



## FilmTec™ Specialty Membrane HTNF-4040/34 and HTNF-8040/34 High Temperature Nanofiltration Elements

### Description

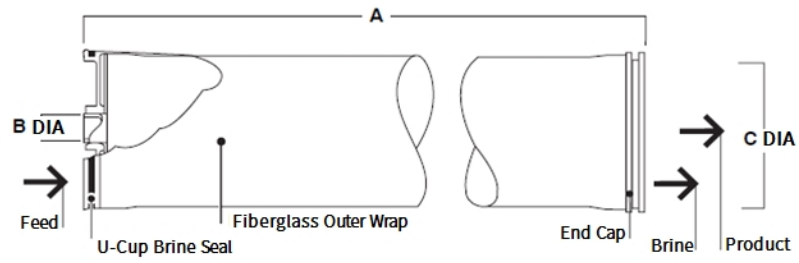
The FilmTec™ Specialty Membranes HTNF-8040/34 and HTNF-4040/34 High Temperature Nanofiltration Elements offer a distinct combination of features:

- Up to 70°C continuous operating temperature capability due to distinct element and membrane design
- Robust 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 FilmTec™ Specialty Membrane HTNF-4040/34 and HTNF-8040/34 Nanofiltration 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
  - Sulfate removal in Chloralkali process streams

### Typical Properties

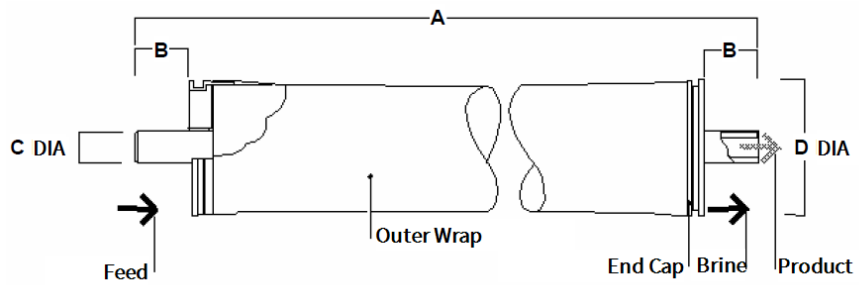
FilmTec™ Specialty Membrane	Active Area		Feed Spacer	Minimum ATD OD	ATD included
	(ft <sup>2</sup> )	(m <sup>2</sup> )	Thickness (mil)	(in)	
HTNF-8040/34	320	30	34	7.9	Yes
HTNF-4040/34	70	6	34	3.9	Yes

**Element  
Dimensions**



**HTNF-8040/34**

FilmTec™ Specialty Membranes	A		B		C	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
HTNF-8040/34	40	1016	1.125 ID	29 ID	7.9	201

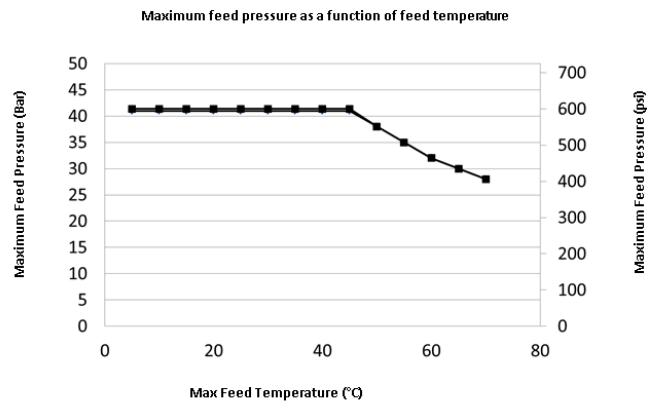


**HTNF-4040/34**

FilmTec™ Specialty Membranes	A		B		C		D	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
HTNF-4040/34	40	1016	1.03	26	0.75 OD	19 OD	3.9	99

## Operating Limits

Maximum Operating Temperature	70°C (158°F)
Maximum Operating Pressure at 70°C	28 bar (406 psi)
Maximum Single Element Pressure Drop < 50°C	0.9 bar (13.1 psi)
Maximum Single Element Pressure Drop < 70°C	0.3 bar (4.4 psi)
Maximum Vessel Pressure Drop < 50°C	4.1 bar (60 psi)
Maximum Vessel Pressure Drop < 70°C	1.2 bar (17 psi)
pH Range	
Continuous Operation (<35°C)	pH2 – pH11
Continuous Operation (35°C to 50°C)	pH3 – pH10
Continuous Operation (50°C to 70°C)	pH4 – pH8
Hydrogen Peroxide Limit	20 ppm
Free Chlorine Tolerance	Below Detectable Limits
Maximum Feed Silt Density Index (SDI <sub>15</sub> )	SDI 5



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

1. Please refer to the [FilmTec™ Reverse Osmosis Membranes Technical Manual](#) (Form No. 45-D01504-en) for more information regarding cleaning procedures.
2. 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 [FilmTec™ Reverse Osmosis Membranes Technical Manual](#) (Form No. 45-D01504-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: FilmTec 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.

## **Regulatory Note**

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

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[www.dupont.com/water/contact-us](http://www.dupont.com/water/contact-us)

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