Product Data Sheet

DuPont Dairy RO Membranes

Reverse Osmosis Elements for Dairy Processing Applications

Description

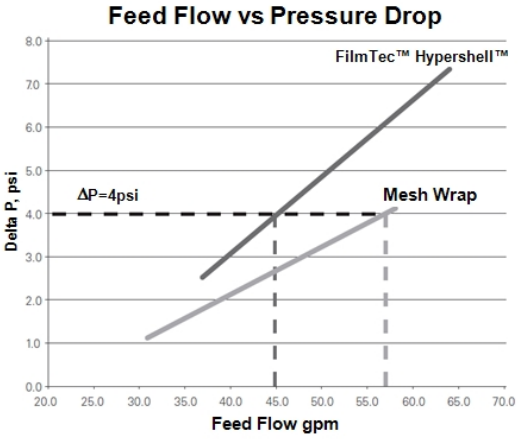
IDEAL for: Dairy Process plant managers and operators looking for a state-of-the art Dewatering & Protein Concentration solution for reducing CAPEX and OPEX while maximizing production yields and efficiency.

DuPont reverse osmosis (RO) membrane elements contain sanitary, high-rejection FT30 reverse osmosis membrane that has been successfully used to process a wide range of food, beverage, and dairy streams. These elements are especially effective in dewatering and product concentration.

The FilmTec™ Hypershell™ RO-8038-FF, RO-8038/48-FF & RO-390-FF are constructed with a polypropylene outer shell, designed to:

- Minimize channeling & Fluid By-Pass
- Help prevent premature element failures throughout product lifetime
- Improve hydrodynamics of the element
- Complies to FDA Indirect Food Contact

The FilmTec™ Hypershell™ RO-390-FF product is the industry's premier membrane for permeate polishing. The FilmTec™ Hypershell™ RO-390-FF has more active area than competitive elements to maximize performance and reduce capital cost by requiring fewer elements for polishing applications.



Pressure Drop versus Feed Flow for Mesh wrap and FilmTec™ Hypershell™ 8038 Elements. FilmTec™ Hypershell™ has less exterior bypassing and requires approximately 30% less flow than mesh wrap for an equivalent pressure drop.

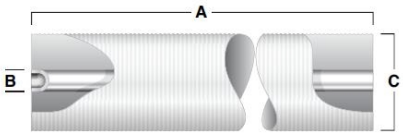
The graph indicates the flow comparison at 4psi delta P. Energy can be saved by reducing flow.

Form No. 45-D00720-en, Rev. 6
February 2023

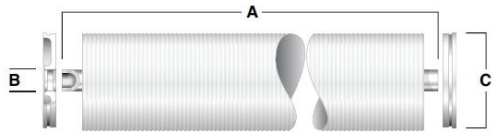
Typical Properties

FilmTec™ Element	Part Number	Active Area $ft^2(m^2)$	Feed Spacer mil	Design Features
Hypershell™ RO-8038	302218	370 (34.4)	33	Outer Shell Full Fit
Hypershell™ RO-8038/48	360400	290 (27.0)	48	Outer Shell Full Fit
Hypershell™ RO-390-FF	346364	390 (36.2)	27	Outer Shell Full Fit
RO-3838 / 30-FF	80589	81 (7.5)	30	Mesh Wrap Full Fit
RO-3840 / 30-FF	108664	85 (7.8)	30	Mesh Wrap Full Fit

Element Dimensions



Model 8038



Model 390

FilmTec™ Element	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)
Hypershell™ RO-8038[1]	38.00	965.0	1.125	28.58	7.9	200
Hypershell™ RO-8038/48[1]	38.00	965.0	1.125	28.58	7.9	200
Hypershell™ RO-390-FF[2]	40.00	1,016	1.125	28.58	7.9	200
RO-3838 / 30-FF	38.00	965.0	0.83	21.1	3.8	96
RO-3840 / 30-FF	38.75	984.0	0.83	21.1	3.8	96

1. FilmTec™ Hypershell™ Elements are designed to fit schedule 40, 8 inch stainless pipe (nominal 7.98 inch ID).
2. FilmTec™ Hypershell™ 390 Elements are designed in an 8040 style with 1 inch exposed product water tube instead of a flush cut end on each side. Model 390 is not full sanitary design and should only be used when permeate is the product.

Operating and Cleaning Limits

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

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)	122°F (50°C)
pH range 1.8 – 11.2 (reference temperature 25°C)	113°F (45°C)
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.

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Design Guidelines

FilmTec™ Element	Max. recirculation cross-flow gpm (m^3/h)	Max. element ΔP† psi (bar)
Hypershell™ RO-8038	80 (18.2)	13 (0.9)
Hypershell™ RO-8038/48	80 (18.2)	13 (0.9)
Hypershell™ RO-390-FF	80 (18.2)	13 (0.9)
RO-3838 / 30-FF	30 (6.8)	15 (1.0)
RO-3840 / 30-FF	30 (6.8)	15 (1.0)
RO-3938 / 30-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.
- Any concentrate or permeate obtained from the first hour of operation should be discarded.

Have a question? Contact us at:

www.dupont.com/water/contact-us

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