



## ULP Series: Ultra Low Pressure Membrane Element

### Brief Introduction

ULP series of ultra-low pressure aromatic polyamide compound membrane element newly developed by Vontron Technology Co., Ltd. can work under ultra low pressure to reach as high permeate flow and salt rejection as regular low-pressure membrane element can, and is applicable to desalination of surface water and underground water. It operates under approximately 2 thirds of the operating pressure of regular low-pressure composite membrane, and achieves a salt rejection rate of up to 99.5%, which can decrease the investment costs for such relevant facilities as pump, piping, and container, etc. and the operating cost for the RO system, thus increasing the economic efficiency.

Being suitable for the desalting treatment of those water sources with salt concentration lower than 2000 ppm, such as surface water, underground water, tap water and municipal water, etc., ULP series membrane elements are mainly applicable to numerous applications of various scales, such as pure water, boiler water replenishment, foodstuff processing, and pharmaceutical production, etc.

## Specifications and Major Properties

Model	Active Membrane Area(ft <sup>2</sup> (m <sup>2</sup> ))	Average Permeated Flow GPD (m <sup>3</sup> /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	90 (8.4)	2800 (10.6)	98.0	97.5
ULP21-4040	90 (8.4)	2400 (9.1)	99.0	98.5
ULP31-4040	90 (8.4)	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
ULP21-2540	30 (2.8)	750 (2.84)	99.0	98.5
ULP21-2521	14 (1.3)	300 (1.13)	99.0	98.5

### Testing Conditions:

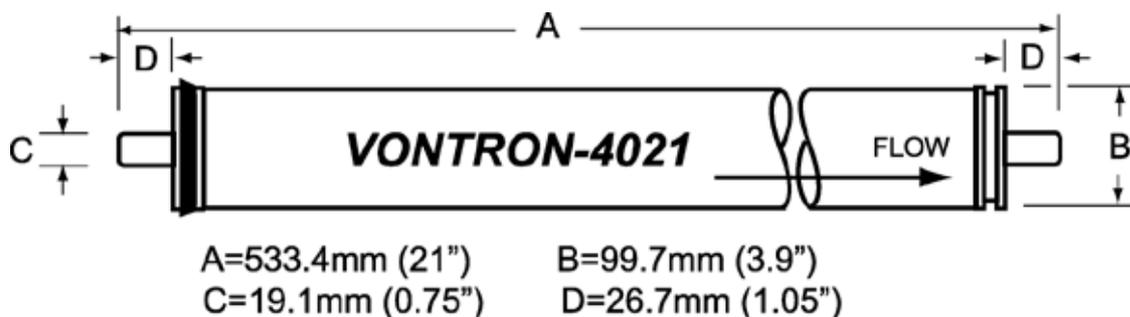
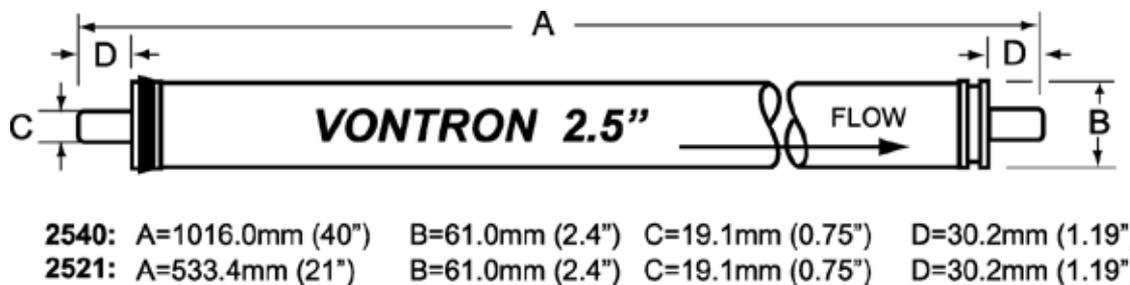
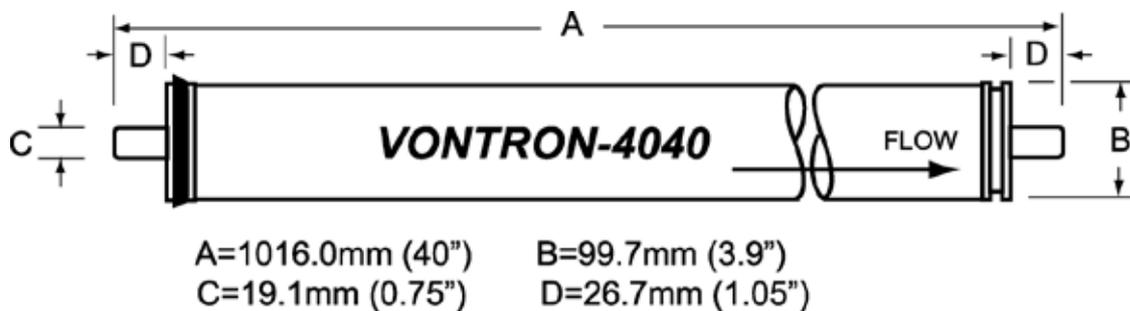
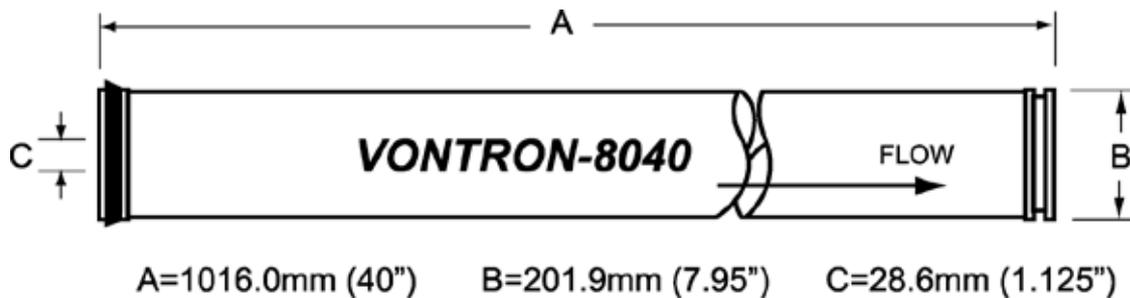
Testing Pressure.....	150 psi (1.03Mpa)
Temperature of Testing Solution.....	25°C
Concentration of Testing Solution (NaCl).....	1500ppm
pH Value of Testing Solution.....	7.5
Recovery Rate of Single Membrane Element.....	15% (8040-size, 4040-size and 2540-size) ..... 8% (4021-size and 2521-size)

### Operation limits and conditions

Max. Working Pressure.....	600psi (4.14Mpa)
Max. Feedwater Flow.....	75gpm (17 m <sup>3</sup> /h) (8040-size) ..... 16gpm (3.6 m <sup>3</sup> /h) (4040-size)
Max. Feedwater Temperature.....	45 °C
Max. Feedwater SDI.....	5
Residual chlorine Concentration of Feedwater.....	<0.1ppm
pH Range of Feedwater during Continuous Operation.....	3~10
pH Range of Feedwater during Chemical Cleaning.....	2~12
Max. Pressure Drop of Single Membrane Element.....	15psi (0.1Mpa)

## Dimensions of Membrane Element

All dimensions are shown in: millimeter (inch)



### Important Information

1. Any specific application must be limited within the Operating Limits and Conditions.

We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by Vontron Technology Co., Ltd., 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., Ltd. will assume no liability for all results.

2. The permeate flow listed in the table is the average value. The permeate flow of single membrane element of ULP 31 series and ULP32 series is within a tolerance not exceeding  $\pm 15\%$  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 purpose, then sealed with plastic bag in vacuum, 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 (foodstuff-purpose).

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 medicament that may be harmful to membrane elements. In case of any violation in using this kind of chemical medicament, Vontron Technology Co., Ltd. assumes no liability for any outcome incurred herefrom.

### Points of Attention

1. All data and information provided in this manual have been obtained from long-term experiment by Vontron Technology Co., Ltd. We truly believe that these data and information are accurate and effective. Vontron Technology CO., Ltd. assumes no liability for any aftermath caused by user's failure in abiding by the conditions specified in this manual in 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.

2. Along with technical development and product renovation, the information contained herein will be subject to modification without prior notification. Please keep an eye on the website of Vontron Technology Co., Ltd. for any update of product.