



# Reverse Osmosis Elements

Product Manual



# Catalogue

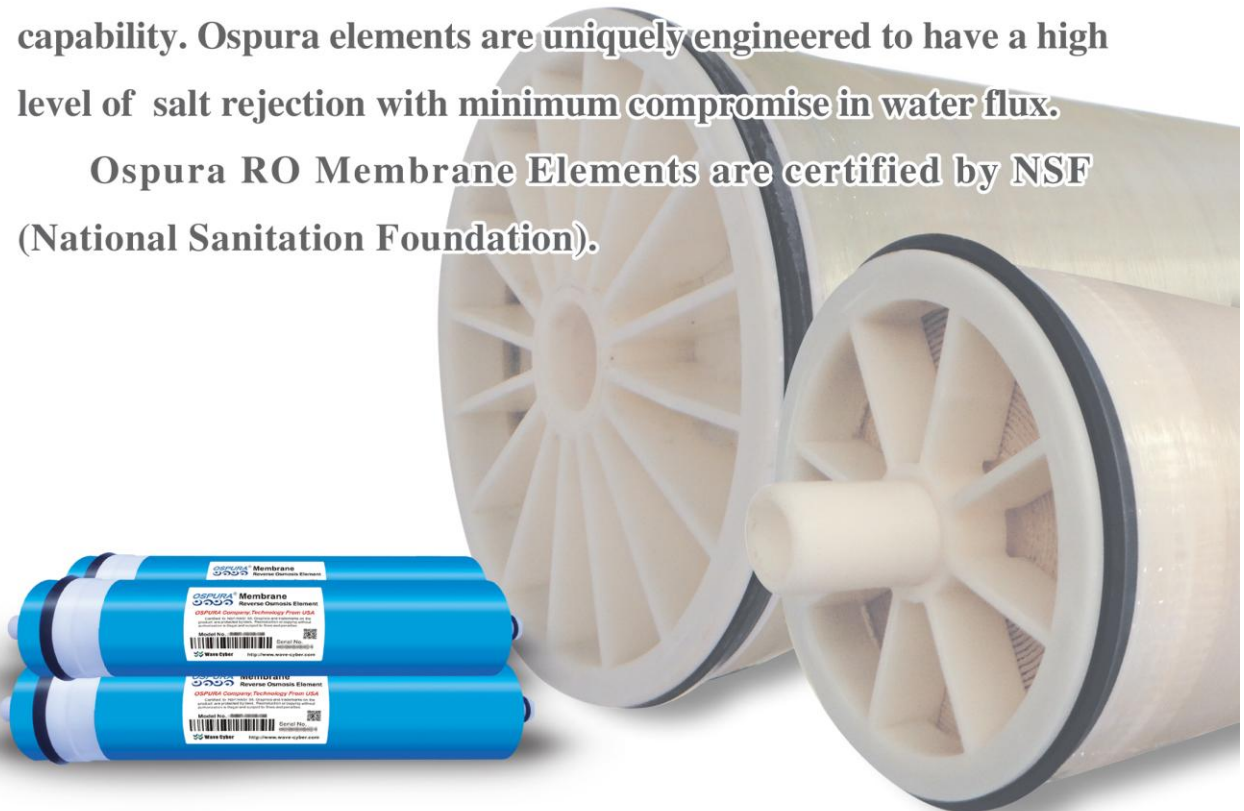
Catalogue .....	1
<b>I. Introduction</b>	
Introduction of Ospura .....	2
Important Operation Notes .....	3
<b>II. Introduction of Ospura RO Membrane Elements</b>	
8" Spiral Wound Elements for Sea Water .....	4
8" Spiral Wound Elements for Brackish Water .....	6
8" Fouling Resistant Spiral Wound Elements .....	8
4" Spiral Wound Elements for Sea Water .....	10
4" Spiral Wound Elements for Brackish Water I .....	12
4" Spiral Wound Elements for Brackish Water II .....	14
4" Fouling Resistant Spiral Wound Elements .....	16
2.5" Spiral Wound Elements for Sea Water I .....	18
2.5" Spiral Wound Elements for Sea Water II .....	20
2.5" Spiral Wound Elements for Brackish Water I .....	22
2.5" Spiral Wound Elements for Brackish Water II .....	24
Ospura Residential RO Membrane Elements I .....	26
Ospura Residential RO Membrane Elements II .....	28
NSF International .....	30

## Shantou Ospura Co., Ltd.

Shantou Ospura Co., Ltd, a majority-owned subsidiary of Wave Cyber (Shanghai), is a company specialized in producing reverse osmosis (RO) membranes for treatment units of home drinking water, brackish water and sea water. Advanced membrane technology, state of the art web handling production line, coupled with well-controlled element rolling, allows Ospura to produce RO Membrane Elements with stable performance.

Ospura has a professional team focused on research and development, with its own intellectual property rights and R & D capability. Ospura elements are uniquely engineered to have a high level of salt rejection with minimum compromise in water flux.

Ospura RO Membrane Elements are certified by NSF (National Sanitation Foundation).



## **General Description for all Industrial Spiral wound elements:**

Ospura reverse osmosis (RO) Industrial elements are some of the finest products in the industry. The state of the art coating line, coupled with advanced membrane technology, yields product of the highest quality and most stable performance. Ospura elements are uniquely engineered to have a high level of salt rejection with minimum compromise in water flux.

Membrane material: Polyamide thin film composite  
Spirally wound element  
Epoxy-based FRP overwrap (unless specified otherwise)

### **Important Operation Notes**

- It is critical to follow approved start-up procedure to prevent membrane damage due to overfeeding or hydraulic shock. Before initiating system, loading of the RO elements, instrument calibration, membrane pretreatment and other system checks should be conducted.
- Minimize any pressure shock or cross-flow fluctuation on the spiral elements at all times. During start-up, a gradual, incremental change from a standstill to operating state is recommended.
- Maximum pressure drop across an entire pressure vessel (housing) is 50 psi (3.4 bar).
- No static pressure should ever be built up on permeate side.
- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines are not followed, the Limited Warranty will be void.
- In case of prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution to prevent bacteria growth.
- Permeate collected from first hour of operation should be discarded.
- It is customer's responsibility to make sure that the chemicals and lubricants do not have detrimental effects on RO elements.

## 8" Spiral Wound Elements for Sea Water

**Description:**

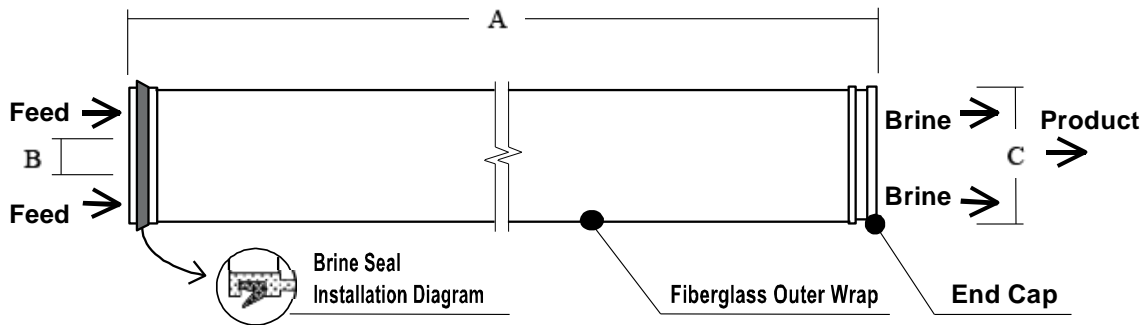
High Rejection, High Productivity:  
High pressure application for sea water treatment

**Specifications:**

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
SW-8040-400	7500 (28)	400(37)	99.7%	28(0.7)	800psi/32800ppm NaCl
SW-8040-HF	9200 (35)	400(37)	99.7%	28(0.7)	800psi/32800ppm NaCl

- All performance data are collected at 25°C (77°F), pH7.5 and 8% recovery rate.
- Permeate flows for single element may vary ±15%.

**Element Dimension:**



Product	Dimensions – Inches (mm)		
	A	B	C
SW-8040-400	40.0 (1016)	1.125 (29)	7.9 (201)
SW-8040-HF	40.0 (1016)	1.125 (29)	7.9 (201)

\* 1 inch= 25.4 mm

**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	1200psi(83bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 8" Spiral Wound Elements for Brackish Water

### Description:

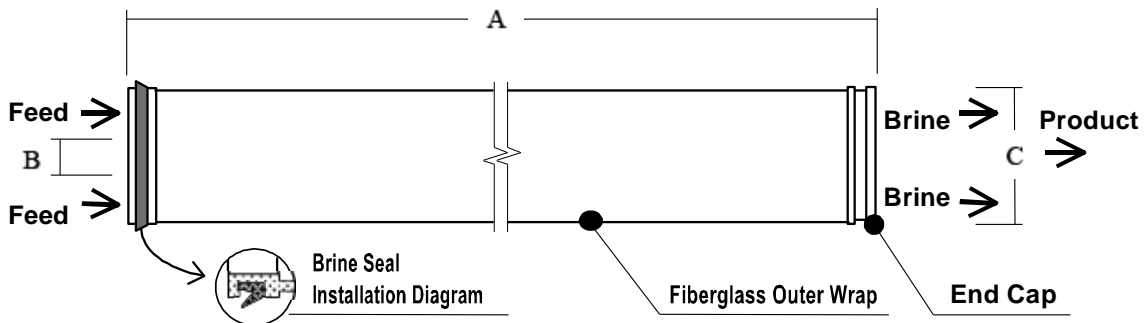
Low Pressure, High Productivity:  
 Low or ultra low pressure application for brackish water treatment

### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
BW-8040-400	11095(42)	400(37)	99.5%	28(0.7)	225psi/2000ppm NaCl
BW-8040-HT	10570(40)	400(37)	99.5%	28(0.7)	225psi/2000ppm NaCl
ULP-8040-400	11095(42)	400(37)	99.0%	28(0.7)	150psi/2000ppm NaCl
ULP-8040-440	12300(46.6)	440(41)	99.0%	28(0.7)	150psi/2000ppm NaCl
XULP-8040-400	10570(40)	400(37)	99.0%	28(0.7)	100psi/500ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.
3. HT version was designed for high TDS feed water up to 10,000 ppm

### Element Dimension:



Product	Dimensions – Inches (mm)		
	A	B	C
BW-8040-400	40.0 (1016)	1.125 (29)	7.9 (201)
BW-8040-HT	40.0 (1016)	1.125 (29)	7.9 (201)
ULP-8040-400	40.0 (1016)	1.125 (29)	7.9 (201)
ULP-8040-440	40.0 (1016)	1.125 (29)	7.9 (201)
XULP-8040-400	40.0 (1016)	1.125 (29)	7.9 (201)

\* 1 inch= 25.4 mm

**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5





## 8" Fouling Resistant Spiral Wound Elements

### Description:

Low Pressure, High Productivity:

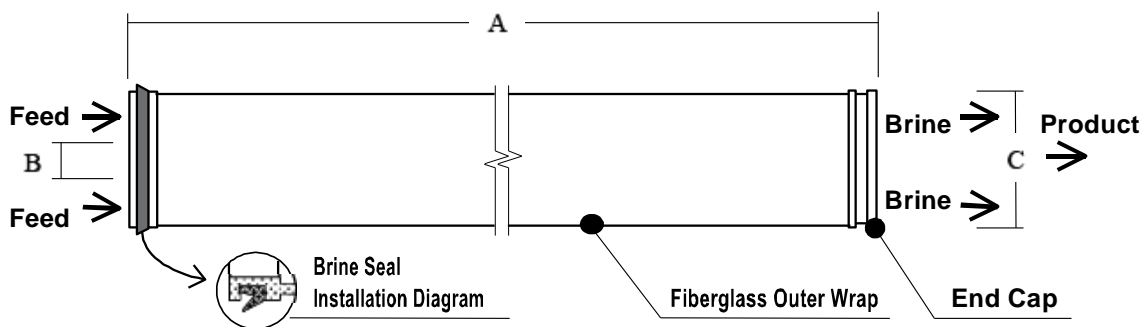
The FR type membrane surface is more hydrophilic due to the special treatment. It is specially designed for water treatment against biological and organic fouling. With built-in FR properties, this model of elements allows for effective cleaning, renewing active membrane surface thus extending the service life in the tough water conditions.

### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
FR-8040-400	10500(40)	400(37)	99.5%	28(0.7)	225psi/2000ppm NaCl
FR-8040-370(34)	9700(37)	370(34)	99.5%	34(0.85)	225psi/2000ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:



Product	Dimensions – Inches (mm)		
	A	B	C
FR-8040-400	40.0 (1016)	1.125 (29)	7.9 (201)
FR-8040-370	40.0 (1016)	1.125 (29)	7.9 (201)

\* 1 inch= 25.4 mm

**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 4" Spiral Wound Elements for Sea Water

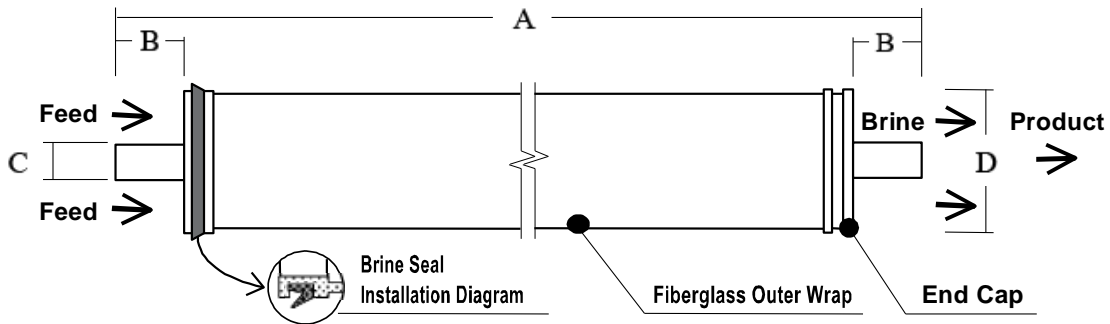
**Description:** High Rejection, High Productivity:  
High pressure application for sea water treatment

**Specifications:**

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
SW- 4040	1900 (7.2)	90(8.4)	99.7%	28(0.7)	800psi/32800ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 8% recovery rate.
2. Permeate flows for single element may vary ±15%.

**Element Dimension:**



Product	Dimensions – Inches (mm)			
	A	B	C	D
SW- 4040	40.0 (1016)	1.05 (26.7)	0.75 (19)	3.9 (99)

\* 1 inch= 25.4 mm

**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	1200psi(83bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 4" Spiral Wound Elements for Brackish Water I

**Description:**

Low Pressure, High Productivity:  
 Low or ultra low pressure application for brackish water treatment

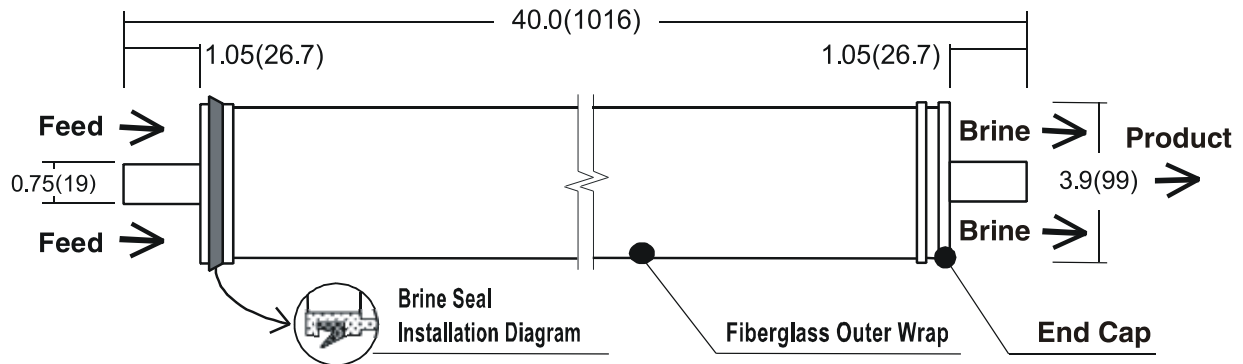
**Specifications:**

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
BW- 4040	2400(9.1)	90(8.4)	99.5%	28(0.7)	225psi/2000ppm NaCl
BW- 4040-HT	2160(8.2)	90(8.4)	99.5%	28(0.7)	225psi/2000ppm NaCl
ULP- 4040-HF	2900(11.0)	90(8.4)	98.6%	28(0.7)	150psi/2000ppm NaCl
ULP- 4040	2500(9.5)	90(8.4)	99.0%	28(0.7)	150psi/2000ppm NaCl
ULP-4040-HR	2100(8.0)	90(8.4)	99.3%	28(0.7)	150psi/2000ppm NaCl
XULP -4040	2500(9.5)	90(8.4)	99.0%	28(0.7)	100psi/500ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.
3. HT version was designed for high TDS feed water up to 10,000ppm

**Element Dimension:**

\* Unit: Inch (mm)  
 1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 4" Spiral Wound Elements for Brackish Water II

### Description:

Low Pressure, High Productivity:  
 Low or ultra low pressure application for brackish water treatment

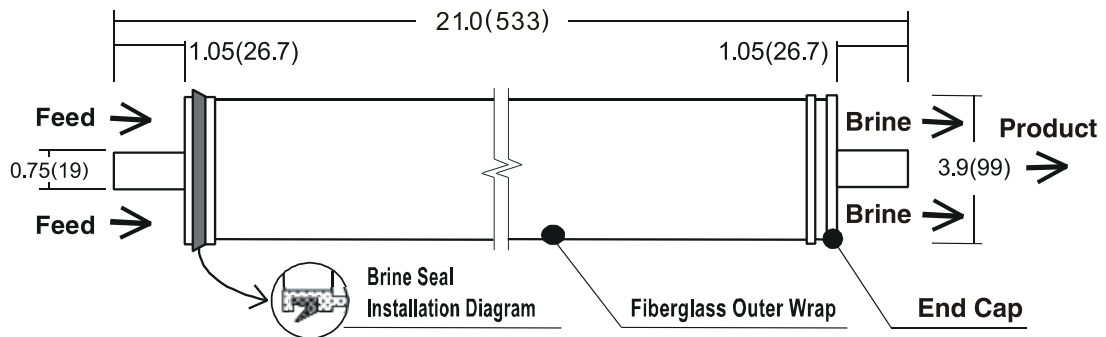
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
<b>BW- 4021</b>	900(3.4)	36(3.3)	99.5%	28(0.7)	225psi/2000ppm NaCl
<b>ULP- 4021</b>	1050(4.0)	36(3.3)	99%	28(0.7)	150psi/2000ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
 1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5





## 4" Fouling Resistant Spiral Wound Elements

### Description:

Low Pressure, High Productivity:

The FR type membrane surface is more hydrophilic due to the special treatment. It is specially designed for water treatment against biological and organic fouling. With build-in FR properties, this model of elements allows for effective cleaning, renewing active membrane surface thus extending the service life in the tough water conditions.

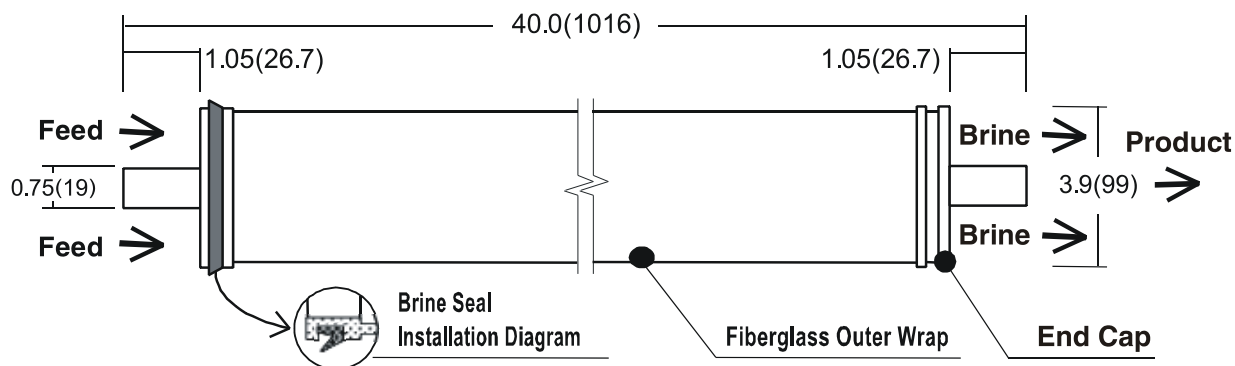
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
FR- 4040	2400(9.1)	90(8.4)	99.5%	34(0.85)	225psi/2000ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 8% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 2.5" Spiral Wound Elements for Sea Water I

### Description:

High Rejection, High Productivity:  
High pressure application for sea water treatment

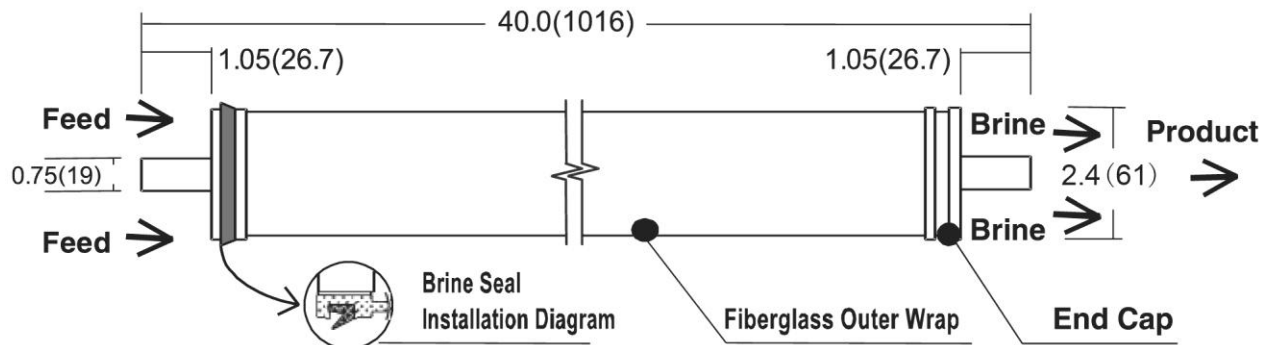
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
SW- 2540	700 (2.6)	27(2.5)	99.4%	28(0.7)	800psi/32800ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 8% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	1200psi(83bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 2.5" Spiral Wound Elements for Sea Water II

### Description:

High Rejection, High Productivity:  
High pressure application for sea water treatment

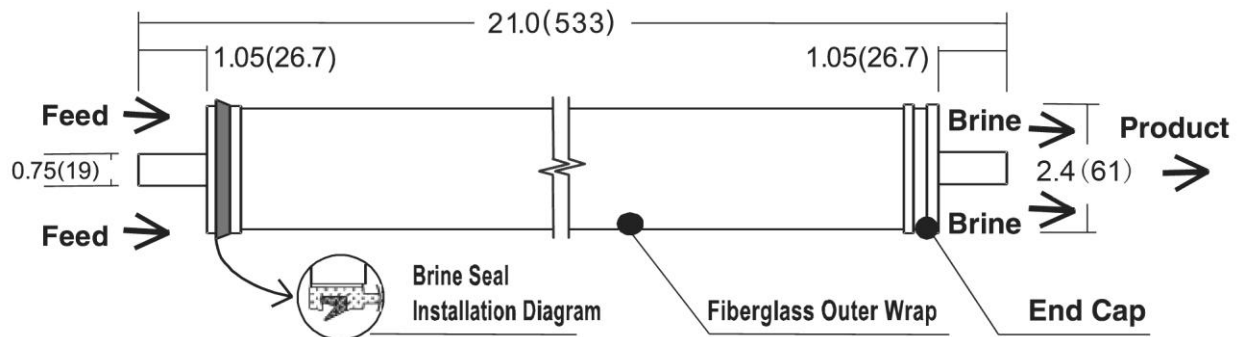
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
SW- 2521	300(1.1)	11(1.0)	99.4%	28(0.7)	800psi/32800ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 8% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	1200psi(83bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## 2.5" Spiral Wound Elements for Brackish Water I

### Description:

Low Pressure, High Productivity:  
Low or ultra low pressure application for brackish water treatment

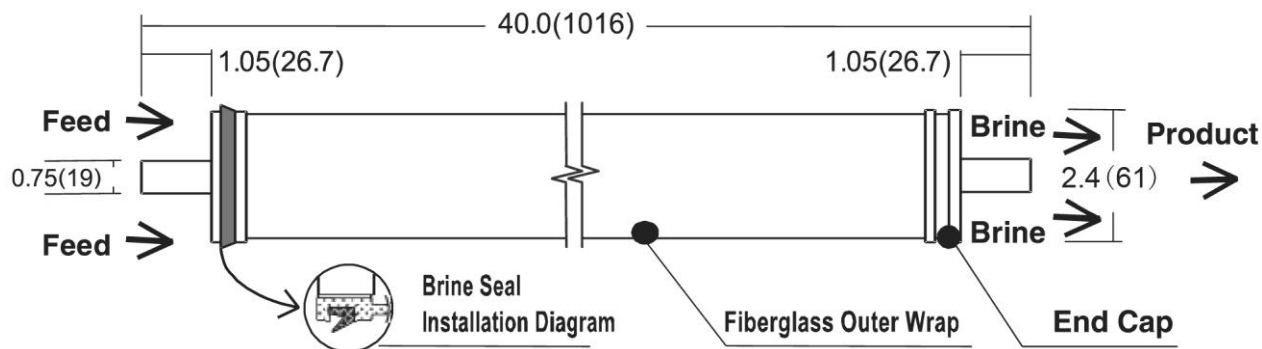
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
<b>BW-2540</b>	850(3.2)	27(2.5)	99.5%	28(0.7)	225psi/2000ppm NaCl
<b>ULP-2540</b>	758(2.9)	27(2.5)	99.0%	28(0.7)	150psi/2000ppm NaCl
<b>XULP-2540</b>	758(2.9)	27(2.5)	99.0%	28(0.7)	100psi/500ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5





## 2.5" Spiral Wound Elements for Brackish Water II

### Description:

Low Pressure, High Productivity:  
Low or ultra low pressure application for brackish water treatment

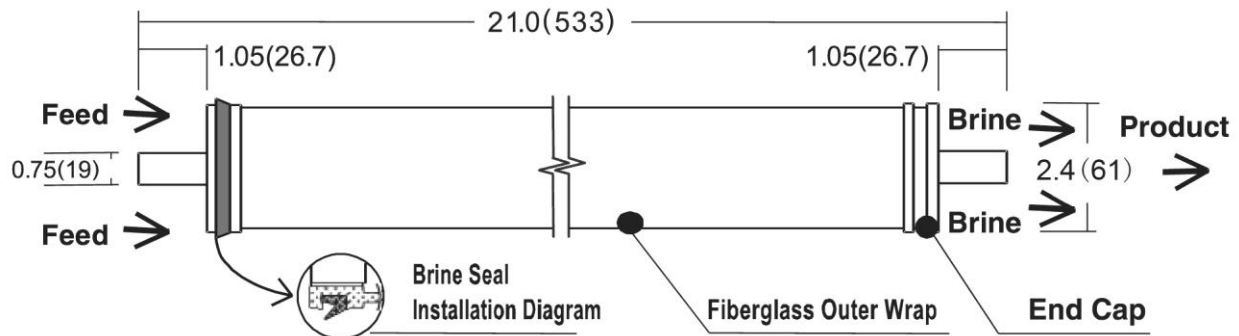
### Specifications:

Model	Permeate Flow GPD(m <sup>3</sup> /day)	Active Membrane Area ft <sup>2</sup> (m <sup>2</sup> )	Stabilized Salt Rejection	Feed spacer mil(mm)	Test Conditions
BW-2521	318(1.2)	11(1)	99.5%	28(0.7)	225psi/2000ppm NaCl
ULP-2521	318(1.2)	11(1)	99.0%	28(0.7)	150psi/2000ppm NaCl
XULP-2521	365(1.4)	11(1)	99.0%	28(0.7)	100psi/500ppm NaCl

1. All performance data are collected at 25°C (77°F), pH7.5 and 15% recovery rate.
2. Permeate flows for single element may vary ±15%.

### Element Dimension:

\* Unit: Inch (mm)  
1 inch= 25.4 mm



**Operating Limits  
for Design:**

Maximum Operating Temperature.....	45°C(113°F)
Maximum Operating Pressure.....	600psi(41bar)
Maximum Pressure Drop (single element).....	15psi(1.0bar)
pH Range for Continuous Operation.....	3-11
pH Range for Cleaning.....	1.5-12
Chlorine tolerance.....	<0.1ppm
Maximum Feed SDI.....	5



## Residential RO Membrane Elements I

### Introduction:

Ospura reverse osmosis (RO) membrane elements for household drinking water are some of the most reliable and consistent products in the industry. Advanced membrane technology, coupled with well-controlled element rolling, allows Ospura to produce RO Membrane Elements with stable performance. Ospura's first class RO Membrane Element quality helps customers develop and maintain brand recognition, along with a reputation for building systems that reliably provide low impurity drinking water. Ospura elements are uniquely engineered for their high level of salt rejection with minimum compromise in water flux. Ospura RO Membrane Elements have been certified by NSF (National Sanitation Foundation).

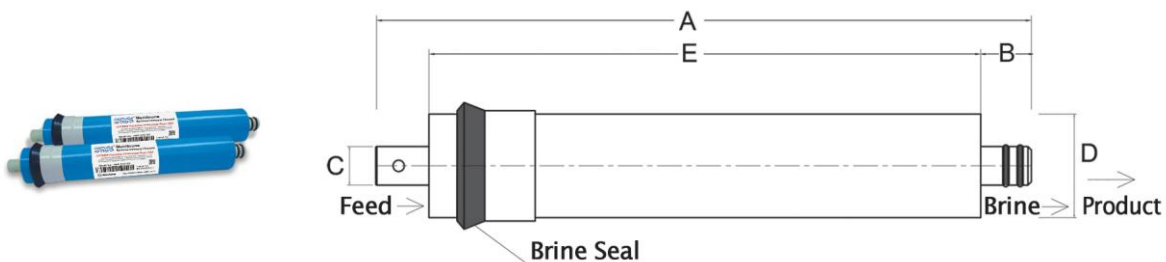
### Specifications:

Specification Item	Specification						
	OSP-1812-24	OSP-1812-36	OSP-1812-50	OSP-1812-75	OSP-1812-100	OSP-1810-36	OSP-1810-50
Water Yield (GPD)	24	36	50	75	100	36	50
Stabilized Salt Rejection (%)	96	96	96	96	96	96	96

\* Test Condition: 25°C, 250PPM NaCl solution, 60PSI and 15% recovery rate

\* Permeate flows for single element may vary ±15%.

### Dimension:



Model No.	Dimension- Inches (mm)				
	A	B	C	D	E
OSP-1812	11.75 (298)	0.87 (22)	0.68 (17)	1.75 (44.5)	10.00 (254)
OSP-1810	10.07 (256)	0.87 (22)	0.68 (17)	1.75 (44.5)	9.05 (230)

\* Home Drinking Water elements seal at a standard 2.0 inch I.D. within pressure vessels

1 inch=25.4 mm

**Operating Limits  
for Design:**

Membrane Type .....	Polyamide Thin-Film Composite
Maximum Operating Temperature .....	113°F /45°C
Maximum Operating Pressure .....	300psi(21bar)
pH range, Continuous Operation .....	2-11
pH range, Short-Term Cleaning (30 min) .....	1-12
Maximum Feed Silt Density Index(SDI) .....	5
Free Chlorine Tolerance .....	<0.1ppm

**Important  
Operation Notes:**

- When this product is used for the first time, permeate water obtained from the first hour of use should be discarded.
- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this Product Information Bulletin are not strictly followed, the Limited Warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution. Rinse out the preservative before use.
- The OEM is fully responsible for the effects of incompatible chemicals and lubricants on elements. Use of any such chemicals or lubricants will void the Limited Warranty.

## Residential RO Membrane Elements II

### Introduction:

Ospura reverse osmosis (RO) membrane elements for household drinking water are some of the most reliable and consistent products in the industry. Advanced membrane technology, coupled with well-controlled element rolling, allows Ospura to produce RO Membrane Elements with stable performance. Ospura's first class RO Membrane Element quality helps customers develop and maintain brand recognition, along with a reputation for building systems that reliably provide low impurity drinking water. Ospura elements are uniquely engineered for their high level of salt rejection with minimum compromise in water flux.

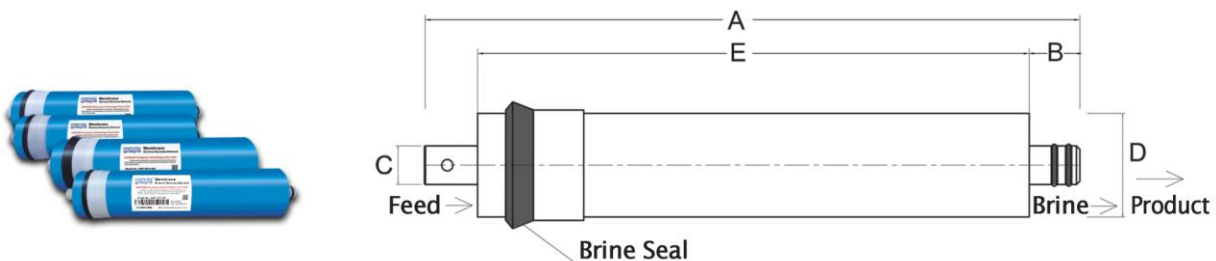
### Specifications:

Specification Item	Specification				
	OSP-2812-200	OSP-2812-300	OSP-2813-400	OSP-3012-400	OSP-3012-500
Water Yield (GPD)	200	300	400	400	500
Stabilized Salt Rejection (%)	96	96	96	96	96

\* Test Condition: 25°C , 500PPM NaCl solution, 100PSI and 15% recovery rate .

\* Permeate flows for single element may vary ±15%.

### Dimension:



Model No.	Dimension- Inches (mm)				
	A	B	C	D	E
OSP-2812-200	11.75 (298)	0.87 (22)	0.68 (17)	2.60 (66)	10.00 (254)
OSP-2812-300	11.75 (298)	0.87 (22)	0.68 (17)	2.70 (68.5)	10.00 (254)
OSP-2813-400	12.99 (330)	0.98 (25)	0.68 (17)	2.70 (68.5)	11.02 (280)
OSP-3012-400	11.75 (298)	0.87 (22)	0.68 (17)	2.89 (73.5)	10.00 (254)
OSP-3012-500	11.75 (298)	0.87 (22)	0.68 (17)	3.05 (77.5)	10.00 (254)

\* Home Drinking Water elements seal at a standard 3.0 inch I.D. within pressure vessels

1 inch=25.4 mm

**Operating Limits  
for Design:**

Membrane Type .....	Polyamide Thin-Film Composite
Maximum Operating Temperature .....	113°F /45°C
Maximum Operating Pressure .....	300psi(21bar)
pH range, Continuous Operation .....	2-11
pH range, Short-Term Cleaning (30 min) .....	1-12
Maximum Feed Silt Density Index(SDI) .....	5
Free Chlorine Tolerance .....	<0.1ppm

**Important  
Operation Notes:**

- When this product is used for the first time, permeate water obtained from the first hour of use should be discarded.
- Keep elements moist at all times after initial wetting.
- If operating limits and guidelines given in this Product Information Bulletin are not strictly followed, the Limited Warranty will be null and void.
- To prevent biological growth during prolonged system shutdowns, it is recommended that membrane elements be immersed in a preservative solution. Rinse out the preservative before use.
- The OEM is fully responsible for the effects of incompatible chemicals and lubricants on elements. Use of any such chemicals or lubricants will void the Limited Warranty.

# NSF International



