

Chapter II Characteristics and Performance of Reverse Osmosis Membrane and Nanofiltration Membrane Products

[2.1] Household Reverse Osmosis Membrane Element

1. Product Performance Characteristics

Household reverse osmosis membrane elements are suitable for desalination of the water sources below TDS 500ppm, with the characteristics of high desalination rate and low operation pressure, and are widely used in various household water purifiers, hospital and laboratory water purifiers and other small equipment.

2. Membrane Element Specification and Performance

Membrane element model	Stable desalination rate (%)		Average water yield GPD (m ³ /d)	Effective membrane area ft ² (m ²)
	Water use efficiency solution condition	NaCl solution conditions		
ULP 1812-50	97.5	98.5	50 (0.19)	3.6 (0.33)
ULP 1812-75	97.5	98.5	75 (0.28)	5.0 (0.46)
ULP 2012-100	97.5	98.5	100 (0.38)	6.0 (0.56)
ULP 3012-300	97.0	98.5	300 (1.14)	13.2 (1.23)
ULP 3012-400	95.0	98.5	400 (1.52)	17.0 (1.58)
ULP 3012-600	93.0	97.0	600 (2.28)	22.1 (2.05)
ULP 3013-400	95.0	98.5	400 (1.52)	17.0 (1.58)
ULP 3013-600	93.0	97.0	600 (2.28)	22.1 (2.05)
ULP 3213-800	93.0	97.0	800 (3.04)	27.7 (2.57)

3. Test conditions

Test pressure 60 psi (1812-50, 1812-75, 2012-100)

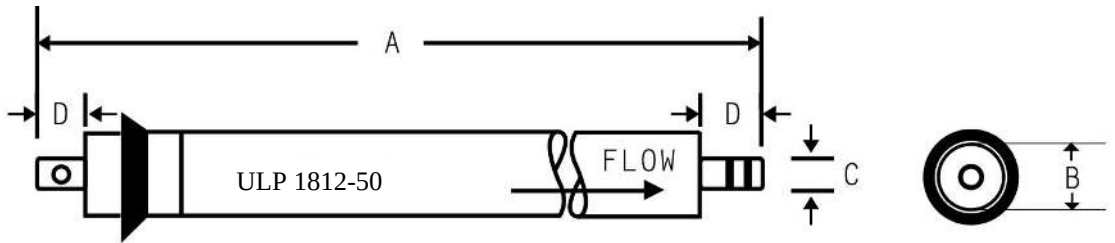
		100 psi (3012-300, 3012-400, 3013-400, 3013-600, 3013-800)
Test solution temperature	.....	25°C
Test solution concentration	.....	500ppm NaCl or water use efficiency standard (GB34914-2021) experimental water
PH value of test solution	.....	7.5
Recovery rate of single membrane element	.....	50%-60%

4. Limit Service Conditions

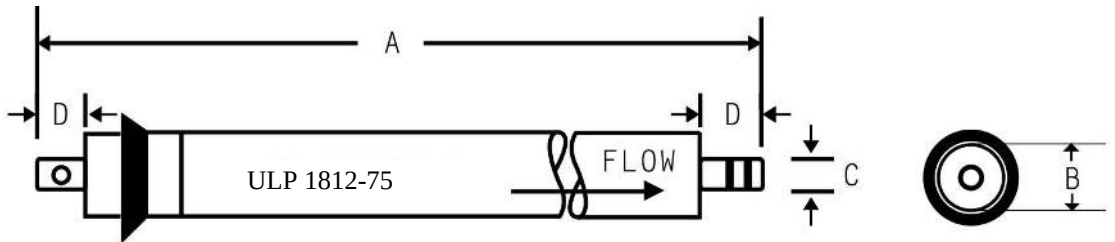
Maximum operation pressure	.....	300 psi(2.07 MPa)
Maximum inlet temperature	.....	45°C
Maximum inlet SDI ₁₅	.....	5
Free Chlorine Concentration in Inlet	.....	<0.1 ppm
PH range of inlet during continuous operation	.....	3-10
PH range of inlet during chemical cleaning	.....	2-12
Maximum pressure drop of single membrane element	.....	10 psi

5. Dimensions of Membrane Elements

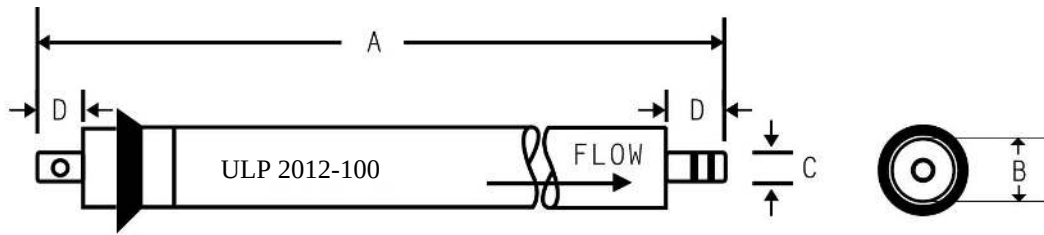
All units shown in the diagram are in millimeters (inches)



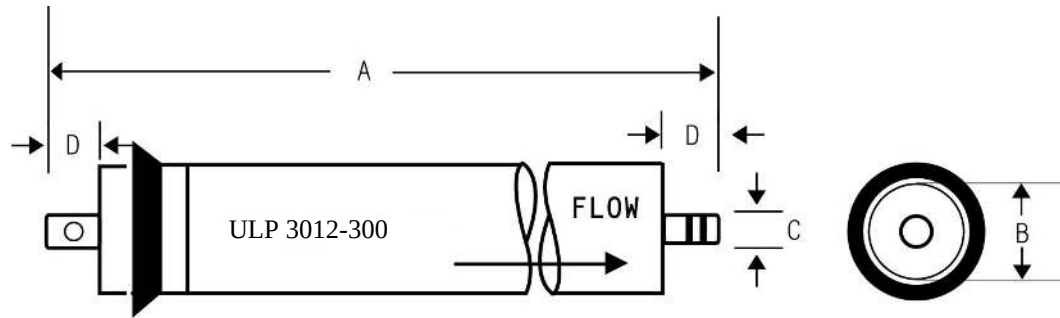
A=298mm(11.7 ") B=44mm(1.73 ") C=17.0mm(0.67 ") D=38.0mm(1.50 ")



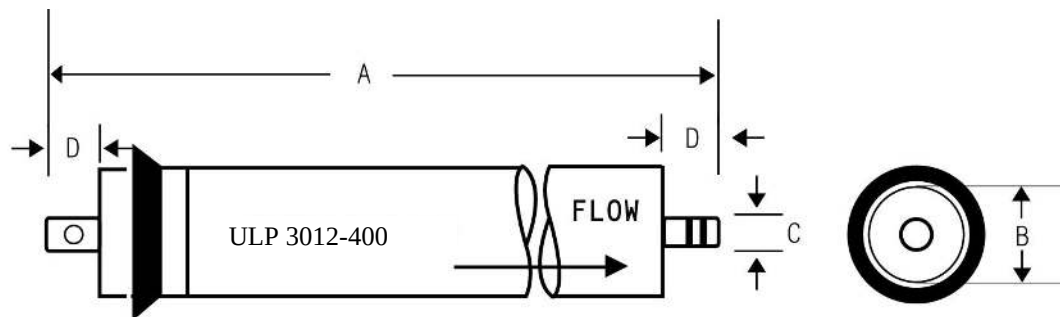
A=298mm(11.7 ") B=44mm(1.73 ") C=17.0mm(0.67 ") D=21.0mm(0.83 ")



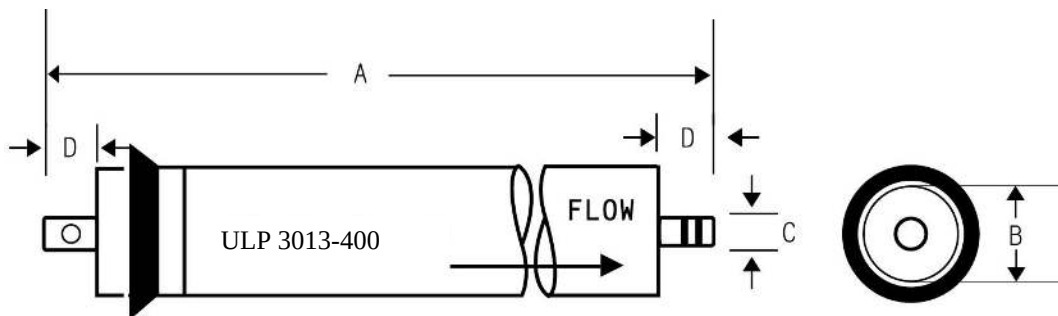
A=298mm(11.7 ") B=47.2mm(1.86 ") C=17.0mm(0.67 ") D=21.0mm(0.83 ")



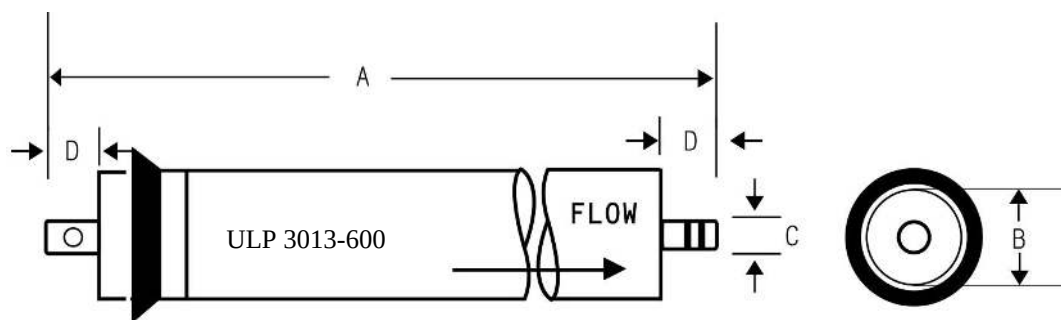
A=298mm(11.1 ") B=71mm(2.8") C=17.0mm(0.67 ") D=21.0mm(0.83 ")



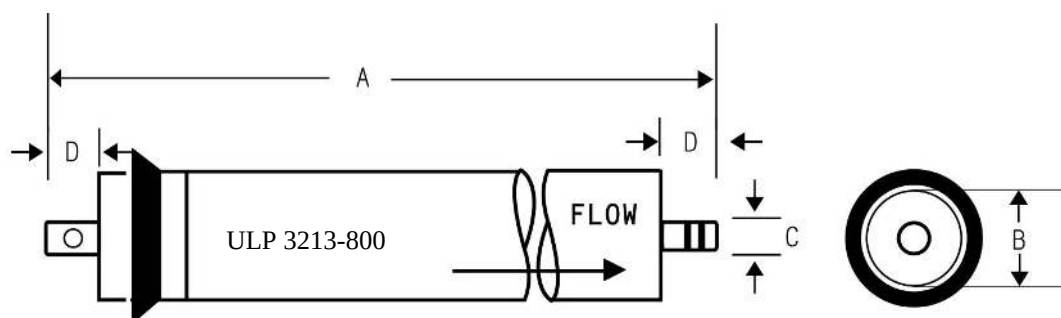
A=298mm(11.1 ") B=73mm(2.9") C=17.0mm(0.67 ") D=21.0mm(0.83 ")



A=333mm(13.1 ") B=67.8mm(2.67 ") C=17.0mm(0.66 ") D=21.0mm(0.82 ")



A=333mm(13.1 ") B=67.8mm(2.67 ") C=17.0mm(0.66 ") D=21.0mm(0.82 ")



A=333mm(13.1 ") B=76.5mm(3.11 ") C=17.0mm(0.66 ") D=21.0mm(0.82 ")

Note: The dimensions of membrane elements shown in the above figure are not marked with tolerances

6. Important Information

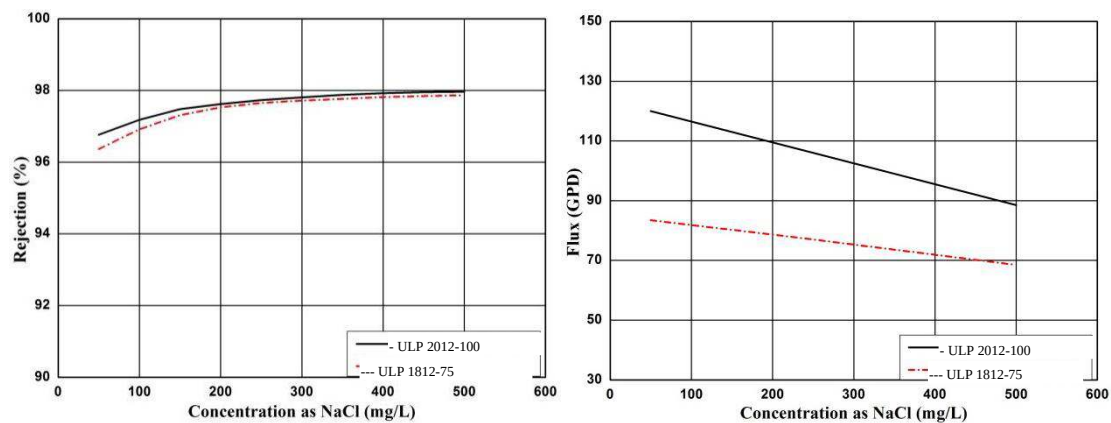
- The water yield listed in the table is the average value, and the error of water yield of single membrane element is within 20%.
- The water produced in the first hour when the membrane element is used for the first time shall be discharged.
- When the membrane element leaves the factory, the dry membrane element has no protective solution, and once the element is wet, it should always be wet.
- Wet membrane elements are tested with water before leaving the factory, stored in 1.5% sodium bisulfite solution (10% propylene glycol antifreeze should be added in winter), and then vacuum packed.

Operate within the stated limits and follow the storage and operating instructions.

Do not use chemicals that can damage the membrane during storage or operation.

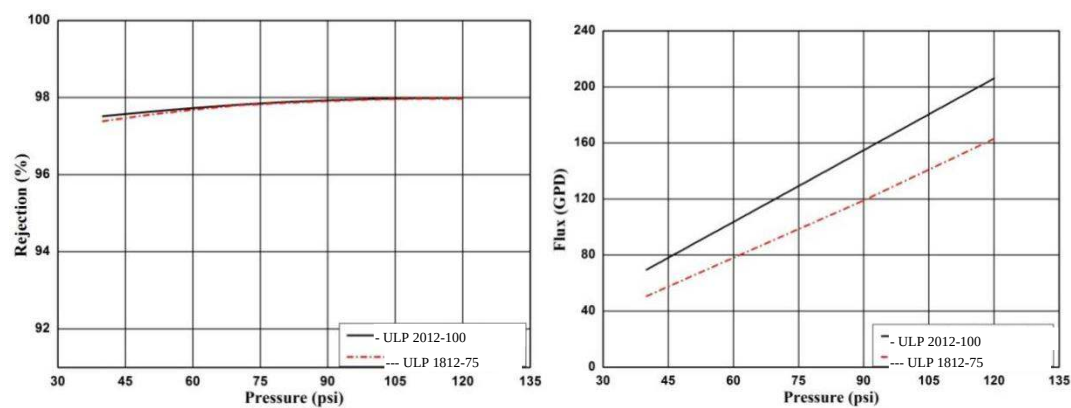
- Due to technological progress and product upgrade, product technical data may be updated at any time.

Desalination rate and water production performance under different raw water concentrations



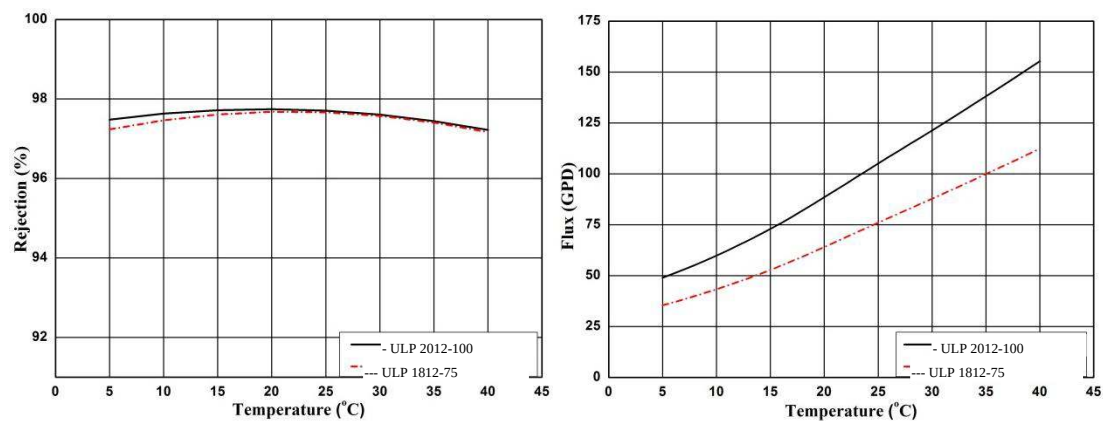
Test conditions: 25°C, 60psi, pH=7, the recovery rate is about 50%

Desalination rate and water production performance under different inlet water pressures



Test conditions: 25°C, 500ppm NaCl, pH=7, the recovery rate is about 50%

Desalination rate and water production performance at different temperatures



Test conditions: 60psi, 500ppm NaCl, pH=7, the recovery rate is about 50%