

# AMS NanoPro™ A-3017

## Acid-stable Nanofiltration Spiral-wound Element

**Description** The AMS NanoPro™ membrane is developed for long-term performance with high and stable fluxes in very acidic environment, featuring high pressure and temperature compatibility. AMS NanoPro™ elements are used for acid purification and metals concentration in low pH streams. Typical solutions include:

- 20% H<sub>2</sub>SO<sub>4</sub>
- 30% H<sub>3</sub>PO<sub>4</sub>
- 20% HCl
- 15% Acetic acid
- 4% HNO<sub>3</sub>

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<b>Performance</b>	Cut-off Rate <sup>(1)</sup> :	700 dalton
	Water Flux <sup>(2, 3)</sup> :	100 liter/m <sup>2</sup> /hour (59 gal/ft/day)
	MgSO <sub>4</sub> Rejection <sup>(2, 4)</sup> :	≥ 80 %

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<b>Limits</b>	Max Pressure:	40 bar (580 psi)	
	Max Pressure Drop:	0.5 bar (7.3 psi)	
	Max Temperature <sup>(5)</sup> :	Operating:	80 °C (176 °F)
		Cleaning:	80 °C (176 °F)
	pH Range <sup>(5)</sup> :	Operating:	0 – 12
Cleaning:		0 – 13	
Recirculation Flow:	1.8" element:	4.0 – 8.0 liter/min (1.0 – 2.1 gal/min)	
	2.5" element:	7.5 – 19 liter/min (2.0 – 5.0 gal/min)	
	4" element:	22 – 65 liter/min (5.8 – 17 gal/min)	
	8" element:	90 – 280 liter/min (23 – 74 gal/min)	

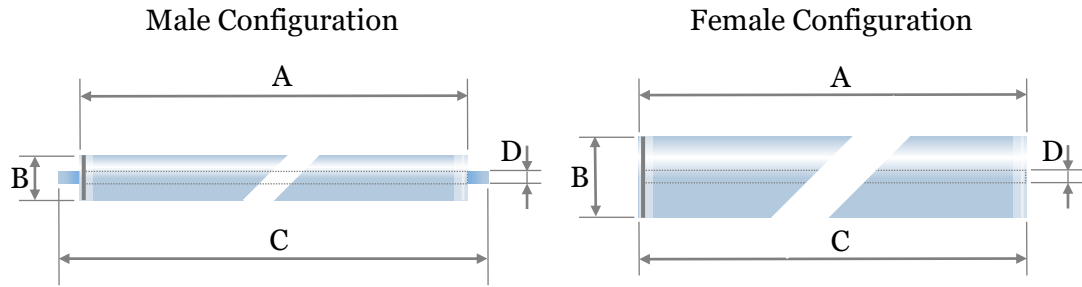
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<b>Area</b>	<b>m<sup>2</sup> (ft<sup>2</sup>)</b>	<b>1.8"</b> (aka 1812)	<b>2.5"</b> (aka 2540)	<b>4"</b> (aka 4040)	<b>8"</b> (aka 8040)
	31 mil Spacer	0.32 (3.4)	1.9 (20)	6.5 (70)	31 (330)
	46 mil Spacer	0.25 (2.7)	1.5 (16)	5.2 (56)	24 (260)

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(1) Only for indication; (2) Test conditions: pressure 40 bar (580 psi), temperature 30 °C (86 °F); (3) Flux measured with demineralized (RO) water, flux may vary for individual element within ±20% range; (4) Feed solution is 0.2% MgSO<sub>4</sub> in demineralized (RO) water; (5) Consult AMS Technologies when intend to operate at elevated pressure, temperature, concentrations.

## Dimensions



mm (inch)	1.8" (aka 1812)	2.5" (aka 2540)	4" (aka 4040)	8" (aka 8040)
Config.	Male	Male	Female	Female
A	256 (10.1)	965 (38.0)	1016 (40.0)	1016 (40.00)
∅B	44.5 (1.75)	62 (2.4)	101.5 (4.00)	200.5 (7.89)
C	298 (11.7)	1016 (40.0)	1016 (40.0)	1016 (40.00)
∅D	17 (0.67)	19 (0.75)	16 (0.63)	28.8 (1.13)

## Handling

**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. Consult AMS Technologies 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 % w/w sodium metabisulfite. Please refer to “AMS Membrane Element Storage and Handling Instructions.”

**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.