



## DOW™ Dairy NF Membranes

Nanofiltration Elements for Dairy Processing Applications

### Description

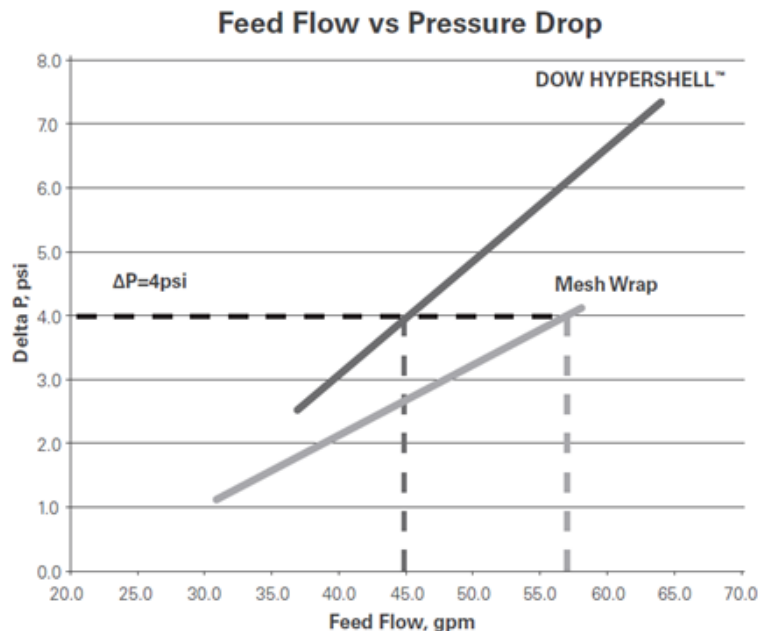
**IDEAL for:** Dairy Process plant managers and operators looking for a state-of-the art Dewatering & Desalting solute on for reducing CAPEX and OPEX while maximizing production yields and efficiency



DOW™ 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 DOW HYPER SHELL™ 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



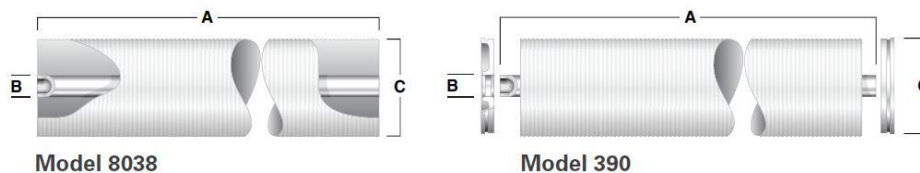
**Figure 1.** Pressure Drop versus Feed Flow for Mesh wrap and HYPER SHELL 8038 elements. HYPER SHELL™ has less exterior bypassing and requires approximately 30% less flow than mesh wrap for an equivalent pressure drop.

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

## Product Overview

| DOW™ Membranes               | Part Number | Active Area<br>ft <sup>2</sup> (m <sup>2</sup> ) | Feed Spacer<br>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



| DOW™ Membranes                            | A     |       | B     |       | C     |      |
|---|-------|-------|-------|-------|-------|------|
|   | (in.) | (mm)  | (in.) | (mm)  | (in.) | (mm) |
| HYPERSHELL™ NF245-8038-FF <sup>1</sup>    | 38.00 | 965.0 | 1.125 | 28.58 | 7.9   | 200  |
| HYPERSHELL™ NF245-8038/48-FF <sup>1</sup> | 38.00 | 965.0 | 1.125 | 28.58 | 7.9   | 200  |
| HYPERSHELL™ NF245-390-FF <sup>2</sup>     | 40.00 | 1,016 | 1.125 | 28.58 | 7.9   | 200  |
| HYPERSHELL™ NF-8038-FF <sup>1</sup>       | 38.00 | 965.0 | 1.125 | 28.58 | 7.9   | 200  |
| HYPERSHELL™ NF-390-FF <sup>2</sup>        | 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              | 38.75 | 984.0 | 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   |

<sup>1</sup> DOW HYPERSHELL™ elements are designed to fit schedule 40, 8 inch stainless pipe (nominal 7.98 inch ID).

<sup>2</sup> DOW 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

## Operating Limits

|  |                     |
|--|---------------------|
| Maximum Operating Pressure                 | 800 psig (54.8 bar) |
| Maximum Operating Temperature <sup>a</sup> |                     |
| pH 2 – 10                                  | 122°F (50°C)        |
| Above pH 10                                | 95°F (35°C)         |
| pH Range                                   | pH 2 – 11           |
| Free Chlorine Tolerance <sup>b</sup>       | 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 <sup>a</sup>       |                          |
| pH 1.8 – 11                                | 122°F (50°C)             |
| pH 1.8 – 11.2                              | 113°F (45°C)             |
| Free Chlorine Tolerance <sup>b</sup>       | Below Detectable Limits  |
| Hydrogen peroxide usage limit <sup>b</sup> |                          |
| Continuous operation                       | 20 ppm                   |
| Short-term cleaning (@ 77°F/25°C maximum)  | 1,000 ppm                |

<sup>a</sup>Please consult Dow Representative for operating & cleaning at different pH and temperature conditions.

<sup>b</sup>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.

## Design Guidelines

| Product                                   | Max. recirculation cross-flow | Max. element ΔP† |
|---|-------------------------------|------------------|
|   | gpm(m <sup>3</sup> /h)        | psi (bar)        |
| HYPERSHELL™ NF245-8038-FF                 | 80 (18.2)                     | 13 (0.9)         |
| HYPERSHELL™ NF245-8038/48-FF <sup>†</sup> | 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 DOW FILMTEC™ 8" Elements](#)
- [System Operation: Initial Start-Up](#)
- [Handling, Preservation and Storage](#)

\* Permeate obtained from first hour of operation should be discarded

## 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.

### For more information, contact Customer Information Group:

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[www.dowwaterandprocess.com](http://www.dowwaterandprocess.com)

Notice: 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.

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