Product Data Sheet

DuPont™ Specialty Membrane XUS120308 and XUS120304 Reverse Osmosis Elements

Description

The DuPont™ XUS120308 and XUS120304 High Temperature Reverse Osmosis Elements offer a distinct combination of features:

- Up to 80°C continuous operating temperature capability due to special element and membrane design
- Robust FilmTec™ SW30 based reverse osmosis (RO) membrane sheet
- FilmTec™ Hypershell™ Reverse Osmosis technology, a machined polypropylene rigid outer shell:
  - Minimized channeling and control of premature element failures throughout product lifetime
  - Improved hydrodynamics of the element compared to mesh wrapped elements, which can result in energy savings and improved processing and Clean In Place (CIP) efficiency.
  - Improved safety and faster loading and unloading of elements from a system due to the rigid FilmTec™ Hypershell™ case, which doesn't expand over time.
  - Easy and permanent identification due to laser etched model names and serial numbers.
- The 48 mil parallel feed spacer lessens the impact of fouling, reduces the pressure drop across the pressure vessel and enhances cleaning effectiveness.
- The DuPont™ XUS120308 and XUS120304 RO elements can reduce the size of cooling and heating systems, thus saving on both OPEX and CAPEX. Typical applications are:
  - Hot evaporator condensate reuse for process and rinsing purposes
  - Concentration of thin juice sugars or components in chemical processing
  - Production of water for the pharmaceutical industry

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Description (Cont.)

FilmTec™ Hypershell™ Elements have less exterior bypassing and require 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.

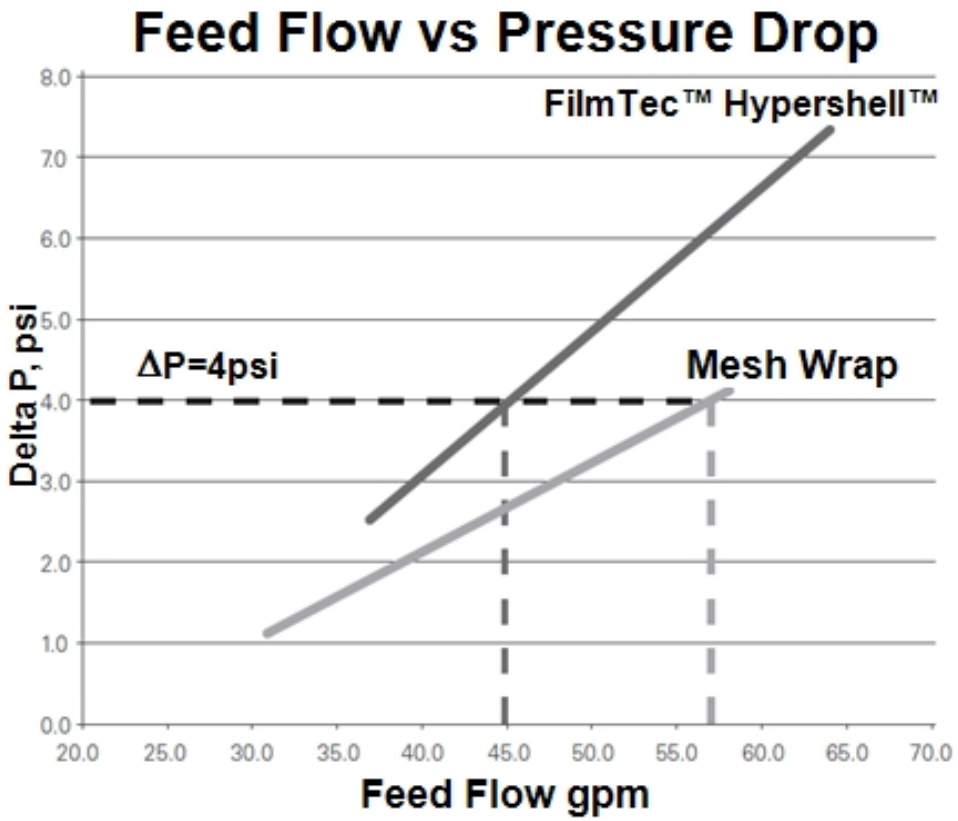

Figure 1: Pressure Drop vs. Feed Flow for Mesh wrap and FilmTec™ Hypershell™ 8038 Elements

Typical Properties

DuPont™ Specialty Membrane	Active Area (ft^2)	Active Area (m^2)	Feed Spacer Thickness (mil)	Minimum ATD OD (inch)	ATD included
XUS120308	260	24.2	48	7.9	No
XUS120304	55	5.1	48	3.9	Yes

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Element Dimensions

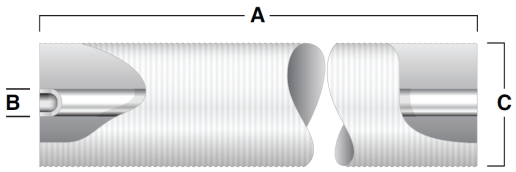

Figure 2: XUS120308 (8038)

	A		B		C	
DuPont™ Specialty Membranes	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**
XUS120308	38	965	1.125 ID	29 ID	7.9	201

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

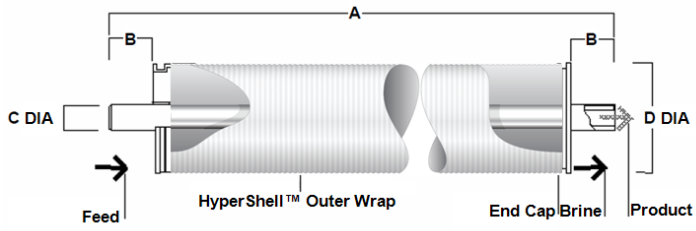

Figure 3: XUS120304 (4040)

	A		B		C		D	
DuPont™ Specialty Membranes	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**
XUS120304	40.4	1016	1.03	26	0.75 OD	19 OD	3.9	99

FilmTec™ Hypershell™ 4-in. Elements are designed to fit Schedule 80, 4-in. stainless pipe (nominal 3.83-in. ID).

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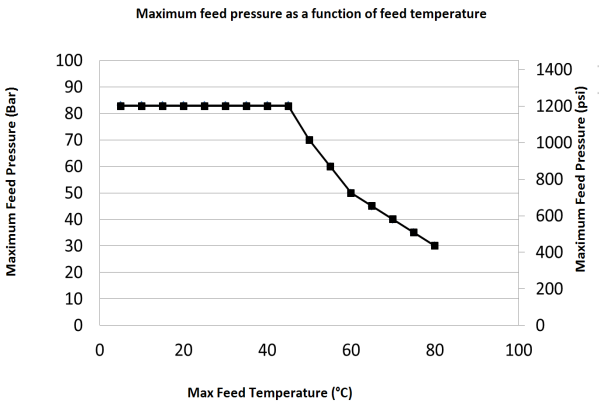
Operating and Cleaning Limits

Maximum Operating Temperature	80°C (176°F)
Maximum Operating Pressure at 80°C	30 bar (435 psi)
Maximum Single Element Pressure Drop < 50°C	0.9 bar (13.1 psi)
Maximum Single Element Pressure Drop < 80°C	0.3 bar (4.4 psi)
Maximum Vessel Pressure Drop < 50°C	4.1 bar (60 psi)
Maximum Vessel Pressure Drop < 80°C	1.2 bar (17 psi)
pH Range	
Continuous Operation (<45°C)	pH2 – pH11
Continuous Operation (< 80°C)	pH3 – pH8
Hydrogen Peroxide Limit	20 ppm
Free Chlorine Tolerance	Below Detectable Limits
Maximum Feed Silt Density Index (SDI_{15})	SDI 5



Temperature (°C)	Pressure bar	Pressure psi
5	83	1200
10	83	1200
15	83	1200
20	83	1200
25	83	1200
30	83	1200
35	83	1200
40	83	1200
45	83	1200
50	70	1015
55	60	870
60	50	725
65	45	653
70	40	580
75	35	508
80	30	435

Clean in Place (CIP) Parameters

Maximum CIP Pressure	15 to 75 psi (1 to 5 bar)
pH Range	
Cleaning (45°C to 50°C)	pH1.8 – pH11.0
Cleaning (< 45°C)	pH1 – pH13
Hydrogen Peroxide Limit, Short-Term Cleaning	1,000 ppm

a. Please refer to DuPont Food Processing and Sanitary Element Cleaning Guide (Form No. 45-D01865-en) for more information.

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. Please refer to Dechlorinating Feedwater (Form No. 45-D01569-en) for more information.

Important Start-Up Information

Normally, new elements are cleaned prior to initial use. The cleaning procedure should be based on the application for which the elements are to be used. If cleaning with formulated agents is not available, an alkaline wash with a wetting agent is recommended prior to initial use. Please refer to the DuPont Food Processing and Sanitary Element Cleaning Guide (Form No. 45-D01865-en) for more information.

Avoid any abrupt pressure or cross flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible membrane damage. During startup, a gradual change from a standstill to operating state is recommended as follows:

- Feed pressure should be increased gradually over a 30-60 second time frame.
- Before initiating cross-flow at high permeate flux conditions (e.g., start-up with high temperature water), the set operating pressure should be maintained for 5-10 minutes.
- Cross-flow velocity at set operating point should be achieved gradually over 15-20 seconds.
- Avoid permeate-side backpressure at all times.

General Information

- Keep elements moist at all times after initial wetting.
- To control the spread of biological growth during system shutdowns, it is recommended that elements be immersed in a preservative solution.

Warranty Information

Reference warranty document: DuPont Specialty Membrane Prorated Element Warranty.

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

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.

Regulatory Note

This product may be subject to drinking water application restrictions in some countries; please check the application status before use and sale.

Have a question? Contact us at:

www.dupont.com/water/contact-us

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