Synder® Filtration

Membranes that Perform.
People who Deliver.

Nanofiltration

Industrial Nanofiltration Membranes - NDX

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]
NDX	Proprietary PA TFC	500-700Da	35-45 GFD	95.0%	40.0%	90.0%

[1]Test Conditions: 2,000ppm $MgSO_4$ solution at 110psi (760kPa) operating pressure, 77°F (25°C)
[2]Test Conditions: 2,000ppm NaCl solution at 110psi (760kPa) operating pressure, 77°F (25°C)
[3]Test 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) 435psi (3,000kPa) if T >95°F (35°C)
Maximum Temperature	50°C (122°F)
pH Range @ Max Temperature	4-9
pH Range @ Ambient Temperature	4-10
Cleaning Parameters	
Maximum Temperature (Short term <30min)	40°C (104°F)
pH Range @ Max Temperature	3-10
pH Range @ Ambient Temperature	3-10.5
Pressure Drop	
Maximum per Element	15psi (103kPa)
Maximum per Housing	60psi (414kPa)
Chlorine Tolerance	
500ppm hours, dechlorination recommended	

Synder Filtration ISO 9001:2008 CERTIFIED 10002403

AMTA American Membrane Technology Association

FEATURES & BENEFITS

- NDX is suitable for dye concentration & dye de-salting applications
- NFS & NFX have excellent $MgSO_4$ 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

www.synderfiltration.com
4941 Allison Parkway
Vacaville, CA 95688, USA
Tel: +1 (707) 451-6060
Fax: +1 (707) 451-6064
sales@synderfiltration.com

All inquiries will be responded to personally by a Synder employee within 24 hours.

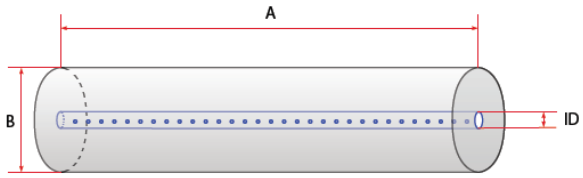
ELEMENT DIMENSIONS & WEIGHT

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)

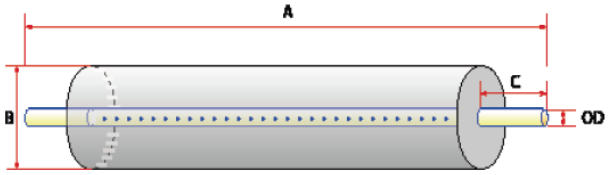
Membrane Model → NDX-2-4040 HM

Spacer Size	Model No.
24 mil	1
31 mil	2
46 mil	3
65 mil	4
80 mil	5

Industrial Designations	
T = Tape Wrapped	M = Male
HM = Male FRP Outer Shell	F = Female
HF = Female FRP Outer Shell	FRP = Fiberglass Hardshell Wrap



Female Element (Fig.1)



Male Element (Fig.2)

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.