

# AMS UltraPro™ Acid Element

## Acid Stable Ultrafiltration Spiral Wound Element

<b>Description</b>	The AMS UltraPro™ membrane is developed for long-term performance with high and stable fluxes in very acidic environment, featuring high pressure and temperature compatibility. AMS UltraPro™ elements are used for either pre-filtration before nanofiltration or as stand-alone membranes in acid purification and metals concentration. Typical solutions include: <ul style="list-style-type: none"> <li>• 20% H<sub>2</sub>SO<sub>4</sub></li> <li>• 20% HCl</li> <li>• 30% H<sub>3</sub>PO<sub>4</sub></li> <li>• 10% CH<sub>3</sub>COOH</li> </ul>				
<b>Characteristics</b>	Membrane	Cut-off Rate (Da)	Water Flux		
	A-1801 <sup>[1]</sup>	10000	18LMH/bar <sup>[1]</sup>		
	A-U301 <sup>[2]</sup>	2500	60LMH <sup>[2]</sup>		
<b>Limits</b>	Max Operating Pressure		25 bar (360 psi)		
	Max Pressure Drop		1 bar (14.5 psi) for individual element		
	Max. Operating Temperature		40 °C (122 °F)		
	Max. Cleaning Temperature		40 °C (122 °F)		
	Operating pH range		0-12		
	Cleaning pH range		0-13		
	Recirculation Flow		1812: 4.0 – 8.0 liter/min (1.0 – 2.1 gal/min) 2540: 7.5 – 17 liter/min (2.0 – 4.4 gal/min) 4040: 22 – 42 liter/min (5.8 – 11.1 gal/min) 8040: 90 – 167 liter/min (23 – 42.7 gal/min)		
	Pressurization/ Depressurization rate		< 0.7 bar/second (10psi/second)		
	Heating & cool down rate		< 5°C /minute (41 °F/minute)		
<b>Area m<sup>2</sup> (ft<sup>2</sup>)</b>	Size	1812	2540	4040	8040
	31mil (B)	0.19 (2)	1.8 (19)	6.2 (67)	29 (312)
	46mil (C)	0.17 (1.8)	1.6 (17)	4.9 (53)	24 (260)

<sup>[1]</sup> Test condition: RO water, 27psi (2bar), 86°F (30°C), pH 7.0.

Permeate flow for individual elements may vary ± 20%

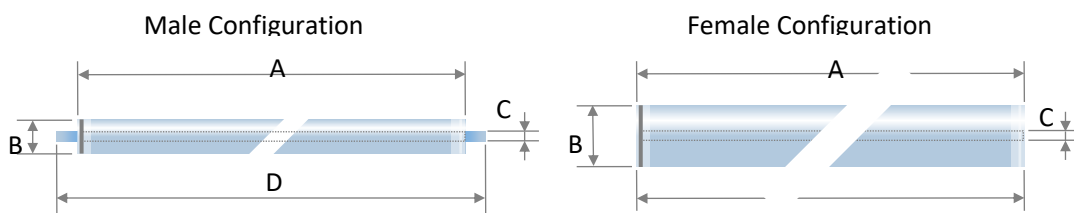
<sup>[2]</sup> Test condition: RO water, 225psi (15.5bar), 86°F (30°C), pH 7.0.

<sup>[3]</sup> For the purpose of improvement, specifications may be updated periodically.

<sup>[4]</sup> Consult UNISOL Membrane Technology when intend to operate at elevated pressure, temperature, concentrations.

<sup>[5]</sup> Stabilized salt rejection is generally achieved within 24 – 48 hours of continuous use, depending upon feed water characteristics and operating conditions.

## Dimensions



Size mm(inch)	A <sup>[1]</sup>	øB <sup>[2]</sup>	øC <sup>[3]</sup>	D	Permeate tube
1812	305 (12)	46 (1.8)	16 (0.629)	/	Female
2540	965 (38)	62 (2.4)	19 (0.748)	1016 (40)	Male
4040	965 (38)	99 (3.9)	19 (0.748)	1016 (40)	Male
8040	1016 (40)	200.5 (7.9)	28.9 (1.138)	/	Female

[1] Tolerance(mm) ±0.5

[2] Tolerance(mm) -2/0

[3] (1812)Tolerance(mm) ±0.1, (2540、4040-M)Tolerance(mm) 0/+0.1, (8040)Tolerance(mm) -0.2/0

## Handling

**Chemical Exposure.** Do not expose the membrane to chlorine or other oxidants. Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or other oxidizers in the feed.

\* **NB:** Please do not use tap water while testing or cleaning the module since the residual chlorine contained in the tap water could negatively affect the membrane performance.

**Recommended Cleaning Materials.** Depending on the nature of the feed material, a choice can be made among the following cleaning agents:

- Sodium hydroxide at pH 10 – 12, temperature ≤ 40 °C (104 °F);
- Hydrochloric acid at pH 1 – 2, temperature ≤ 40 °C (104 °F);
- Nitric acid at pH 1 – 2, temperature ≤ 40 °C (104 °F);
- Na-EDTA of 0.2 – 1.0 % w/w at pH 10.5 – 11, temperature ≤ 35 °C (91 °F);
- Anionic surfactant (e.g. sodium dodecyl sulfate) of 0.5 % at pH 10.5 – 11, temperature ≤ 35 °C (91 °F).

Only demineralized (RO) water must be used for cleaning. Please flush the module by permeate after processing. Consult UNISOL Membrane Technology regarding the use of other cleaning materials.

**Lubricants.** During installation, use only water or glycerin to lubricate seals. The use of petroleum or vegetable-based oils or solvents may damage the element and void any warranty.

**Preservation and Storage.** Plan ahead to use new membranes. The element should not be allowed to dry: store it in a sealed bag, at 4 – 30 °C (39 – 86 °F). Storage solutions should be made with: 1.5 % w/w sodium metabisulfite. Please refer to “UNISOL Membrane Element Storage and Handling Instructions.”