Nanofiltration TFC Spiral-Wound Element: NFX (150-300Da)

Synder Filtration's Nanofiltration membranes are engineered and designed to provide superior separation performance for various application needs. Known for its stable flux and wide range of rejection to monovalent and divalent ions, Synder's NF membranes have been developed specifically for specialty process applications.

MEMBRANE SPECS

Model	Polymer	Approx. Molecular Weight Cutoff	Typical Operating Flux	Min Lactose Rejection[1]	Avg MgSO$_4$ Rejection[2]	Avg NaCl Rejection[3]
NFX	Proprietary PA TFC	150-300Da	25-30 GFD	99.0%	99.0%	40%

[1]Test Conditions: 2,000ppm Lactose solution at 110psi (760kPa) operating pressure, 77°F (25°C)
[2]Test Conditions: 2,000ppm MgSO$_4$ solution at 110psi (760kPa) operating pressure, 77°F (25°C)
[3]Test Conditions: 2,000ppm NaCl 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)
	435psi (3,000kPa) if T >95°F (35°C)
Maximum Temperature	50°C (122°F)
pH Range @ Max Temperature	3-9.5
pH Range @ Ambient Temperature	3-10.5

Cleaning Parameters	
Maximum Temperature (Short term <30min)	50°C (122°F)
pH Range @ Max Temperature	2-11
pH Range @ Ambient Temperature	2-11

Pressure Drop	PSI
Maximum per Element	15psi (103kPa)
Maximum per Housing	60psi (414kPa)

Chlorine Tolerance
500ppm hours, dechlorination recommended

NF SERIES BENEFITS

- Excellent MgSO$_4$ and Na$_2$SO$_4$ rejection
- Operation at lower pressures than Reverse Osmosis membranes and still achieve excellent rejection of divalent and multivalent ions
- NF membranes greatly reduce levels of hardness, nitrates, sulfates, tannins, turbidity, color, TDS, and moderate levels of salt from feed water streams
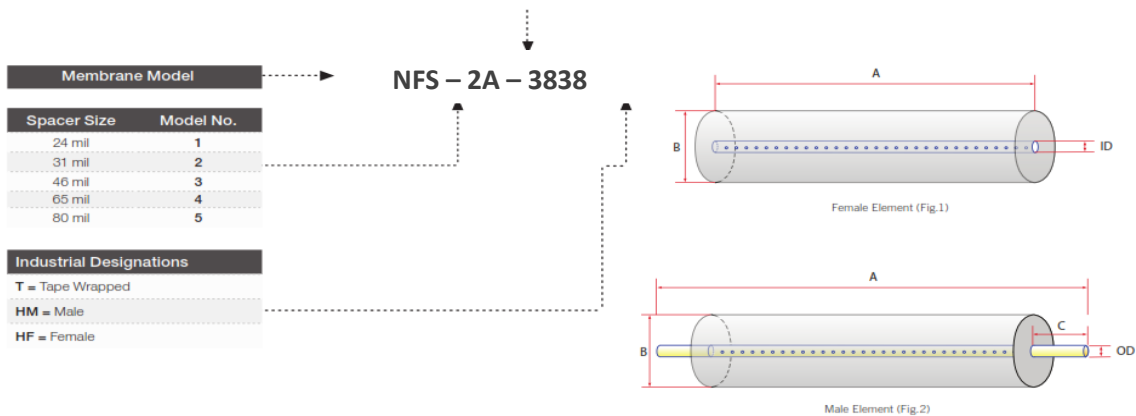
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All inquiries will be responded to by a Synder employee personally within 24 hours.

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)
2.5"	2519HF	2.4" (6.1)	19.0" (48.3)	0.625" (1.59)	-	3.0 (1.4)
	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)

NFS – 2A – 3838

Membrane Model	
Spacer Size	**Model No.**
24 mil	1
31 mil	2
46 mil	3
65 mil	4
80 mil	5
Industrial Designations	
T = Tape Wrapped	
HM = Male	
HF = Female	

Female Element (Fig.1)

Male Element (Fig.2)

RECOMMENDED ELEMENT CROSS FLOW RATE

Element		Feed Spacer (in mils)				
		24	31	46	65	80
1.8"	m³/hr	0.4	0.5	0.6	0.6	0.6
	gpm	1.8	2.0	2.4	2.5	2.6
2.5"	m³/hr	1.2	1.4	1.6	1.8	2.1
	gpm	5	6	7	8	9
4"	m³/hr	2	4	5	5	6
	gpm	10	18	21	23	24
8"	m³/hr	10	11	13	14	15
	gpm	43	48	55	61	64

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

NF MEMBRANE AREA (SQ. FT.)

Element	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.