



Sanitary Spiral Wound Elements

Alfa Laval Nanofiltration - NF Series

The spiral elements for nanofiltration are tailor-made for a range of processes i.e. dairy, food, chemical, and pharmaceutical applications. The elements are based on a unique construction on polyester (PET) support material in a sanitary full-fit design that provides optimum cleaning conditions. They are available in different combinations of length, diameter, and feed spacer.

All the materials used for the production of the membranes and membrane elements comply with FDA regulations (CFR) Title 21. The elements are USDA approved



Designation	Characteristics	MgSO ₄ Rejection
NF	Thin film composite	≥99%*
NF99HF	Thin film composite	≥99%**

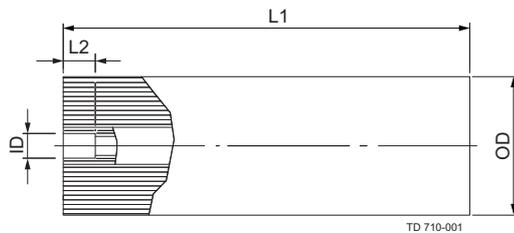
* measured on 2000 ppm MgSO₄, 9 bar (130.5 psi), 25°C (77°F)

**measured on 1000 ppm MGSO₄, 9 bar (130.5 psi), 25°C (77°F)

Spiral membrane designation

Alfa Laval NF-8038/48		
Alfa Laval NF	=	Membrane type
80	=	Outer diameter of element (8.0")
38	=	Element length (38") without ATD
48	=	Feed spacer thickness

Dimensions



TD 710-001

- OD = outer diameter of element
- HD = nominal inner diameter of housing*
- L1 = total length of element without ATD
- ID = diameter of ATD socket
- L2 = depth of ATD socket

For specific measurements of AL housings, please consult the product specification

Standard sizes

Element size	Outer diameter (OD)		Housing diameter (HD)		Element length (L1)		ATD socket diameter (ID)		ATD socket depth (L2)	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
2517	64.0-65.0	2.52-2.56	66	2.6	432	17.01	21.1	0.831	50	1.97
3838	95.0-96.5	3.74-3.80	97.55	3.84	965	37.99	21.1	0.831	50	1.97
8038	198.5-201.5	7.82-7.93	204.14	8.04	965	37.99	28.58	1.125	76	2.99
8038	198.5-201.5	7.82-7.93	204.14	8.04	965	37.99	28.9	1.138	76	2.99

For other element sizes, please contact Alfa Laval.

Standard element configurations with code numbers - please use code number when ordering

Membrane type		NF	NF99HF
Size	Spacer		
2517/	30 mil	519769	522310
	48 mil	519770	522311
3838/	30 mil	530979	522292
	48 mil	521231	521681
8038/ id 28.58 mm	65 mil	527936	523483
	30 mil	522314	523488
8038/ id 28.9 mm	48 mil	522315	520048
	65 mil	522316	528043
	30 mil	521183	524261
	48 mil	522163	524310
	65 mil	524263	537519

Typical cross-flow (m³/h) and max. pressure drop (bar) at cP 1

Outer diameter Spacer size	2.5"		3.8"		8.0"	
	m ³ /h	bar	m ³ /h	bar	m ³ /h	bar
30 mil	1	0.5	6	1.1	18	0.9
48 mil	1.5	0.6	8	1.1	29	0.9
65 mil	-	-	10	1.1	32	0.9

Note: Calculated at tight fit of spiral element and housing and by use of standard ATD system

Recommended operation limits

Production	
pH range (reference temperature 25°C)	3 - 9
Typical operating pressure, bar	15 - 35
Max. operating pressure, bar	55
Temperature, °C	5 - 50

Cleaning (3 hours per day)*	
pH range (reference temperature 25°C)	1.5 - 11
Typical cleaning pressure, bar	1 - 5
Temperature, °C	30 - 50

Note: The use of oxidative cleaning agents and similar chemicals influences the actual membrane performance over time. Any contamination with chlorine has to be avoided.

* Please consult the Alfa Laval "Water Quality" product leaflet 1603.

Important Information

- New spiral elements must be cleaned prior to first use. The cleaning procedure should be in accordance with the instructions provided in AlfaLaval's cleaning description for the spiral element type concerned.
- The customer is fully responsible for the effects that any incompatible chemicals may have on the spiral elements.
- After initial wetting, the spiral elements must be kept moist at all times.
- If the operating specifications given in this product description are not strictly followed, the limited warranty will be null and void.
- To prevent biological growth during system shutdowns, Alfa Laval recommends that spiral elements should be immersed in a protective solution.
- Avoid permeate-side back pressure at all times.
- Alfa Laval recommends using a rigid stainless steel ATD end device at the housing outlet end.
- Alfa Laval recommends that the inner diameter of the housing should be approx. 2 mm bigger than the outer diameter of the spiral element in question.
- For storage conditions, please see Shelf Life and Storage document.
- For warranties, please see Spiral Element Warranty document.

Operation guidelines

Avoid any abrupt pressure or cross - flow changes on the spiral elements during start - up, shutdown, cleaning or other sequences, in order to prevent possible damage.

Alfa Laval recommends the following start - up procedure from stand still to operating condition:

- The unpressurized plant should be refilled with water.
- Feed pressure should be gradually increased over a 30 - 60 second time scale.
- Before initiating cross - flow at high permeate flux conditions (e.g. start - up with high temperature water), the set feed pressure should be maintained for 5 - 10 minutes.
- Cross-flow velocity at the set operating point should be gradually achieved over a period of 15 - 20 seconds.
- Temperature changes should be implemented gradually over a period of 3 - 5 minutes.