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DOW™ Specialty Membrane XUS290508 and XUS290504 Nanofiltration Elements

Description

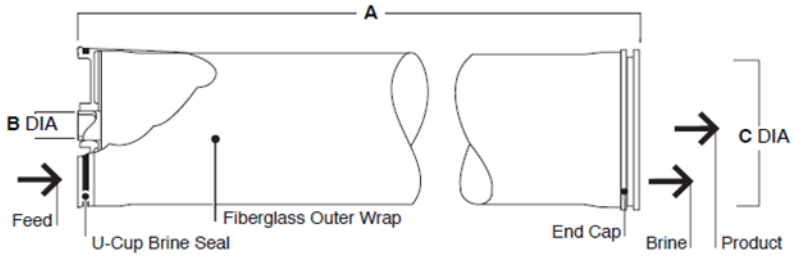
The DOW™ XUS290508 and XUS290504 High Temperature Nanofiltration Elements offer a distinct combination of features:

- Up to 70°C continuous operating temperature capability due to distinct element and membrane design
- Robust DOW FILMTEC™ nanofiltration membrane sheet
- The 34 mil feed spacer allows for maximum active membrane surface area while lessening the impact of fouling, reducing the pressure drop across the pressure vessel and enhancing cleaning effectiveness.
- The DOW™ XUS290508 and XUS290504 NF elements can reduce the size of cooling and heating systems, thus saving on both OPEX and CAPEX. Typical applications are:
  - Waste brine recycling from sugar decolorization,
  - Concentration of thin juice sugars or components in chemical processing,
  - Sulfate removal in Chloralkali process streams.

Product Specifications

DOW™ Specialty Membrane	Active Area (ft^2)	Active Area (m^2)	Feed Spacer Thickness (mil)	Minimum ATD OD (in.)	ATD included
DOW XUS290508	320	30	34	7.9	Yes
DOW XUS290504	70	6	34	3.9	Yes

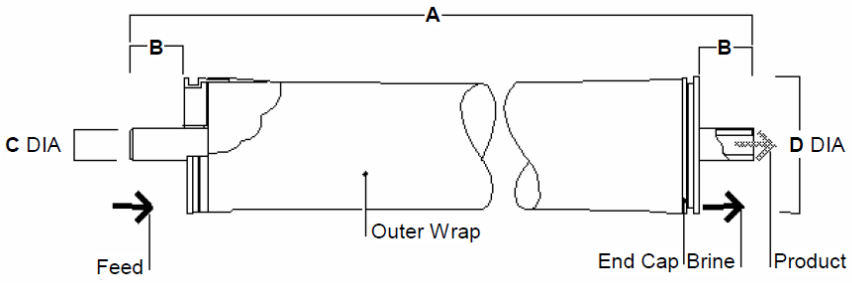
Element Dimensions



XUS290508(8040)

DOW™ Specialty Membranes	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)
XUS290508	40	1016	1.125 ID	29 ID	7.9	201

Form No. 609-50255, Rev.0
July 2016



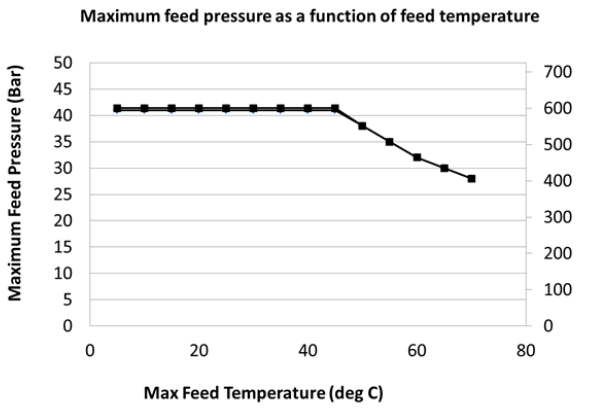
XUS20504 (4040)

	A		B		C		D	
DOW™ Specialty Membranes	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**	**(in.)**	**(mm)**
XUS290504	40.0	1016	1.03	26	0.75 OD	19 OD	3.9	99

DOW HYPERSHELL™ 4040 elements are designed to fit standard 4040 pressure vessels.

Operating Limits

Maximum Operating Temperature	70°C (158°F)
Maximum Operating Pressure at 80°°C	28 bar (406 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 (<35°C)	pH2 – pH11
pH Range, Continuous Operation (35°C to 50°C)	pH3 – pH10
pH Range, Continuous Operation (< 70°C)	pH4 – pH8
Hydrogen Peroxide Limit	20 ppm
Free Chlorine Tolerance	Below Detectable Limits
Maximum Feed Silt Density Index (SDI_{15})	SDI 5



Temperature	Pressure	
degC	bar	psi
5	41	600
10	41	600
15	41	600
20	41	600
25	41	600
30	41	600
35	41	600
40	41	600
45	41	600
50	38	551
55	35	508
60	32	464
65	30	435
70	28	406

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
pH Range, Cleaning (< 45°C)	pH1 – pH13
Hydrogen Peroxide Limit, Short-Term Cleaning	1,000 ppm

[a] Please refer to FILMTEC Technical Manual for more information regarding cleaning procedures.
[b] Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Dow Water & Process Solutions recommends removing residual free chlorine using pretreatment, prior to membrane exposure. Please refer to the FILMTEC™ Technical Manual 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 FILMTEC™ Technical Manual 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.
- Any concentrate or permeate obtained from the first hour of operation should be discarded.

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: Dow Specialty Membrane Prorated Element Warranty.
Before use or storage, review these additional resources for important information:

Regulatory Note

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

Product Stewardship

Dow 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 Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support.

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Form No. 609-50255, Rev.0
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