



Sanitary Spiral Membranes for Reverse Osmosis

RO98pHt

The Alfa Laval RO98pHt spiral elements are tailor-made for processes requiring high temperatures and a wide pH range, i.e. food, beverage, chemical, and pharmaceutical applications.

The elements are based on a thinfilm composite polyamide type membrane with polypropylene (PP) backing material. The sanitary, full-fit configuration offers optimum cleaning conditions and minimizes "stagnant spaces".

All spiral elements are shipped dry.

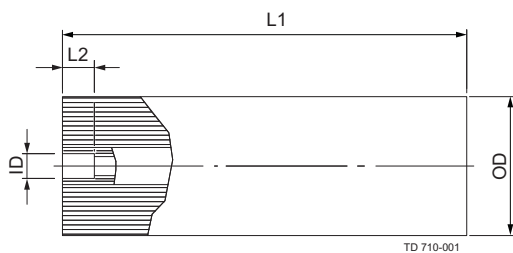
Designation	Process	Characteristics	NaCl rejection
Alfa Laval	RO	Thinfilm	≥ 97%*
RO98pHt		composite	

* Measured on 2000 ppm NaCl, pH 8, 16 bar, 25°C, 15% recovery. Stabilized rejection is typically >98%.

Spiral membrane designation

Alfa Laval RO98pHt-3838/30		
Alfa LavalRO98pHt	=	Membrane type
38	=	Outer diameter of element (3.8")
38	=	Element length (38")
30	=	Feed spacer thickness

All components comply with EU Commission Directive 2002/72/EC and FDA regulations (CFR), Title 21.



Dimensions

- OD = outer diameter of element
- L1 = total length of element without ATD
- ID = diameter of ATD socket
- L2 = depth of ATD socket

Element size	OD	L 1	ID	L 2
	mm	mm	mm	mm
2517	64.0-65.0	432	21.0	26.0
3838	95.0-96.5	965	21.0	26.0
3840	95.0-96.5	984	21.0	26.0
3938	98.5-99.0	965	21.0	26.0
8038	198.5-201.5	965	28.9	50.0

Other element sizes may be available - please contact Alfa Laval.



Element configuration

Outer diameter	2.5"	3.8"	3.8"	3.9"	8.0"
Length without ATD	17"	38"	38.75"	38"	38"
Feed spacer thickness (mil)	30	30	30	30	30
	48	48	-	48	48
	-	65	-	-	65

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

Outer diameter	2.5"		3.8"	
	m ³ /h	bar	m ³ /h	bar
Feed spacer thickness				
30 mil	0.9-1.1	0.5	6-7	1.1
48 mil	1.3-1.8	0.6	7-9	1.1
65 mil	-	-	8-10	1.1

Outer diameter	3.9"		8.0"	
	m ³ /h	bar	m ³ /h	bar
Feed spacer thickness				
30 mil	6-7	1.1	17-19	0.9
48 mil	7-9	1.1	22-25	0.9
65 mil	-	-	26-28	0.9

* Calculated at tight fit of spiral element and housing and by use of standard ATD system.

Recommended operation limits

Production

pH range, continuous operation (25°C) 2-10
 Max. operating pressure at max. 30°C55 bar
 Max. operating temperature at max. 27 bar60°C
 Free chlorine conc. <0.1 ppm

Cleaning (2 hours/day)

pH range, short time (25°C) 1-12.5
 Max. pressure6 bar
 Max. temperature60°C
 Free chlorine conc. <0.1 ppm

Hydrogen peroxide

Continuous operation (25°C)20 ppm
 Short term cleaning (25°C) 2 x ½ hour per week 1,000 ppm

Note: The use of oxidation agents and similar chemicals might influence the actual membrane performance over time.

Part no.	Product name	Design membrane area (m ²)	Net dry weight (kg)
517037	Alfa Laval RO98pHt -2517/30	0.9	0.8
517592	Alfa Laval RO98pHt -2517/48	0.6	0.8
516645	Alfa Laval RO98pHt -3838/30	6.3	2.8
516646	Alfa Laval RO98pHt -3838/48	4.7	2.8
522333	Alfa Laval RO98pHt -3838/65	3.9	2.8
518805	Alfa Laval RO98pHt -3840/30	6.6	3.0
516449	Alfa Laval RO98pHt -3938/30	6.7	2.8
517712	Alfa Laval RO98pHt -3938/48	5.3	2.8
517314	Alfa Laval RO98pHt -8038/30	32.0	13.0
518424	Alfa Laval RO98pHt -8038/48	24.2	13.0
522332	Alfa Laval RO98pHt -8038/65	20.0	13.0

Other dimensions are available upon request.

Important Information

Spiral elements must be 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.

Cleaning should be based according to the Alfa Laval Cleaning recommendations for the actual spiral element type. Water used for cleaning and flush should be in accordance with Alfa Laval Water Quality sheet (PD leaflet 1603EN). The customer is fully responsible for the effects of incompatible chemicals on spiral elements.

The recommended operation ranges / limits must at no time be exceeded.

An appropriate alkaline cleaning consist of the following: Flush with water.

Heat the water to 45°C in recirculation mode.

Add 0.2% Na-EDTA and NaOH to pH 11 (reference temperature 25°C) in recirculation mode. Max. 30 minutes.

Flush with water until neutral pH is obtained for both retentate and permeate.

- Keep spiral elements moist all the time after first wetting. Wetted spiral elements must never dry out.
- If the operating data and instructions of this Product Specification are not strictly followed, the limited warranty shall 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 back pressure at any time.
- Alfa Laval recommends that the inner diameter of the housing is • 2 mm larger than the outer diameter of the actual spiral element.

Operation guidelines

Avoid any abrupt pressure or cross-flow variations on the spiral elements during start-up, shutdown, cleaning or other sequences to prevent possible damages. During start-up, a gradual change from standstill to operating state is recommended as follows:

- Fill the plant with water, if required.
- The feed pressure should be gradually increased over a 30-60 second time frame.
- Before initiating cross-flow at high permeate flux conditions (e.g. start-up with high temperature water), a fixed feed pressure should be maintained for 5-10 minutes.
- The cross-flow velocity at the operating set point should be gradually achieved over 15-20 seconds.
- Temperature variations should be gradually controlled over a 3-5 minute time frame.

Alfa Laval reserves the right to change specifications without prior notification. ALFA LAVAL is a trademark registered and owned by Alfa Laval Corporate AB.

ESE00624EN 1201

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How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information direct.