Aquaporin Inside® CLEAR Plus

Low-Energy Reverse Osmosis Elements

Excellent energy efficiency and productivity

Deliver great permeate quality at low pressure

Reliable performance in long-term operation

PRODUCT TYPE

The Aquaporin Inside® CLEAR series features the world's first and only biomimetic brackish water reverse osmosis products in the market. The Aquaporin Inside® technology replicates nature's way of filtering water by incorporating the aquaporin water channels into membranes, which enables fast, energy-efficient and natural water filtration.

The CLEAR Plus reverse osmosis elements are low-energy products, which strike a balance between energy saving and permeate water quality. The CLEAR Plus products are suitable for municipal drinking water, industrial process water production, and wastewater reuse applications, where the feed has low-to-medium salinity.

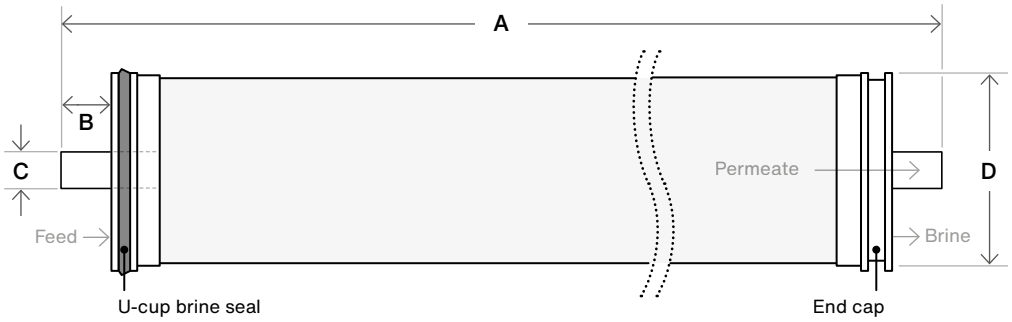
PRODUCT SPECIFICATIONS

Product name	Active membrane area (m^2)	Spacer thickness (mil)	Permeate flow rate (GPD)	Typical rejection (%)	Minimum rejection (%)	Test conditions
Aquaporin Inside® CLEAR Plus 4040	7.8	34	2,100	99.5	99.0	2,000 ppm NaCl 125 psi (8.6 bar)
Aquaporin Inside® CLEAR Plus 4040XL	8.7	28	2,500			
Aquaporin Inside® CLEAR Plus 8040-400	37.0	34	10,500			
Aquaporin Inside® CLEAR Plus 8040-440	40.2	28	11,500			

The stated product performances are tested at 25 °C (77 °F), 15% recovery, pH 7-8. Permeate flow rates and rejections are stated after a minimum of 60 min operation. Flow rates for individual elements may vary but will be no more than 15% below the value shown. Active membrane area may vary ± 5%.

ELEMENT DIMENSIONS

Each Aquaporin Inside® element includes a U-cup brine seal and an interconnector (coupler).



	Dimensions (inches / millimeters)			
Product name	A	B	C	D
Aquaporin Inside® CLEAR Plus 4040 series	**40.0 / 1015.5**	**1.16 / 29.5**	**0.75 / 19.1**	**3.91 / 99.4**
Aquaporin Inside® CLEAR Plus 8040 series	**40.0 / 1015.5**	**—**	**1.13 / 28.6**	**7.87 / 200.0**

The CLEAR 4040 element series fits standard 4 inch inner diameter pressure vessels.
The CLEAR 8040 element series fits standard 8 inch inner diameter pressure vessels.

OPERATING SPECIFICATIONS

	4040 series	8040 series
Maximum feed flow rate	**16 gpm (3.6 m³/h)**	**75 gpm (17 m³/h)**
Maximum operating pressure	**600 psi (41.4 bar)**	
Maximum pressure drop	**15 psi (1 bar) per element** **60 psi (4 bar) per vessel (min. 4 elements)**	

Maximum operating temperature	**45 °C (113 °F)**
Maximum feed water SDI	**5 (15 min)**
Maximum feed water turbidity	**1 NTU**
Operating pH range	**3–10**
Cleaning pH range (30 min, 25 °C / 77 °F)[1]	**2–12**
Free chlorine tolerance[2]	**< 0.1 ppm**

ADDITIONAL INFORMATION

- → All Aquaporin Inside® elements are shipped dry. Wet elements are available upon request.
- → Permeate from the first hour of operation should be discarded. Do not use this initial permeate for consumption.
- → Keep elements moist at all times after initial wetting.
- → For details on element handling, storage, and preservation, please refer to the “Handling, Storage, and Preservation of Industrial Aquaporin Inside® RO Membrane Elements” guide.
- → For optimal operation and to ensure “damage free” operation of the Aquaporin Inside® RO Membrane Elements, please refer to the *Industrial Aquaporin Inside® RO Membrane Element User Manual*.

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[1] Please refer to the “Membrane Clean-in-Place (CIP) Guide for Industrial Aquaporin Inside® RO Membrane Elements”.

[2] The presence of free chlorine and other oxidizing agents can cause premature membrane failure. Oxidation damage is not covered under warranty and Aquaporin A/S recommends removing residual free chlorine by pretreatment prior to membrane exposure.

REGULATORY NOTE: This product may be subject to drinking water application restrictions in some countries; please check the application status before use and sale.

DISCLAIMER: As Aquaporin A/S cannot control or anticipate the conditions under which these products may be used, each user should review the information in specific context of the planned use. To the maximum extent permitted by law, Aquaporin A/S makes no warranty of any kind with regard to the material contained within this datasheet, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Aquaporin A/S shall not be liable nor responsible for direct, special, incidental, consequential, punitive or indirect losses or damages in connection with the furnishing, performance or use of this material. Aquaporin A/S cannot be held responsible for any technical or typographical errors or omissions and reserves the right to make changes to the products and datasheet without prior notice.

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