ft^2	Active Area (m^2)	Feed Spacer mil	Minimum ATD OD (inch)	ATD includeded
RO-8038/48-FF	290	27.0	48	Outer Shell Full Fit	No
NF245-8038/48-FF[1]	275	25.5	48	Outer Shell Full Fit	No
NF245-3838/48-FF	46	4.3	48	Outer Shell Full Fit	No

Element Dimensions



	A		B		C	
FilmTec™ Hypershell™ Membranes	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**
RO-8038/48-FF	38.00	965.0	1.125 ID	28.58 ID	7.9	201
NF245-8038/48-FF[1]	38.00	965.0	1.125 ID	28.58 ID	7.9	201
NF245-3838/48-FF	38.00	965.0	0.83 ID	21.08 ID	3.8	97

FilmTec™ Hypershell™ Elements are designed to fit schedule 40, 8 inch stainless pipe (nominal 7.98 inch ID).

Operating and Cleaning Limits

Maximum Operating Pressure	800 psig (54.8 bar)
Maximum Operating Temperature [a]	
pH 2 – 10	122ºF (50ºC)
Above pH 10	95ºF (35ºC)
pH Range	pH 2 – 11
Free Chlorine Tolerance [b]	Non-detectable
Hydrogen peroxide usage limit:	
Continuous operation	20 ppm
Short-term cleaning (@ 77°F/25°C maximum)	1,000 ppm

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Clean in Place (CIP) Parameters

Maximum CIP Pressure	15 – 75 psig (1 – 5 bar)
Maximum CIP pH and Temperature [a]	
pH range 1.8 – 11 (reference temperature 25°C)	122ºF (50ºC)
pH range 1.8 – 11.2 (reference temperature 25°C)	113ºF (45ºC)
Free Chlorine Tolerance [b]	Below Detectable Limits
Hydrogen peroxide usage limit [b]	
Continuous operation	20 ppm
Short-term cleaning (@ 77°F/25°C maximum)	1,000 ppm

a. Please consult DuPont Representative for operating & cleaning at different pH and temperature conditions.
b. Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. DuPont Water Solutions recommends removing residual free chlorine using pretreatment, prior to membrane exposure.

Design Guidelines

Product	Max. recirculation cross-flow gpm(m^3/h)	Max. element ΔP† psi (bar)
RO-8038/48-FF	80 (18.2)	13 (0.9)
NF245-8038/48-FF[1]	80 (18.2)	13 (0.9)
NF245-3838/48-FF	30 (6.8)	15 (1.0)

† Maximum pressure drop across entire vessel is 60 psi (4.1 bar).

Additional Important Information

Before use or storage, review these additional resources for important information:

- Usage Guidelines for FilmTec™ 8” Elements (Form No. 45-D01706-en)
- Start-Up Sequence (Form No. 45-D01609-en)
- Storage and Shipping of New FilmTec™ Elements (Form No. 45-D01633-en)

Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

Please be aware of the following:

- The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.
- Permeate obtained from the first hour of operation should be discarded.

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Have a question? Contact us at:

www.dupont.com/water/contact-us

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