



# Sanitary Spiral Membranes for Ultrafiltration

## UF-ETNA Series

The elements for ultrafiltration are tailor-made for a range of processes, i.e. dairy, food, chemical, and pharmaceutical applications.

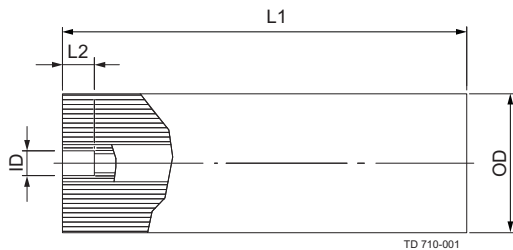
The elements are manufactured with polypropylene (PP) backing materials in a sanitary full-fit design offering optimum cleaning conditions. They are available in different combinations of length, diameter, spacer size and molecular weight cut-off value.

UF-ETNA series	MWCO	Characteristics
ETNA01PP	1,000	Composite fluoro polymer on polypropylene
ETNA10PP	10,000	

### Spiral membrane designation

Alfa Laval ETNA10PP-6338/48		
Alfa Laval ETNA10PP	=	Membrane type
63	=	Outer diameter of element (6.3")
38	=	Element length (38")
48	=	Feed spacer thickness

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



### Dimensions

- 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 Alfa Laval housings, please consult the product description

Element size	OD mm	HD mm	L1 mm	ID mm	L2 mm
2517	64.0-65.0	66.00	432	21.00	26.0
3833	95.0-96.5	97.55	838	21.00	26.0
3838	95.0-96.5	97.55	965	21.00	26.0
3938	98.5-99.0	100.00	965	21.00	26.0
4333	108.5-109.5	110.30	838	21.00	26.0
4336	108.5-109.5	110.30	910	21.00	26.0
4338	108.5-109.5	110.30	965	21.00	26.0
5838	146.5-148.5	150.00	965	28.90	50.0
6338	160.0-162.0	163.10	965	28.90	50.0
8038	198.5-201.5	204.14	965	31.15	50.0
8438	211.5-214.0	215.10	965	31.15	50.0

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

## Element configuration

<b>Outer diameter</b>	2.5"	3.8"	3.8"	3.9"	4.3"	4.3"	4.3"	5.8"	6.3"	8.0"	8.4"
<b>Length</b>	17"	33"	38"	38"	33"	36"	38"	38"	38"	38"	38"
<b>Spacer size (mil)</b>	30	30	30	30	30	30	30	30	30	30	30
	48	48	48	48	48	48	48	48	48	48	48
	-	80	80	80	80	80	80	80	80	80	80

## Typical cross-flow m<sup>3</sup>/h\* and max. pressure drop bar at cP 1

Outer diameter	2.5"		3.8"		3.9"		4.3"	
	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar
Feed spacer thickness								
30 mil	0.9-1.1	0.5	6	1.1	6	1.1	7	1.1
48 mil	1.3-1.8	0.6	8	1.1	8	1.1	9	1.1
80 mil	-	-	11	1.1	11	1.1	12	1.1

Outer diameter	5.8"		6.3"		8.0"		8.4"	
	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar
Feed spacer thickness								
30 mil	15	1.1	17	1.1	18	0.9	25	0.8
48 mil	20	1.1	23	1.1	25	0.9	30	1.0
80 mil	28	1.1	30	1.1	30	1.1	35	1.1

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

## Recommended operation limits

	pH range	Pressure, bar	Temperature, °C
Production	2-10	1-10	0-60
Cleaning*	1-11.5	1-4	0-65

\* Please consult Alfa Laval's cleaning description

## Important Information

New spiral elements must be cleaned prior to first use. The cleaning procedure should be in accordance with the instructions of Alfa Laval's cleaning description for the spiral element type concerned. The customer is fully responsible for the effects of incompatible chemicals on spiral elements.

- Keep spiral elements moist at all times after initial wetting.
- 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 the 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 pressure vessel outlet end.
- It is recommended that the inner diameter of the pressure vessel should be approx. 2 mm bigger than the outer diameter of actual spiral element.

## Operation guidelines

Avoid any abrupt pressure or cross-flow variations on the spiral elements during startup, shutdown, cleaning or other sequences to prevent possible damages.

A start-up procedure from standstill to operational condition is recommended as follows:

- 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 set operating point should be gradually achieved over 15-20 seconds.
- Temperature variations should be gradually controlled over 3-5 minutes.

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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](http://www.alfalaval.com) to access the information direct.