VONTRON INDUSTRIAL MEMBRANE ELEMENTS

ULP SERIES RO MEMBRANE ELEMENTS

Brief Introduction

ULP series of ultra-low pressure aromatic polyamide compound membrane elements newly developed by Vontron Technology Co. can operate under ultra low pressure to reach as high a permeate flow and salt rejection as regular low-pressure membrane elements and are applicable to the desalination of surface water and underground water. They operate at approximately 2 thirds of the operating pressure of regular low-pressure composite membranes and can achieve a salt rejection rate of up to 99.5%, which can decrease the investment costs for such relevant components as pumps, piping, and vessels, etc. including the operating cost for the RO system, thus increasing the economic efficiency. Being suitable for the desalting of water sources with salt concentrations lower than 2,000 ppm, such as surface water, underground water etc., ULP series of membrane elements are mainly used for applications such as pure water production, boiler water replenishment, foodstuff processing, and pharmaceutical production.

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Specifications

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD (m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
ULP21-8040	365(33.9)	11000(41.6)	99.0	98.5
ULP12-8040	400(37.0)	13200(49.9)	98.0	97.5
ULP22-8040	400(37.0)	12100(45.7)	99.0	98.5
ULP32-8040	400(37.0)	10500(39.7)	99.5	99.0
ULP11-4040	85(7.9)	2800(10.6)	98.0	97.5
ULP21-4040	85(7.9)	2400(9.1)	99.0	98.5
ULP31-4040	85(7.9)	1900(7.2)	99.4	99.0
ULP11-4021	36(3.3)	1000(3.78)	98.0	97.5
ULP21-4021	36(3.3)	950(3.6)	99.0	98.5
ULP31-4021	36(3.3)	850(3.2)	99.4	99.0
ULP21-2521	12(1.1)	300(1.13)	99.0	98.5
ULP21-2540	28(2.6)	750(2.84)	99.0	98.5

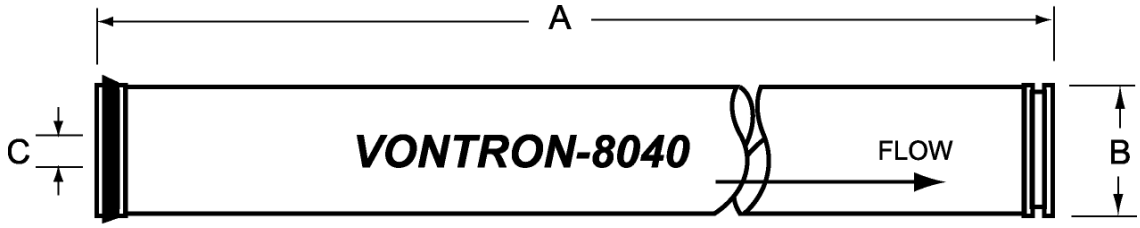
Testing Conditions: Testing Pressure……150 psi (1.03Mpa)
Temperature of Testing Solution ……25 ℃
Concentration of Testing Solution (NaCl)…….. 1500ppm
pH Value of Testing Solution …… 7.5
Recovery Rate of Single Membrane Element…15% (8040-size, 4040 and 2540)
8% (4021 and 2521)

Extreme Operation Conditions

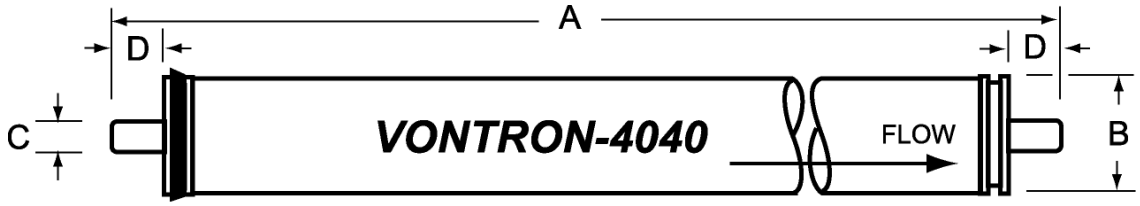
Max. Working Pressure…….……	600psi (4.14Mpa)
Max. Feed water Flow……	75gpm (17 m^3/h) (8040-size)
	16gpm (3.6 m^3/h) (4040 and 4021)
	6.0gpm (1.4 m^3/h) (2521 and 2540)
Max. Feed water Temperature……	45℃
Max. Feed water SDI…….……..	5
Residual chlorine Concentration of Feed water……	＜0.1ppm
pH Range of Feed water during Continuous Operation…..3～10	
pH Range of Feed water during Chemical Cleaning……..2～12	
Max. Pressure Drop of Single Membrane Element…….	15psi (0.1Mpa) (8040, 4040 and 2540)
	10psi (0.07Mpa) (2521 and 4021)

Dimensions of Membrane Element

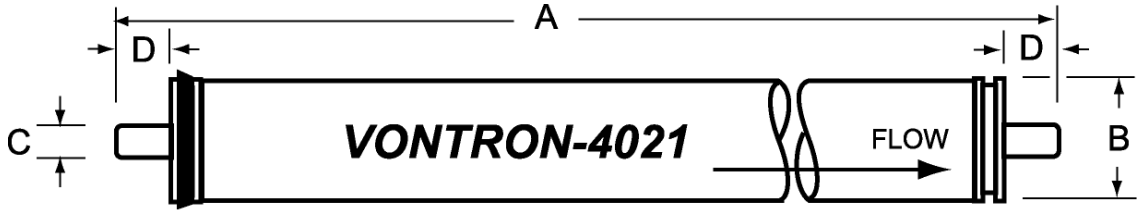
All dimensions are shown in: millimeter (inch)



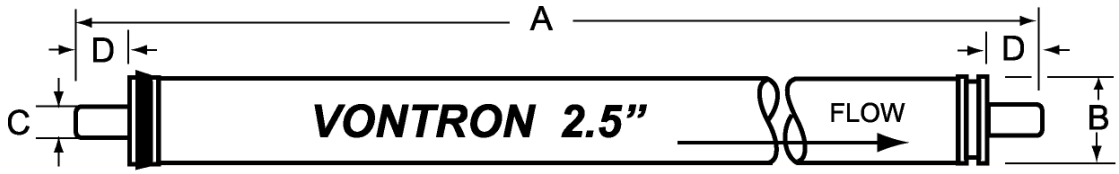
A=1016.0mm (40”) B=201.9mm (7.95”) C=28.6mm (1.125”)



A=1016.0mm (40”) B=99.7mm (3.9”)
C=19.1mm (0.75”) D=26.7mm (1.05”)



A=533.4mm (21”) B=99.7mm (3.9”)
C=19.1mm (0.75”) D=26.7mm (1.05”)



2540: A=1016.0mm (40”) B=61.0mm (2.4”) C=19.1mm (0.75”) D=30.2mm (1.19”)
2521: A=533.4mm (21”) B=61.0mm (2.4”) C=19.1mm (0.75”) D=30.2mm (1.19”)

Important Information

1. Any specific application must be limited within the extreme operating conditions. We strongly recommend you refer to the latest edition of the technology manual and design guide prepared by Vontron Technology Co. or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, Vontron Technology Co. will assume no liability for any results.
2. The permeate flow listed in the table is the average value. The permeate flow of a single membrane element of ULP 31 series and ULP32 series is within a tolerance not exceeding ±15% of the nominal value, while the single membrane element of other series has a minimum permeate flow with a tolerance not exceeding 20% of nominal value.
3. All wet-type membrane elements have been strictly tested before leaving the factory, and have been treated with the solution of 1.0% sodium hydrogen sulfite (an antifreeze solution of 10% propanediol required in winter) for storage purposes, then vacuum sealed in a plastic bag and further packed in carton boxes. In order to prevent the breeding of microbes during short-time storage, transportation and system standby, we recommend you to soak the membrane elements with protective solution (prepared with RO filtered water) containing 1.0% sodium hydrogen sulfite (food grade quality).
4. Discard the RO-filtered water produced during the first one hour after system start-up.
5. During storage time and run time, it is strictly prohibited to dose any chemical that may be harmful to membrane elements. In case of any violation in using this kind of chemical, Vontron Technology Co. assumes no liability for any outcome incurred.

Points of Attention

3. All data and information provided has been obtained from long-term evaluation by Vontron Technology Co. This data and information is accurate and effective. Vontron Technology Co. assumes no liability for any consequences caused by user's failure in abiding by the conditions specified in this manual for the use or maintenance of membrane products. It is strongly recommended that the user shall strictly abide by the requirements for design, use and maintenance of products and keep relevant records.
4. Along with technical development and product review, the information contained herein will be subject to modification without prior notification. Please keep an eye on the website of Vontron Technology Co. for any product updates.