
VONTRON
ULP3013-400

CONTENTS

A. Company Profile

COMPANY PROFILE

Vontron Technology Co., Ltd. is specialized in R&D, manufacture and technical service of RO and NF membrane elements. Owning the core technology and capability for fabrication of membrane sheet, Vontron is the biggest professional manufacturer of compound RO membranes in China, and is the provider of system design and applied service with powerful technical support.

Vontron operates its manufacturing plant in Guiyang, with total capacity of 17 million square meters of RO and NF membrane sheet annually, which will be expanded to 30 million square meters in 2017.

Based upon the absorption and renovation of the full-process RO membrane producing line and technologies imported from the United States in 2001, the product series produced by Vontron, including industrial-purpose element, seawater desalination element, fouling resistant element, oxidation resistant element and residential element, etc., have taken the leading position in quality and technological level in the world. Vontron has become the world' s second supplier of dry-type membrane elements with capacity of mass production. Moreover, the oxidation-resistant membrane and fouling-resistant membrane with leading technical advantage under completely independent intellectual property developed by Vontron have been widely applied to the wastewater treatment field, and have surmounted the difficulty in the application of RO membranes, i.e. the organic contamination and biological contamination, and have been widely applied in foodstuff and hygiene industries such as pharmaceutical abstraction, germ-free drinking water, etc.

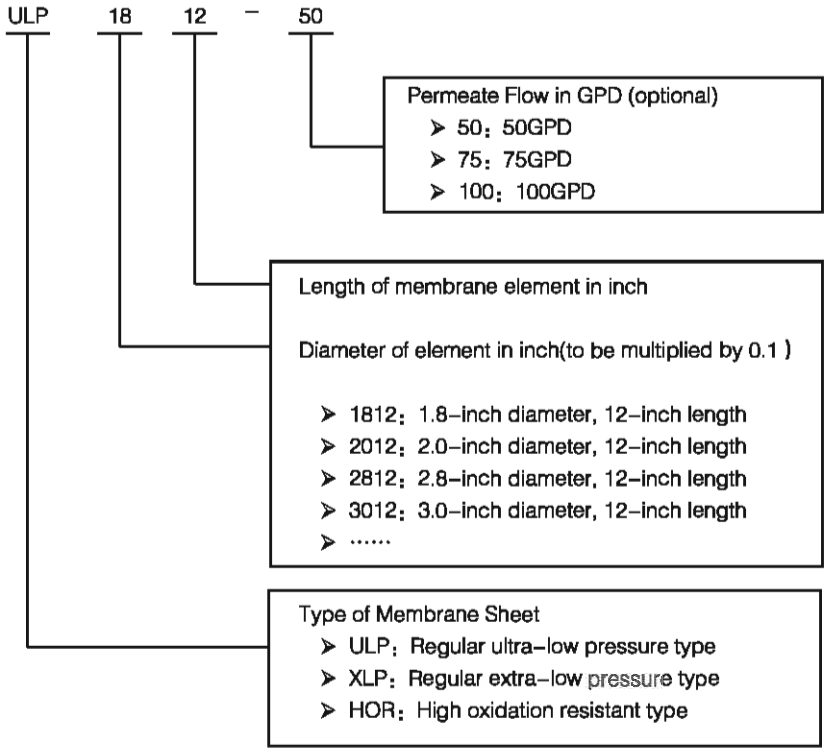
Vontron has accomplished developing various specifications of compound RO membranes covering 9 series and more than 50 models. All product series adopt the state-of-the-art fouling-resistant technology, and reach the international advanced level in quality. Certified to NSF Standards, VONTRONTM membranes have been broadly applied to seawater desalination, purification of drinking water, depuration of sewage and concentration/abstraction, and well sold to USA, India, Italy, Spain, Germany, Turkey, Korea, Japan, Vietnam, Malaysia, Thailand, Singapore, Brazil, etc., where Vontron has also set up its sales distributors and consistent customers.

Vontron will be, as always, carrying out the corporate spirit of "Surmounting ourselves and pursuing endlessly" , bringing forth the new products from the old ones, and devoting ourselves to the establishment of elite products for the enviro-tech era.

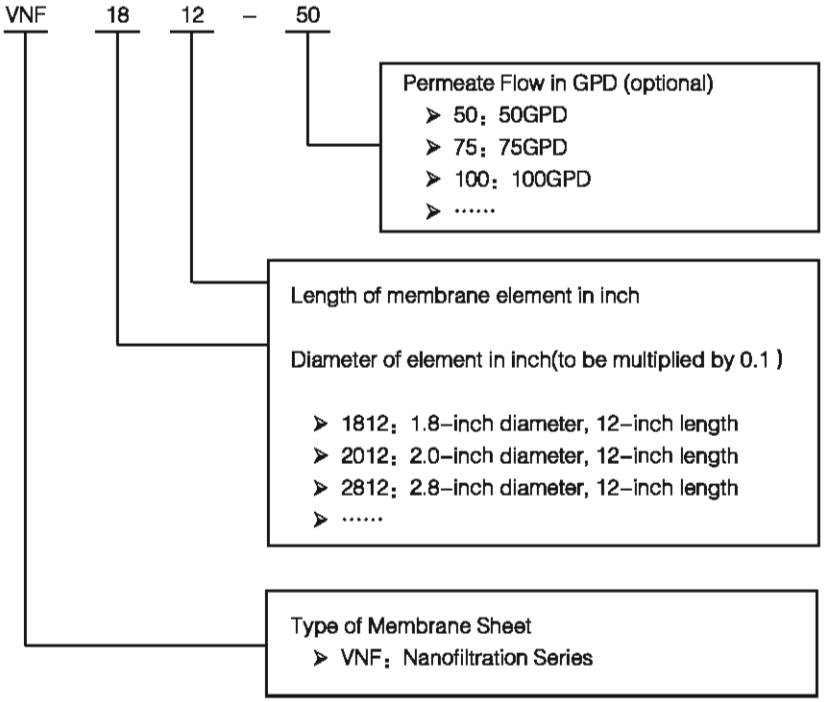

VONTRON
Certified to NSF/ANSI 58
Reverse Osmosis Membranes
Model: ULP3013-400
Serial No: 201407032
Technology deriving from USA
VONTRON
Model: ULP3013-400
Serial No: 201407032
Technology deriving from USA
Model: ULP2012-100
Serial No: 140000023
Technology deriving from USA

B. Nomenclature of Membranes

1. Residential RO Membranes



2. Residential NF Membranes



C. Catalog of Residential Elements

1. Catalog of Residential RO Elements

Model	Rejection (%)	Aver Permeate GPD (m^3/d)	Testing Conditions		
			Pressure psi (MPa)	Concentration NaCl (ppm)	Recovery (%)
ULP2008-50P	97	50 (0.19)	60 (0.41)	250	15
ULP1609-50P	97	50 (0.19)			
ULP1609-50F	97	50 (0.19)			
ULP1809-50Q	97	50 (0.19)			
ULP1809-50P	97	50 (0.19)			
ULP1809-100Q	94	100 (0.38)			
ULP2309-100P	97	100 (0.38)			30
ULP2809-200	95	200 (0.76)			25
ULP1810-50	97	50 (0.19)			15
ULP1810-50Q	97	50 (0.19)			
ULP1810-50P	97	50 (0.19)			
ULP1810-70	91	70 (0.27)			
ULP2010-80	94	80 (0.3)			
ULP2010-100Q	93	100 (0.38)			
ULP1812-50	97.5	50 (0.19)			
XLP2012-50	96.5	50 (0.19)	30 (0.21)	250	15
HOR2012-50	97	50 (0.19)	60 (0.41)	250	15
ULP1812-75	97.5	75 (0.28)			
ULP2012-100	94	100 (0.38)			
ULP2012-125	94	125 (0.48)			
ULP2812-200	97	200 (0.76)	100 (0.69)	500	15
ULP3012-240	97	240 (0.91)			
ULP3012-400	95	400 (1.52)			
ULP3013-400	95	400 (1.52)			
ULP3020-420	97	420 (1.6)	100 (0.69)	500	40

2. Catalog of NF Residential Elements

Model	Rejection (%)	Aver Permeate GPD (m^3/d)	Testing Conditions		
			Pressure psi (MPa)	Solution Concentration	Recovery (%)
VNF-1812	30 ± 10	100 (0.38)	60 psi (0.41MPa)	250ppm (NaCl)	15
	≥ 85			250ppm ($CaCl_2$)	15
VNF-2012	30 ± 10	120 (0.45)	60 psi (0.41MPa)	250ppm (NaCl)	15
	≥ 85			250ppm ($CaCl_2$)	15
VNF-2812	30 ± 10	300 (1.14)	60 psi (0.41MPa)	250ppm (NaCl)	15
	≥ 85			250ppm ($CaCl_2$)	15

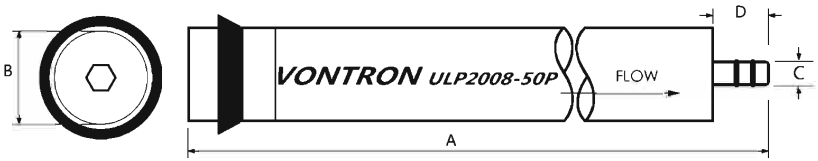
D. General Specifications of Residential Membrane Elements

1. RO Element ULP2008-50P

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2008-50P is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for residence, hospital and laboratory.

2) Dimensions: millimeter (inch)



A=200.2mm (7.88 ") B=49.0mm (1.93 ")
C=17mm (0.67 ") D=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2008-50P	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

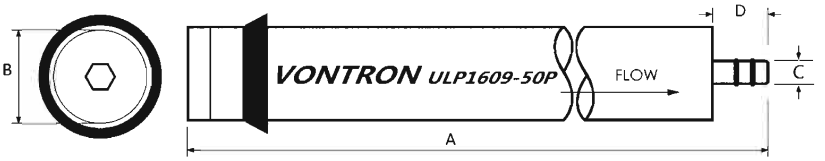
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

2. RO Element ULP1609–50P

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1609–50P is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=241.0mm (9.49 ") B=41.0mm (1.61 ")
C=17mm (0.67 ") D=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1609–50P	50	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

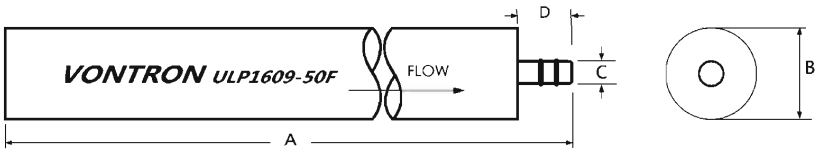
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

3. RO Element ULP1609-50F

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1609-50F is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=227.5mm (8.96 ") B=39.4mm (1.55 ")
C=17mm (0.67 ") D=20mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1609-50F	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

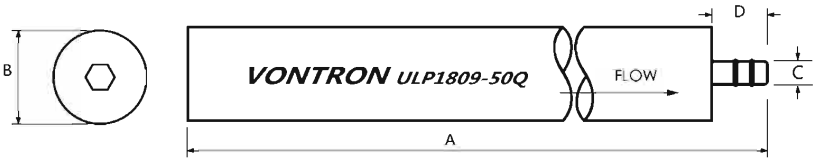
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

4. RO Element ULP1809–50Q

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1809–50Q is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=225.5mm (8.88 ") B=45.5mm (1.79 ")
C=17mm (0.67 ") D=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1809–50Q	50	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

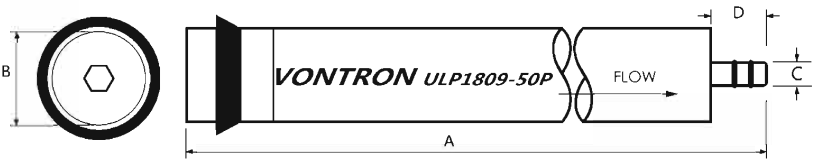
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

5. RO Element ULP1809-50P

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1809-50P is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=225.5mm (8.88 ") B=45.5mm (1.79 ")
C=17mm (0.67 ") D=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1809-50P	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

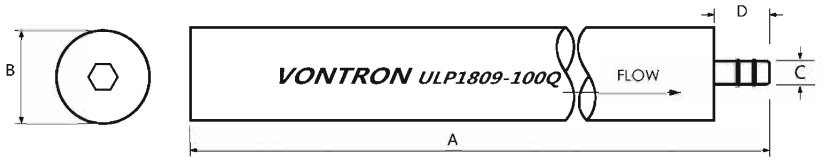
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

6. RO Element ULP1809-100Q

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1809-100Q is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=225.5mm (8.88 ") B=45.5mm (1.79 ")
C=17mm (0.67 ") D=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1809-100Q	100	94	93

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

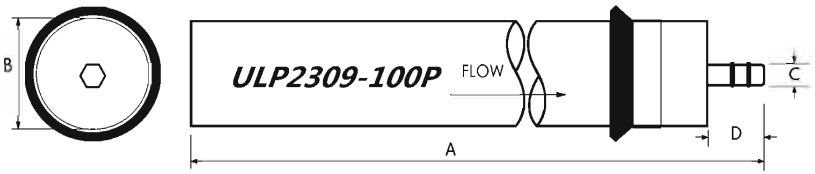
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

7. RO Element ULP2309-100P

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2309-100P is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=225.5mm (8.88 ") B=59.0mm (2.32 ")
C=17.0mm (0.67 ") D=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2309-100P	100	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

8. RO Element ULP2809–200

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2809–200 is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)

A=225.5mm (8.88 ") B=70.5mm (2.78 ")
C=17.0mm (0.67 ") D=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2809–200	200	95	94

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

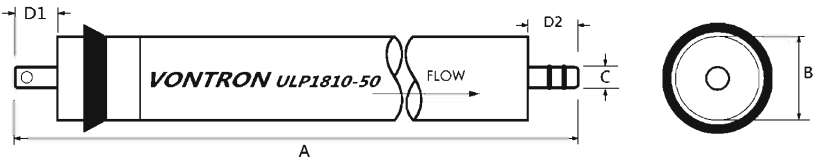
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

9. RO Element ULP1810-50

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1810-50 is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=256.0mm (10.08 ") B=44.0mm (1.73 ")
C=17.0mm (0.67 ") D1=15.0mm (0.59 ") D2=25.0mm (0.98 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1810-50	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

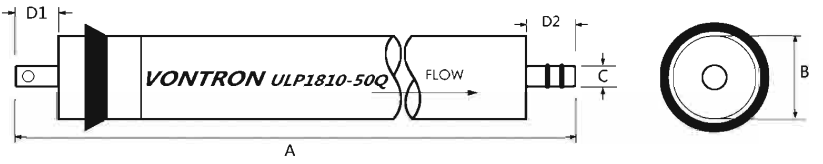
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

10. RO Element ULP1810–50Q

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1810–50Q is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=256.0mm (10.08 ") B=44.0mm (1.73 ")
C=17.0mm (0.67 ") D1=18.0mm (0.71 ") D2=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1810–50Q	50	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

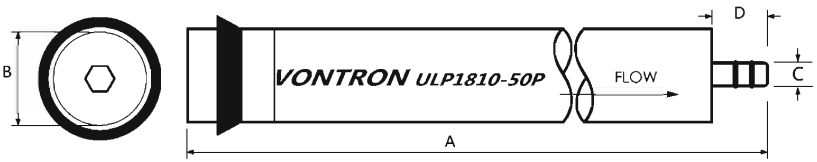
Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

11. RO Element ULP1810-50P

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1810-50P is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=235.0mm (9.25 ") B=44.0mm (1.73 ")
C=17mm (0.67 ") D=18.5mm (0.73 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1810-50P	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

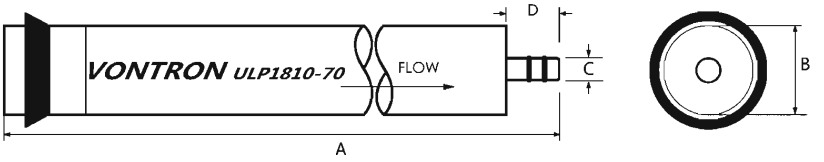
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

12. RO Element ULP1810–70

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1810–70 is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=235.0mm (9.25 ") B=44.0mm (1.73 ")
C=17.0mm (0.67 ") D=18.5mm (0.73 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1810–70	70	91	90

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

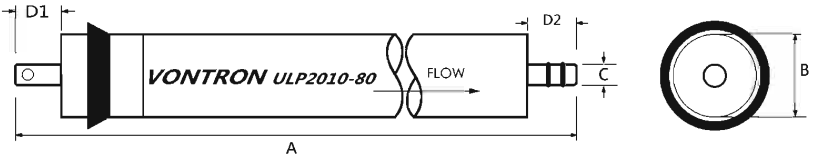
Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

13. RO Element ULP2010-80

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2010-80 is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=256.0mm (10.08 ") B=47.5mm (1.87 ")
C=17.0mm (0.67 ") D1=18.0mm (0.71 ") D2=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2010-80	80	94	93

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

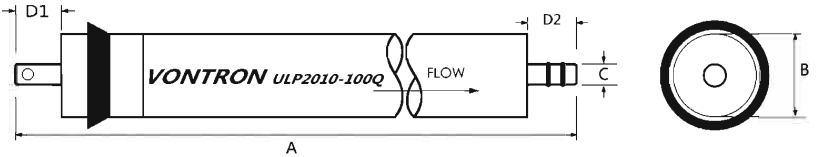
Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

14. RO Element ULP2010–100Q

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2010–100Q is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=256.0mm (10.08 ") B=47.5mm (1.87 ")
C=17.0mm (0.67 ") D1=18.0mm (0.71 ") D2=20.0mm (0.79 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2010–100Q	100	93	92

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

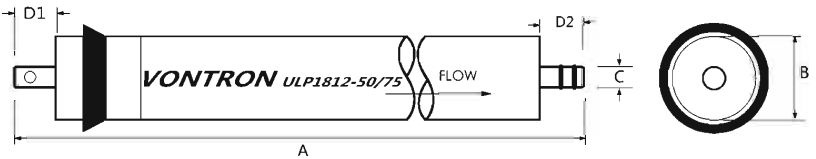
Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

15. RO Element ULP1812–50

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1812–50 is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=46.0mm (1.81 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1812–50	50	97.5	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

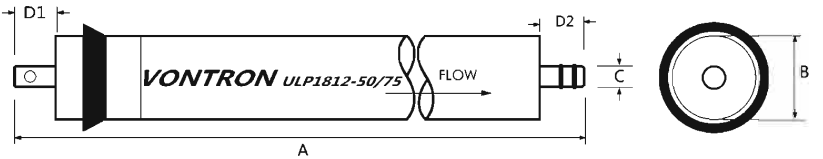
Testing Conditions:		
	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

16. RO Element ULP1812–75

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP1812–75 is designed for treatment of low–salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=46.0mm (1.81 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP1812–75	75	97.5	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

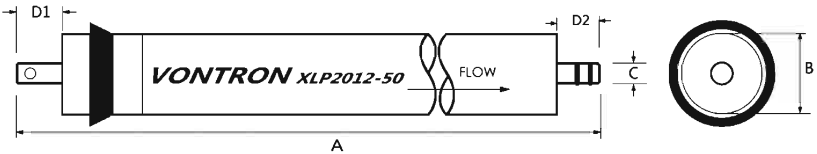
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

17. RO Element XLP2012-50

1) Brief Introduction

Independently developed by VONTRON, the RO element XLP2012-50 is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=48.0mm (1.89 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
XLP2012-50	50	96.5	95

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

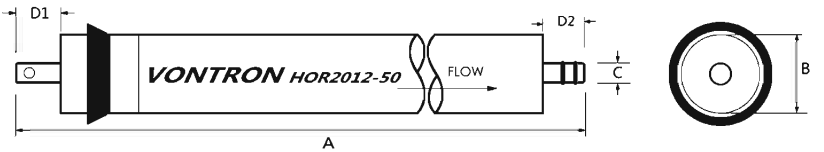
Testing Conditions:	Testing Pressure	30 psi (0.21MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

18. RO Element HOR2012-50

1) Brief Introduction

Independently developed by VONTRON, the RO element HOR2012-50 is designed for treatment of water resources containing oxidant substances and high microbe contaminations. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=48.0mm (1.89 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
HOR2012-50	50	97	96

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

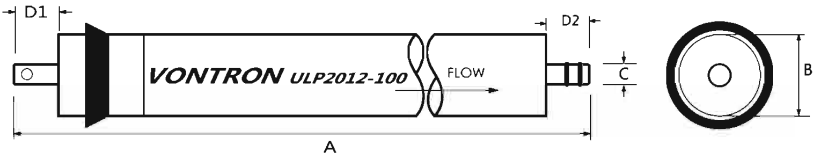
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

19. RO Element ULP2012-100

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2012-100 is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=48.0mm (1.89 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2012-100	100	94	93

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

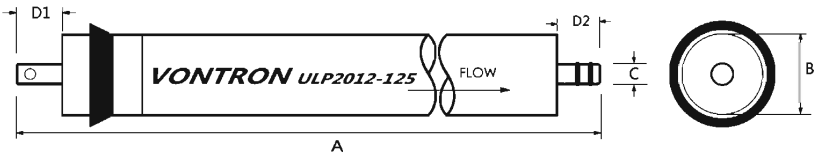
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250 ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

20. RO Element ULP2012-125

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2012-125 is designed for treatment of low-salinity water resources such as tap water, well water, etc. Working under extra low pressure, it is applicable to water purifying devices for in residence, hospital and laboratory.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=48.0mm (1.89 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2012-125	125	94	93

Notes: Permeate of single element may vary within [-20%] ~ [+20%]

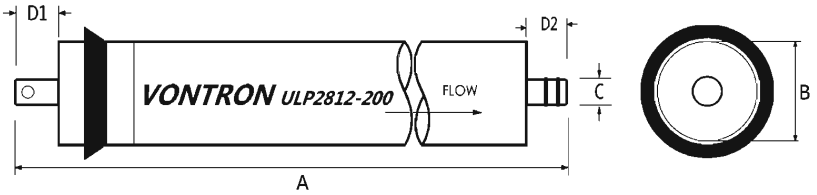
Testing Conditions:	Testing Pressure	60 psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

21. RO Element ULP2812–200

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP2812–200 works under extra low pressure and is applicable to automatic water dispenser and residential pure water machine, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=68mm (2.68 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP2812-200	200	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

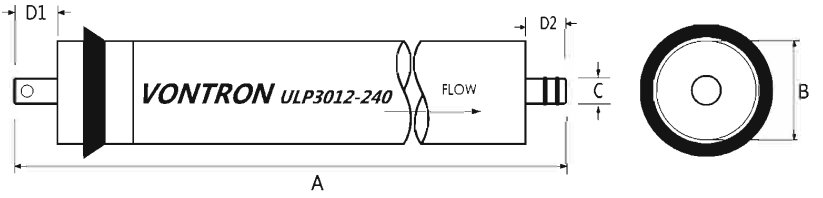
Testing Conditions:	Testing Pressure	100psi (0.69MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	500ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

22. RO Element ULP3012–240

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP3012–240 works under extra low pressure and is applicable to automatic water dispenser and residential pure water machine, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=73mm (2.87 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP3012-240	240	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

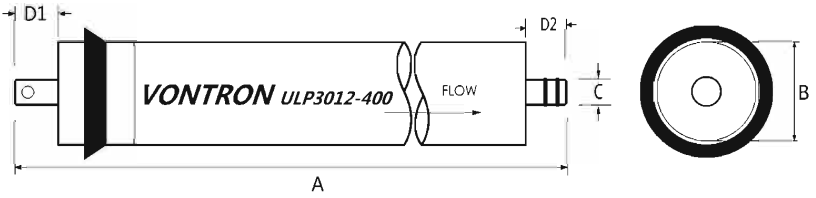
Testing Conditions:	Testing Pressure	100psi (0.69MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	500ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

23. RO Element ULP3012–400

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP3012–400 works under extra low pressure and is applicable to automatic water dispenser and residential pure water machine, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=71mm (2.80 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP3012-400	400	95	94

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

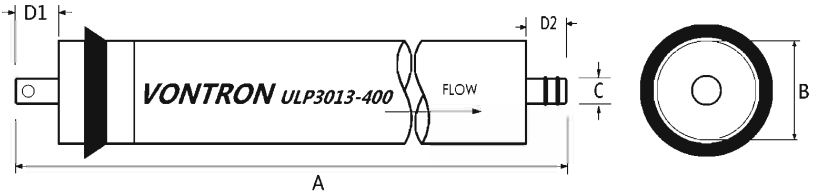
Testing Conditions:	Testing Pressure	100psi (0.69MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	500ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

24. RO Element ULP3013–400

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP3013–400 works under extra low pressure and is applicable to automatic water dispenser and residential pure water machine, etc.

2) Dimensions: millimeter (inch)



A=333.0mm (13.11 ") B=67.8mm (2.67 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP3013-400	400	95	94

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

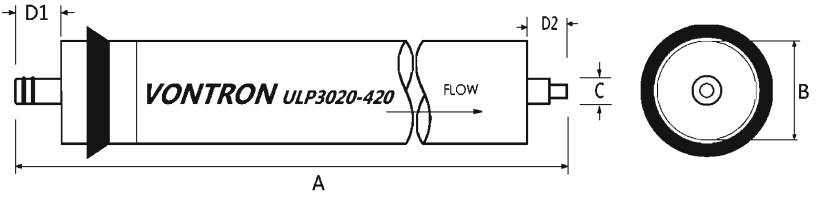
Testing Conditions:	Testing Pressure	100psi (0.69MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	500ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

25. RO Element ULP3020–420

1) Brief Introduction

Independently developed by VONTRON, the RO element ULP3020–420 works under extra low pressure and is applicable to automatic water dispenser and residential pure water machine, etc.

2) Dimensions: millimeter (inch)



A=513.8mm (20.23 ") B=79.5mm (3.13 ")
C=26.1mm (1.03 ") D1=26.5mm (1.04 ") D2=23.3mm (0.92 ")

3) Properties and Testing Conditions

Model	Average Permeate (GPD)	Stable Rejection (%)	Min. Rejection (%)
ULP3020-420	420	97	96

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

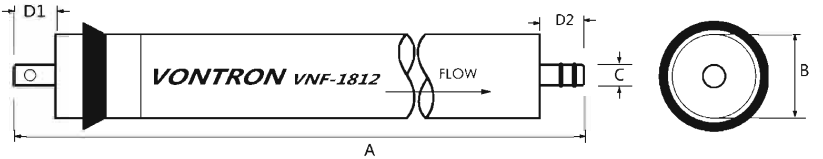
Testing Conditions:		
	Testing Pressure	100psi (0.69MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	500ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

26. NF Element VNF–1812

1) Brief Introduction

ndependently developed by VONTRON, the nanofiltration element VNF–1812 works under extra low pressure and is applicable to various water purifying devices and mineralized water purifying machines, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=46.0mm (1.81 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Type of Solution	Average Permeate (GPD)	Rejection (%)
VNF-1812	NaCl	100	30±10
	$CaCl_2$		≥ 85

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

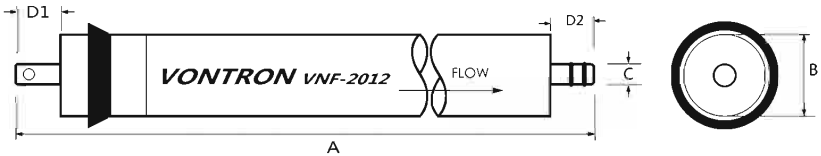
Testing Conditions:		
	Testing Pressure	60psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

27. NF Element VNF–2012

1) Brief Introduction

Independently developed by VONTRON, the nanofiltration element VNF–2012 works under extra low pressure and is applicable to various water purifying devices and mineralized water purifying machines, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=48.0mm (1.89 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

Model	Type of Solution	Average Permeate (GPD)	Rejection (%)
VNF-2012	NaCl	120	30±10
	$CaCl_2$		≥ 85

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

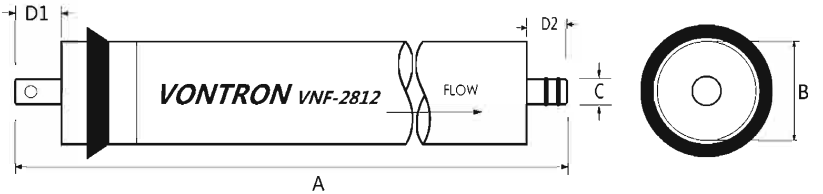
Testing Conditions:		
	Testing Pressure	60psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

28. NF Element VNF–2812

1) Brief Introduction

Independently developed by VONTRON, the nanofiltration element VNF–2812 works under extra low pressure and is applicable to various water purifying devices and mineralized water purifying machines, etc.

2) Dimensions: millimeter (inch)



A=298.0mm (11.73 ") B=68mm (2.68 ")
C=17.0mm (0.67 ") D1/D2=21.0mm (0.83 ")

3) Properties and Testing Conditions

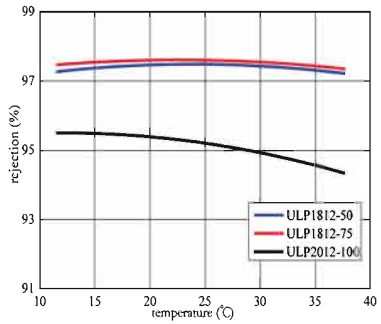
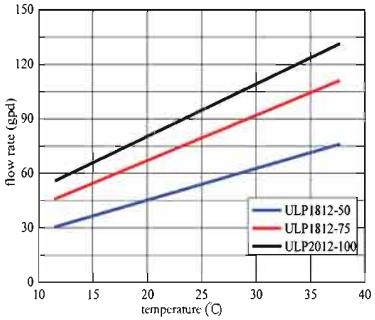
Model	Type of Solution	Average Permeate (GPD)	Rejection (%)
VNF-2812	NaCl	300	30±10
	$CaCl_2$		≥ 85

Notes: Permeate of single element may vary within [–20%] ~ [+20%]

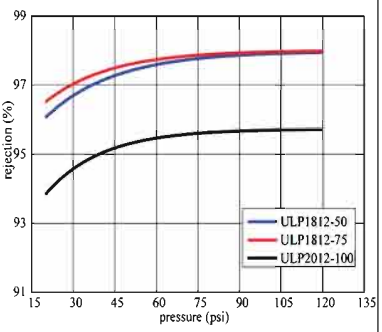
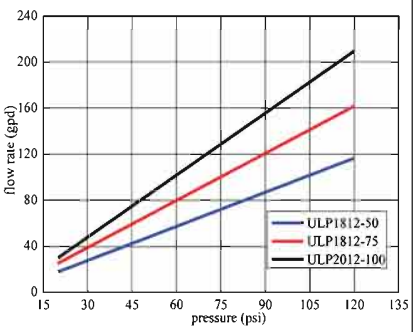
Testing Conditions:		
	Testing Pressure	60psi (0.41MPa)
	Temperature of Testing Solution	25℃
	Concentration of Testing Solution (NaCl)	250ppm
	pH of Testing Solution	6.5~8.5
	Recovery of Single Element	15%

E. Performance Curves

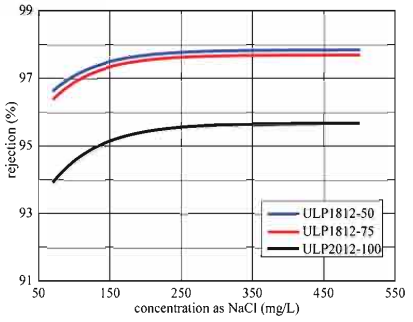
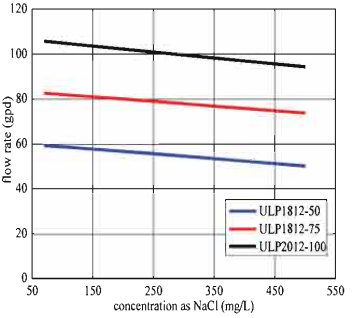
1、Performance Curves of 1812 and 2012 Series

Rejection against Temperature	Permeate against Temperature
	

Testing Conditions: Pressure at 60psi; Concentration at 250mg/L NaCl; pH at 7

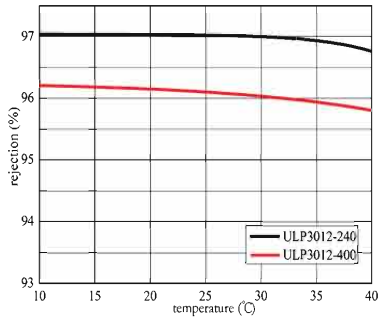
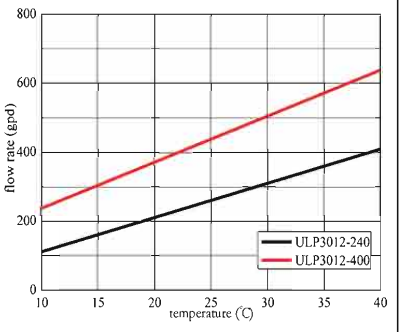
Rejection against Feedwater Pressure	Permeate against Feedwater Pressure
	

Testing Conditions: Temperature at 25℃; Concentration at 250mg/L NaCl; pH at 7

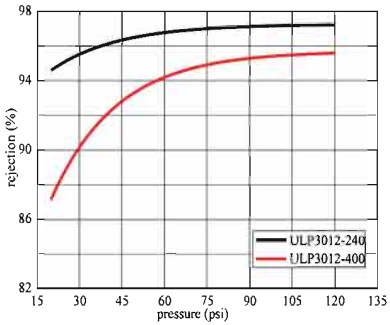
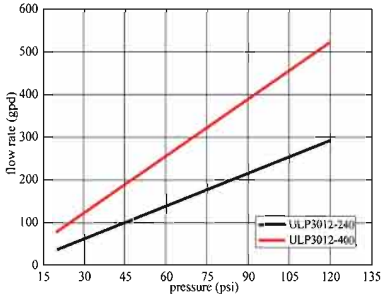
Rejection against Different Salinity	Permeate against Different Salinity
	

Testing Conditions: Temperature at 25℃; Pressure at 60psi; pH at 7.

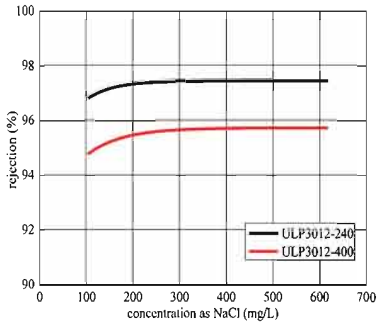
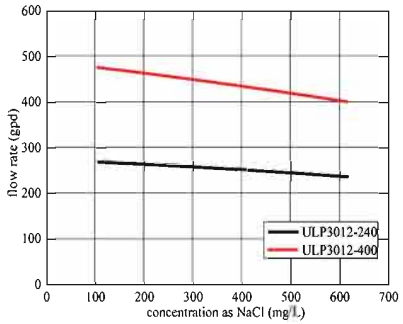
2、Performance Curves of 3012 Series

Rejection against Temperature	Permeate against Temperature
	

Testing Conditions: Pressure at 100psi; Concentration at 500mg/L NaCl; pH at 7; recovery rate at 15%

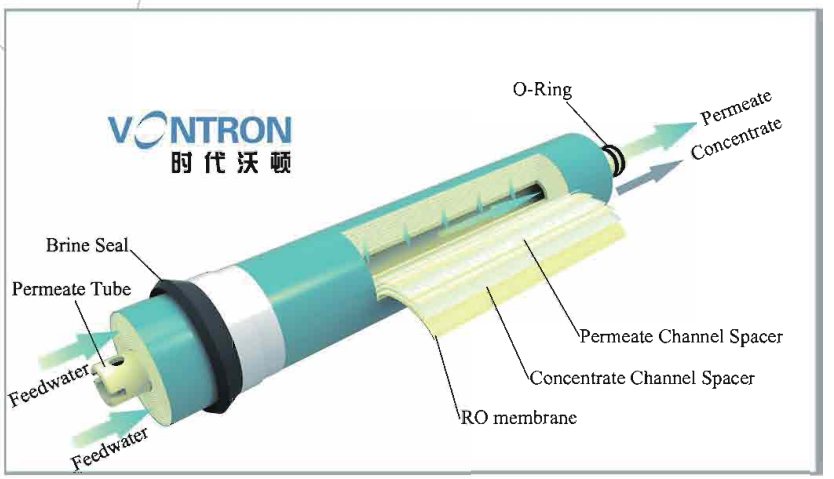
Rejection against Pressure	Permeate against Pressure
	

Testing Conditions: Temperature at 25 C; Concentration at 500mg/L NaCl; pH at 7; Recovery rate at 15%

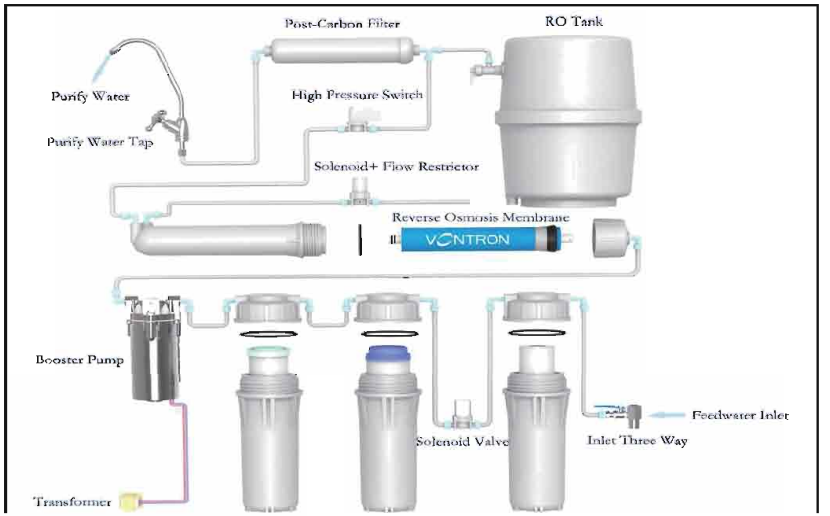
Rejection against Different Salinity	Permeate against Different Salinity
	

Testing Conditions: Temperature at 25 C; Pressure at 100psi; pH at 7; Recovery rate at 15%

F. Diagram of Residential Element



G. Diagram of Drinking Water Purifier



H. Quality Assurance Terms

VONTRON' s RO membrane elements shall be used according to the specifications and procedures set forth by Vontron Technology Co., Ltd. (hereinafter referred to "Vontron"), and only on this condition will Vontron ensure the quality of RO membrane elements manufactured and sold by itself, and offer a one-year period of limited quality guarantee, with the terms specified as follows:

I. Guarantee on Producing Technologies and Materials

Vontron ensures that the RO membrane elements it produces and sells are integral and intact in respect of producing technologies and materials. Vontron' s obligation under this limited warranty covers a period of 12 month from the date received by the buyer, and is limited to the gratis repair or, at Vontron' s discretion, replacement of any element which, when examined by Vontron, appears to be originally defective under this provision of limited warranty.

II. Guarantee on Performance

1、The new membrane products have the initial performance specified in the brochure when operated or tested under the conditions specified in same brochure.

2、Vontron warrants the performance of its membrane elements for a period of one year starting from the date when the RO system is put into operation or 6 months after the goods is shipped (whichever occurs first). During this one-year warranty period, Vontron warrants as follows:

2.1 Performance within the one-year warranty period:

2.1.1 The average salt permeability doesn' t exceed 2 times of the value specified in the sample book of products when the membrane elements are used or measured on the testing condition specified in the General Technical Specifications of Vontron.

2.1.2 The average permeate flow is not less than 70% of the initial permeate flow when the membrane elements are used or measured on the testing condition specified in the sample book of products provided by Vontron.

2.2 Initial Performance:

Vontron guarantees the initial minimum permeate flow and rejection rate as specified in the technical specifications. These parameters can be achieved under standard testing conditions set forth by Vontron. If these membrane elements fail to reach the minimum initial values as specified, Vontron will, after confirming the performance failure, repair the membrane elements or refund to customer the expenses for purchasing those defective membrane elements, in which case Vontron itself will bear the freight charges.

3、In case the buyer fails to satisfy any of the following requirements, Vontron will bear no liability for performing the three-year quality warranty mentioned above:

3.1 Feedwater turbidity shall not exceed 1.0NTU; SDI15 shall not exceed 5; feedwater temperature shall not be higher than 45℃ .

3.2 Feedwater shall not contain any colloidal sulphur so as to prevent the membrane surface from containing any colloidal substances, microbes or other precipitants.

3.3 Feedwater shall not contain any harmful substance that may cause physical and chemical damage to the membrane element. The membrane shall be prevented from any damage caused by such harmful substances as surfactant, organic solvent, grease, polymer, etc.

3.4 Before being installed or put into operation, the membrane element shall be stored in original packing box and preserved at the temperature not higher than 45 ℃ for dry-type membranes and at the temperature within 0~45 ℃ for wet-type membranes.

3.5 The pH value of feedwater shall be within the range of 3~10 during regular running. When the system is cleaned, the pH value of feedwater shall be within 2~12.

3.6 The feedwater shall not contain such oxidizing substances as chlorine, potassium permanganate and hypochlorous acid radical, etc. (Notes: This article is not applicable to HOR series which shall work with the feedwater suitable for it).

3.7 The maximum operating pressure for membrane element is as follows (except otherwise specified in the product instructions):

Membrane Series	Max Operating Pressure
ULP Series	300 psi
HOR Series	300 psi
VNF Series	300 psi

3.8 In no case should the backpressure exerted on the membrane element be greater than 5 psi.

3.9 Points for Attention during the Use of RO Elements:

① For recommended running conditions, please 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 2)All membrane elements have been strictly tested before leaving the factory. The wet-type elements have been treated with the preservative solution made of RO-filtered water and 1.0% sodium hydrogen sulfite (an antifreeze solution of 10% propanediol is required in winter) for storage purpose, then sealed with plastic bag in vacuum (or in non-vacuum bag for dry-type element), 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).

③ 3)The RO-filtered water produced in the first hour of running shall be discarded.

④ 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.

I. Qualifications and Certifications

1. Certification of ISO9001

VONTRON was certified to ISO9001 Quality System on November 15, 2003, and passed the reexamination of certifying organization separately on March 2007, March 2010 and February 2013.

质量管理体系认证证书

证书编号：00113Q22016R3M/5200

兹证明

贵阳时代沃顿科技有限公司

中国贵州省贵阳市高新区南方汇通科技工业园办公大楼二楼206号

建立的质量管理体系符合标准：

ISO9001:2008

GB/T 19001-2008

通过认证范围如下：

反渗透制品的设计、开发、生产

首次发证日期：2007年3月15日　本次发证日期：2013年2月22日　有效期至：2016年2月21日

Signed by: Wang Kejiao

中国质量认证中心

中国·北京·南四环西路188号9区　100070

http://www.cqc.com.cn

Q 0134410

2. NSF/ANSI 58 认证

VONTRON' s residential element was Certified to NSF/ANSI 58 in August 2006.

NSF International

RECOGNIZES

VONTRON MEMBRANE TECHNOLOGY CO., LTD.

CHINA

AS COMPLYING WITH NSF/ANSI 58.
PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE
AUTHORIZED TO BEAR THE NSF MARK.

NSF

ANSI Certification Program Accredited by the American National Standards Institute

Certification Program Accredited by the Standards Council of Canada

This certificate is the property of NSF International and must be returned upon request. For the most current and complete information, please access NSF's website (www.nsf.org).

August 18, 2006
Certificate# 3D180 - 03

Thomas J. Bruursema, General Manager
Drinking Water Treatment Units

3. Health Approval

1) VONTRON's RO products obtained the Health Approval issued by the Department of Health of Guizhou Province in August 2012.

贵州省涉及饮用水卫生安全产品卫生许可批件

产品名称	时代沃顿牌卷式反渗透膜元件
产品类别	水质处理材料（吸附、过滤组件）
产品规格或型号	时代沃顿牌卷式反渗透膜元件：ULP1812-50、ULP1812-75、ULP2012-100、ULP21-8040、ULP22-8040、ULP32-8040、ULP11-4040、ULP21-4040、ULP31-4040、ULP11-4021、ULP21-4021、ULP31-4021、ULP2812-200、ULP-3012、ULP-3020、LP21-8040、LP22-8040、LP21-4040、FR11-8040、FR11-4040、SW22-8040、SW11-4040、SW21-4040、SW11-1206、SW11-4021、HOR21-8040、XLP11-4040
产品技术信息	【产品说明】 根据使用条件，用途不同，卷式反渗透膜元件可分以下系列： 1、极低压复合反渗透膜元件 XLP(Extra Low Pressure)系列 2、超低压复合反渗透膜元件 ULP(Ultra Low Pressure)系列 3、低压复合反渗透膜元件 LP(Low Pressure)系列 4、海水淡化复合反渗透膜元件 SW(Sea Water)系列 5、抗污染复合反渗透膜元件 FR(Fouling Resistant)系列 6、抗氧化复合反渗透膜元件 HOR系列 【主体材料与配方】 卷式反渗透膜元件由聚酰胺复合反渗透膜片，淡水网，浓水网，产水收集管螺旋卷绕而成的膜元件。 【性能指标】 下列不同规格型号的反渗透膜元件，参照相应产品使用说明书。 1、家用反渗透膜元件； 2、XLP 超低压系列反渗透膜（工业反渗透膜元件）； 3、ULP 超低压系列反渗透膜（工业反渗透膜元件）； 4、LP 低压系列反渗透膜（工业反渗透膜元件）； 5、SW 系列海水淡化反渗透膜（工业反渗透膜元件）； 6、HOR 抗氧化反渗透膜元件（工业反渗透膜元件）； 7、FR 系列低污染反渗透膜（工业反渗透膜元件）。 【产品运输和贮存】 1、运输过程中应固定平靠，运输、装卸过程中避免碰撞、跌落，防雨防潮，不得重压，不得与有毒有害物品混运。 2、在运输过程中，湿式膜元件的环境温度应为 4℃～45℃；干式膜元件的环境温度应不高于 45℃。 3、膜元件贮存温度应为：湿式膜元件 4℃～45℃；干式膜元件不高于 45℃； 4、湿式膜元件贮存时应加入保护液； 5、膜元件应隔绝离地堆放在室内，堆放场地应清洁，干燥，无尘饭，污染，远离冷，热源，避光。

申请单位	贵阳时代沃顿科技有限公司
申请单位地址	贵阳市高新区南方汇通科技工业园办公大楼二楼 206 号
实际生产企业	贵阳时代沃顿科技有限公司
实际生产企业地址	贵阳市高新区南方汇通科技工业园
审批结论	经审核，该产品符合《涉及饮用水卫生安全产品生产企业卫生规范》的有关规定，现予批准。
批准文号	黔卫水字（2012）第 0014 号
批准日期	2012 年 08 月 09 日
批件有效期	截至 2016 年 08 月 08 日
备注	1. 本批件只对与所载明内容（包括名称、类别、规格、申请单位、企业、附件内容等）一致的产品有效，且必须在本批件注明的实际生产企业生产。 2. 批准时仅对其所申报材料对应产品的卫生安全性进行了审核，未对其所宣传的功能和其他质量问题进行评价。

请于批件有效期届满前 30 日之前提出延续申请。

2012 年 08 月 09 日

2) VONTRON's nanafiltraion membrane products obtained the Health Approval issued by the Department of Health of Guizhou Province in August 2012.

贵州省涉及饮用水卫生安全产品卫生许可批件

产品名称	时代沃顿牌卷式纳滤膜元件
产品类别	水质处理材料（吸附、过滤组件）
产品规格或型号	时代沃顿牌卷式纳滤膜元件：VNF1-1812、VNF2-1812、VNF1-2012、VNF2-2010、VNF1-3012、VNF2-3012、VNF1-2540、VNF2-2540、VNF1-4040、VNF2-4040、VNF1-8040、VNF2-8040
产品技术信息	【产品说明】 纳滤膜元件主要用于饮用水和工业用水的纯化、废水净化处理、工艺液体中有价值成分的浓缩等方面，截留分子量界限为 200~1000，分子大小约为 1nm 的溶解组分的分离。 【主体材料与配方】 卷式纳滤膜元件由聚哌嗪复合纳滤膜片、浓水网、淡水网、产水收集管螺旋卷绕而成的膜元件。 【性能指标】 家用纳滤膜元件及工业纳滤膜元件，参照相应产品使用说明书。 1、家用纳滤膜元件； 2、工业纳滤膜元件。 【产品运输和贮存】 1、 运输过程中应固定牢靠，运输、装卸过程中避免碰撞、跌落，防雨防潮，不得重压，不得与有毒有害物品混运。 2、 在运输过程中，湿式膜元件的环境温度应为 4℃－45℃；干式膜元件的环境温度应不高于 45℃。 3、膜元件贮存温度应为：湿式膜元件 4℃－45℃；干式膜元件不高于 45℃； 4、湿式膜元件贮存时应加入保护液； 5、膜元件应隔墙离地堆放在室内，堆放场地应清洁、平整、无腐蚀、污染，远离冷、热源，避光。

申请单位	贵阳时代沃顿科技有限公司
申请单位地址	贵阳市高新区南方汇通科技工业园办公大楼二楼 206 号
实际生产企业	贵阳时代沃顿科技有限公司
实际生产企业地址	贵阳市高新区南方汇通科技工业园
审批结论	经审核，该产品符合《涉及饮用水卫生安全产品生产企业卫生规范》的有关规定，现予批准。
批准文号	黔卫水字（2012）第 0015 号
批准日期	2012 年 08 月 09 日
批件有效期	截至 2016 年 08 月 08 日
备注	1. 本批件只对与所载明内容（包括名称、类别、规格、申请单位、企业、附件内容等）一致的产品有效，且必须在本批件注明的实际生产企业生产。 2. 批准时仅对其所申报材料对应产品的卫生安全性进行了审核，未对其所宣传的功能和其他质量问题进行评价。

请于批件有效期届满前 30 日之前提出延续申请。

2012 年 08 月 09 日

3) VONTRON's second series of RO membrane products obtained the Health Approval issued by the Department of Health of Guizhou Province in December 2012.

贵州省涉及饮用水卫生安全产品卫生许可批件

产品名称	时代沃顿牌卷式反渗透膜元件
产品类别	水质处理材料（吸附、过滤组件）
产品规格或型号	时代沃顿牌卷式反渗透膜元件 ULP1810、ULP1810-50、ULP1812-60、ULP1812--80、ULP2010-100、ULP2012-150、LPS-8040、ULP21-2540、ULP21-2521、PURO-T。
产品技术信息	【产品说明】 1、超低压复合反渗透膜元件 ULP(Ultra Low Pressure)系列； 2、低压复合反渗透膜元件 LP(Low Pressure)系列。 【主体材料与配方】 卷式反渗透膜元件由聚酰胺复合反渗透膜片、浓水网、淡水网、产水收集管螺旋卷绕而成的膜元件。 【性能指标】 下列不同规格型号的反渗透膜元件，参照相应产品使用说明书。 1、家用反渗透膜元件； 2、ULP 超低压系列反渗透膜（工业反渗透膜元件）； 3、LP 低压系列反渗透膜（工业反渗透膜元件）。 【产品运输和贮存】 1、运输过程中应固定牢靠，运输、装卸过程中避免碰撞、跌落，防雨防潮，不得重压，不得与有毒有害物品混运。 2、在运输过程中，湿式膜元件的环境温度应为 4℃～45℃；干式膜元件的环境温度应不高于 45℃。 3、膜元件贮存温度应为：湿式膜元件 4℃～45℃；干式膜元件不高于 45℃； 4、湿式膜元件贮存时应加入保护液； 5、膜元件应隔墙离地堆放在室内，堆放场地应清洁、平整，无腐蚀、污染，远离冷、热源，避光。

申请单位	贵阳时代沃顿科技有限公司
申请单位地址	贵阳市高新区南方汇通科技工业园办公大楼二楼 206 号
实际生产企业	贵阳时代沃顿科技有限公司
实际生产企业地址	贵阳市高新区南方汇通科技工业园
审批结论	经审核，该产品符合《涉及饮用水卫生安全产品生产企业卫生规范》的有关规定，现予批准。
批准文号	黔卫水字（2012）第 0024 号
批准日期	2012 年 12 月 31 日
批件有效期	截至 2016 年 12 月 30 日
备注	1. 本批件只对与所载明内容（包括名称、类别、规格、申请单位、企业、批件内容等）一致的产品有效，且必须在本批件注明的实际生产企业生产。 2. 批准时仅对其所申报材料对应产品的卫生安全性进行了审核，未对其所宣传的功能和其他质量问题进行评价。

请于批件有效期届满前 30 日之前提出延续申请。

2012 年 12 月 31 日

4. WQA Gold Seal Certification

VONTRON was Certified to WQA Gold Seal in November 2011.

Water Quality Association
Gold Seal Certificate

Vontron Membrane Technology Co., Ltd.

South Huiton Hi-Tech Zone,
No.126 Gaoxin Road, Wudang District
Guiyang,Guizhou 550018

Facility:Vontron Technology Co., Ltd.

Certification Date: January 25, 2013

Authorized By:
Thomas P. Palkon
Director of Product Certification

Water Quality Association
4151 Naperville Road
Lisle, IL 60532, USA

This Certificate, or any part thereof, may not be used in a misleading manner and validation of its use is contingent upon the Official WQA web-listing.

Revision: 01/07/2013 FORM.12046

5. NSF/ANSI 61

VONTRON was Certified to NSF/ANSI 61 in January 2015, becoming the sole RO membrane manufacturer in China Certified to both NSF/ANSI 61 and NSF/ANSI 58.

NSF International

789 N. Dixboro Road, Ann Arbor, MI 48105 USA

RECOGNIZES

Vontron Membrane Technology Co., Ltd.

China

AS COMPLYING WITH NSF/ANSI 61 AND ALL APPLICABLE REQUIREMENTS.
PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE
AUTHORIZED TO BEAR THE NSF MARK.

NSF

ANSI Certification Program Accredited by the American National Standards Institute

Certification Program Accredited by the Standards Council of Canada

This certificate is the property of NSF International and must be returned upon request. For the most current and complete information, please access NSF's website (www.nsf.org).

January 5, 2015
Certificate# 1H770 - 02

David Purkiss
General Manager, Water Systems

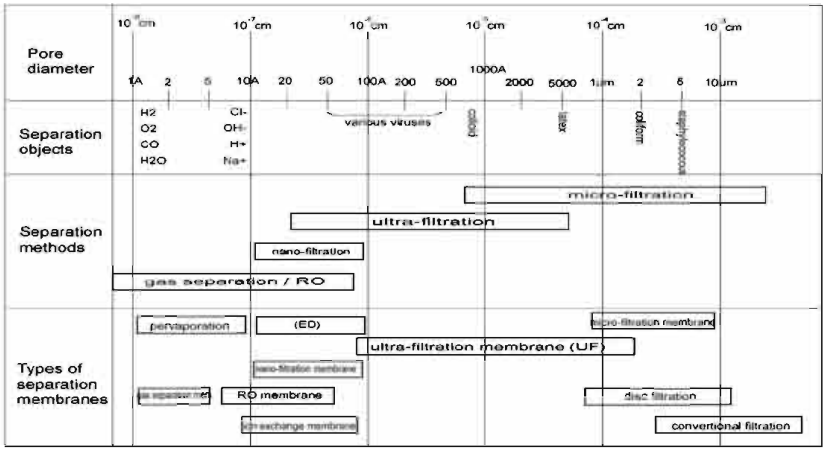
Appendix: Basics of Reverse Osmosis and Nanofiltration

1. Classification of Membrane Separation

With the polymeric membrane as its representative, the technology of membrane separation came into being since 1950s along with the development of polymer chemistry, characterized by such advantages as high separation efficiency, low energy consumption and convenient operation, etc. Significant advancement has been achieved in this field, and membrane separation has become the major means of separation and purification. According to the differences in separation precision and driving force, the membrane separation can be classified into the following kinds:

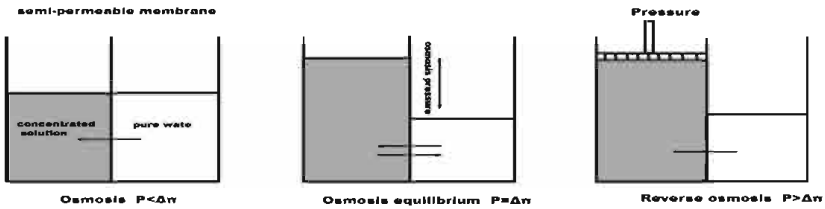
Membrane Types	Membrane Functions	Driving Force for Separation	Permeable Substances	Rejected Substances
Microfiltration membrane	porous membrane for decorpuscle of solution	Pressure difference	Water, solvents and dissolved matters	Suspended matters, bacteria, corpuscles, macromolecular organic matters.
Ultra filtration membrane	Elimination of the colloid and various macro molecules in the solution	Pressure difference	Solvents, ions and micro molecules	Protein, various enzymes, bacteria, virus, colloid, corpuscles
Reverse Osmosis and nano-filtration membrane	Elimination of salts and micro molecules in the solution	Pressure difference	Water or solvents	Inorganic salts, sugars, saccharides, amino acid, organic matters, etc.
Dialysis	Elimination of salts and micro molecules in the solution	Concentration difference	Ion, micro molecules, acid, alkali	Inorganic salts, sugars, saccharides, amino acid, organic matters, etc.
Electrodialysis	Elimination of ions in the solution	Potential difference	Ions	Inorganic and organic ions
Pervaporation membrane	Elimination of micro molecules in the solutions, separation of solvents	Pressure difference and concentration difference	Steam	Liquid, inorganic salts, and ethanol solution
Gas separation	Separation of gases	Concentration difference	Permeable gases	Impermeable gases

The above table shows various kinds of separating membranes classified by the principle of separation and the sizes of separated substances. It can be seen from this table that almost all the separating technologies are applicable to all fields of separation, purification, and concentration. Reverse osmosis and nano–filtration membranes, as one of the major membranes for separating water and other liquids, holds an important position in the field of separating membranes.



2. Reverse Osmosis

In the course of natural osmosis, the solvent always penetrates from the lower–concentration area to the higher–concentration area, while reverse osmosis refers to the diffusion of solvent, which is originally in the high–concentration solution, into the thin solution through the membrane which is hence named as the reverse osmosis (RO) membrane because of having this kind of penetration properties.



RO membrane can reach an above 98% rate for rejection of inorganic salts and organic matters with molecule weight of above 100. The best RO membrane presently available can reach the salt rejection rate of up to 99.9%.

3. Nanofiltration

Nanofiltration element is mainly used for purification of drinking water and industrial-purpose water, treatment of wastewater and concentration of valuable ingredients in industrial fluids. It can detain those substances with molecular weight between 200~1000 and separate those substances with molecular dimension of 1nm from the solution.

It can remove from water various organics, microbes, viruses and most metallic ions with two or higher valence while retaining part of the sodium, potassium, calcium and magnesium ions, etc., thus improving the mouthfeel of purified water and maintaining the content of mineral nutrition.


ULP11-2514
ULP1812-50
ULP1812-50