

Industrial Nanofiltration Membranes

Synder's Nanofiltration membranes are engineered to provide optimal performance in both flux and rejection. With a full-scale R&D laboratory, Synder is capable of fine-tuning ion selectivity and pore size to the specific application requirements of our customers.



MEMBRANE SPECS

Model	Polymer	Approx. Molecular Weight Cutoff	Typical Operating Flux	Avg. MgSO ₄ Rejection ¹	Avg. NaCl Rejection ²	Avg. Lactose Rejection ³
NFS	Proprietary PA TFC	100-250Da	30-40 GFD	99.5%	50-55%	99.5%
NFX	Proprietary PA TFC	150-300Da	20-25 GFD	99.0%	40.0%	99.0%
NFW	Proprietary PA TFC	300-500Da	45-50 GFD	97.0%	20.0%	98.5%
NFG	Proprietary PA TFC	600-800Da	55-60 GFD	50.0%	10.0%	60.0%
NDX	Proprietary PA TFC	800-1,000Da	45-55 GFD	90.0%	30.0%	80.0%

¹Test Conditions: 2,000ppm MgSO₄ solution at 110psi (760kPa) operating pressure, 77°F (25°C)

²Test Conditions: 2,000ppm NaCl solution at 110psi (760kPa) operating pressure, 77°F (25°C)

³Test Conditions: 2% Lactose solution at 110psi (760kPa) operating pressure, 77°F (25°C)

RECOMMENDED OPERATING PARAMETERS

Operating Parameters	
Maximum Operating Pressure	600psi (4,137kPa) if T <95°F (35°C)
Maximum Temperature	435psi (3,000kPa) if T >95°F (35°C)
Maximum Temperature	50°C (122°F)
pH Range @ Max Temperature	NFS/NFX: 3-9.5 NFW/NFG: 4-9
pH Range @ Ambient Temperature	NFS/NFX: 3-10.5 NFW/NFG: 4-10
Cleaning Parameters	
Maximum Temperature (Short term <30min)	40°C (104°F)
pH Range @ Max Temperature	NFS/NFX: 2-11 NFW/NFG: 3-10
pH Range @ Ambient Temperature	NFS/NFX: 2-11 NFW/NFG: 3-10.5
Pressure Drop	
Maximum per Element	15psi (103kPa)
Maximum per Housing	60psi (414kPa)
Chlorine Tolerance	
500ppm hours, dechlorination recommended	

FEATURES & BENEFITS

- NFS & NFX have excellent MgSO₄ and lactose rejection, while NFG is able to partially remove monosaccharides from oligosaccharides
- NF membranes operate at lower pressures than reverse osmosis membranes and still achieve high rejection of divalent and monovalent ions
- NF membranes greatly reduce levels of hardness, nitrates, sulfates, tannins, turbidity, TDS, and moderate levels of salt from feed water streams
- Customization with exceptional speed and unparalleled lead times

CONTACT US



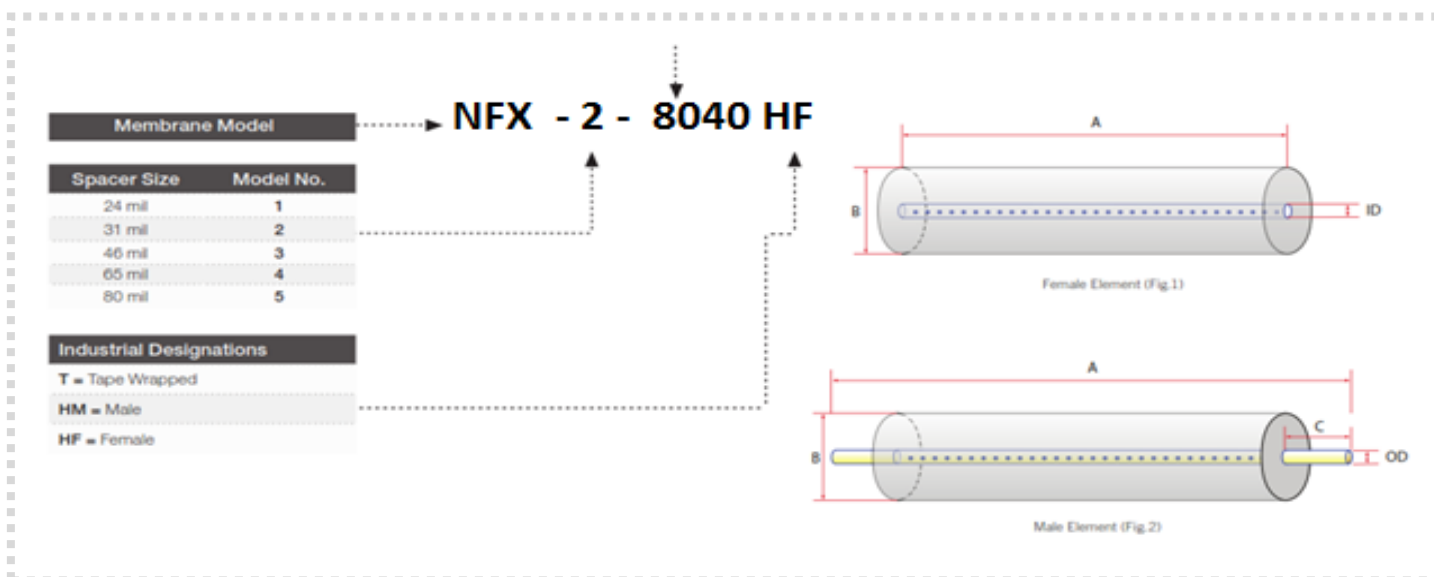
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ELEMENT DIMENSIONS & WEIGHT

Element	Model Number	Diameter (B) in (cm)	Length (A) in (cm)	PWT ID/OD in (cm)	Tube Extension (C) in (cm)	Dry Weight lb (kg)
1.8"	1812TM	1.8" (4.6)	11.75" (29.8)	0.675" (1.71)	0.75" (1.90)	1.0 (0.9)
	2519HF	2.4" (6.1)	19.0" (48.3)	0.625" (1.59)	-	3.0 (1.4)
2.5"	2540TM	2.4" (6.1)	40.0" (101.6)	0.75" (1.90)	1.0" (2.54)	6.0 (2.7)
	2540HF	2.4" (6.1)	40.0" (101.6)	0.625" (1.59)	-	6.0 (2.7)
	2540HM	2.4" (6.1)	40.0" (101.6)	0.75" (1.90)	1.0" (2.54)	6.0 (2.7)
4"	4040TM	3.9" (9.9)	40.0" (101.6)	0.75" (1.90)	-	12.0 (5.5)
	4040HM	3.9" (9.9)	40.0" (101.6)	0.75" (1.90)	1.0" (2.54)	12.0 (5.5)
	4040HF	3.9" (9.9)	40.0" (101.6)	0.625" (1.59)	-	12.0 (5.5)
8"	8040HF	7.9" (20.1)	40.0" (101.6)	1.125" (2.86)	-	35.0 (15.9)



RECOMMENDED ELEMENT CROSS FLOW RATE

Element Type	Flow Rate	Feed Spacer (in mils)				
		24	31	46	65	80
1.8"	m ³ /hr	0.4	0.5	0.6	0.6	0.6
	gpm	1.8	2.0	2.4	2.5	2.6
2.5"	m ³ /hr	1.2	1.4	1.6	1.8	2.1
	gpm	5	6	7	8	9
4"	m ³ /hr	2	4	5	5	6
	gpm	10	18	21	23	24
8"	m ³ /hr	10	11	13	14	15
	gpm	43	48	55	61	64

Note: The recommended cross flow rate will be subject to differential pressure limitations and specific applications.

NF MEMBRANE AREA (SQ. FT.)

Element Model	Feed Spacer (in mils)				
	24	31	46	65	80
1812TM	4	3.4	2.6	2.0	1.6
2540HF	35	30	23	17	15
2540HM	33	28	21	16	14
4040HF	99	87	68	51	43
4040HM	96	82	64	50	42
8040HF	440	380	293	227	193

TECHNICAL NOTES

For element sizes not listed, please call or email Synder Filtration for details. We can design an element to fit your exact needs – just specify the element outer diameter (OD) or vessel/housing inner diameter (ID), element inner diameter (ID), and length. Elements are also available with or without a controlled bypass tail. Additional feed spacers are also available.

Trials should be conducted to determine optimal application conditions.

Synder Filtration believes the above information and data herein to be accurate. However, said information is offered in good faith, but without guarantee of results since the operating conditions and cleaning methods used are beyond our control. Synder Filtration assumes no liability as to the application of the membrane product.