

DuPont Dairy NF Membranes

Nanofiltration Elements for Dairy Processing Applications

Description

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

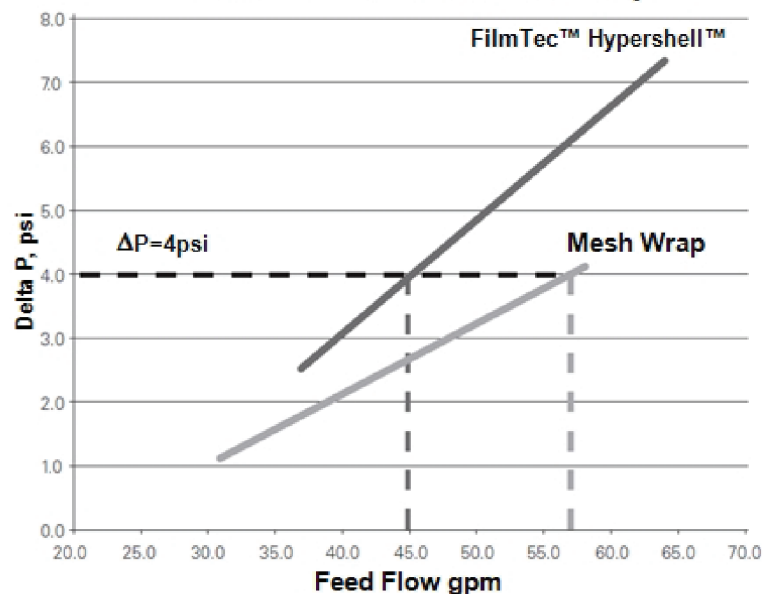
DuPont nanofiltration (NF) membrane elements are used by food and dairy processors for a variety of desalting, purification and other separations. All NF245 elements contain an improved nanofiltration membrane sheet designed to reject organics with a molecular weight above 300 amu while passing monovalent salts.



The FilmTec™ Hypershell™ NF245-8038-FF, NF245-390-FF, NF-8038-FF & NF-390-FF are constructed with a polypropylene outer shell, comply to FDA Indirect Food Contact, and are designed to:

- Minimize channeling & Fluid By-Pass
- Prevent premature element failures throughout product lifetime
- Improve hydrodynamics of the element

Feed Flow vs Pressure Drop



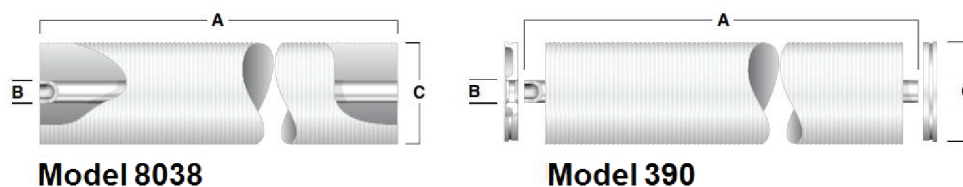
Pressure Drop versus Feed Flow for Mesh wrap and FilmTec™ Hypershell™ 8038 elements. FilmTec™ Hypershell™ has less exterior bypassing and requires approximately 30% less flow than mesh wrap for an equivalent pressure drop.

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

Typical Properties

DuPont Membranes	Part Number	Active Area ft ² (m ²)	Feed Spacer mil	Design Features
Hypershell™ NF245-8038-FF	336673	370 (34.4)	33	Outer Shell Full Fit
Hypershell™ NF245-8038/48-FF	99037882	270 (25)	48	Outer Shell Full Fit
Hypershell™ NF245-390-FF	371971	390 (36.2)	27	Outer Shell Full Fit
Hypershell™ NF-8038-FF	365935	370 (34.4)	33	Outer Shell Full Fit
Hypershell™ NF-390-FF	371974	390 (36.2)	27	Outer Shell Full Fit
FilmTec™ NF245-3838/30-FF	316942	79 (7.5)	30	Mesh Wrap Full Fit
Hypershell™ NF245-3838/48-FF	99037883	50 (4.7)	48	Outer Shell Full Fit
FilmTec™ NF245-3840/30-FF	319116	81 (7.8)	30	Mesh Wrap Full Fit
FilmTec™ NF-3838/30-FF	146071	79 (7.5)	30	Mesh Wrap Full Fit
FilmTec™ NF-3840/30-FF	146073	81 (7.8)	30	Mesh Wrap Full Fit

Element Dimensions



DuPont Membranes	A		B		C	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
Hypershell™ NF245-8038-FF ¹	38.00	965.0	1.125	28.58	7.9	200
Hypershell™ NF245-8038/48-FF ¹	38.00	965.0	1.125	28.58	7.9	200
Hypershell™ NF245-390-FF ²	40.00	1,016	1.125	28.58	7.9	200
Hypershell™ NF-8038-FF ¹	38.00	965.0	1.125	28.58	7.9	200
Hypershell™ NF-390-FF ²	40.00	1,016	1.125	28.58	7.9	200
FilmTec™ NF245-3838/30-FF	38.00	965.0	0.83	21.1	3.8	96
Hypershell™ NF245-3838/48-FF	38.00	965.0	0.83	21.1	3.8	96
FilmTec™ NF245-3840/30-FF	38.75	984.0	0.83	21.1	3.8	96
FilmTec™ NF-3838/30-FF	38.00	965.0	0.83	21.1	3.8	96
FilmTec™ NF-3840/30-FF	38.75	984.0	0.83	21.1	3.8	96

1. Hypershell™ elements are designed to fit schedule 40, 8 inch stainless pipe (nominal 7.98 inch ID).
2. 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 3 – 10	122°F (50°C)
Above pH 10	95°F (35°C)
pH Range	pH 3 – 10
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

Clean in Place (CIP) Parameters

Maximum CIP Pressure	15 – 75 psig (1 – 5 bar)
Maximum CIP Temperature ^a	
pH 1.8 – 11	122°F (50°C)
pH 1.8 – 11.2	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.

Design Guidelines

Product	Max. recirculation cross-flow	Max. element ΔP †
	gpm (m ³ /h)	psi (bar)
Hypershell™ NF245-8038-FF	80 (18.2)	13 (0.9)
Hypershell™ NF245-8038/48-FF ¹	80 (18.2)	13 (0.9)
Hypershell™ NF245-390-FF	80 (18.2)	13 (0.9)
Hypershell™ NF-8038-FF	80 (18.2)	13 (0.9)
Hypershell™ NF-390-FF	80 (18.2)	13 (0.9)
FilmTec™ NF245-3838/30-FF	30 (6.8)	15 (1.0)
FilmTec™ NF245-3838/48-FF	30 (6.8)	15 (1.0)
FilmTec™ NF245-3840/30-FF	30 (6.8)	15 (1.0)
FilmTec™ NF-3838/30-FF	30 (6.8)	15 (1.0)
FilmTec™ NF-3840/30-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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