

# DELEMIL PRRO-S SERIES

## High Pressure Resistance Reverse Osmosis Membrane

PRRO-S (Pressure Resistance Reverse Osmosis) Series High Resistance Reverse Osmosis Membrane, its chemical properties and structural materials of the membrane are suitable for end-use wastewater treatment applications, such as continuous reducing COD and TDS contents in the secondary-level and tertiary-level wastewater treatment discharge.

PRRO-S membrane elements are designed for relatively high suspended solid contents and it can also be used for high concentration of desalination.



### Membrane Parameters

Product Models	Effective Area GPD (m <sup>2</sup> /d)	Average Rejection Rate %
PRRO-S 01	2250 (8.5)	99.50%
PRRO-S 10	9300 (35.2)	99.50%
PRRO-S 01-AD	2450 (9.3)	99.50%
PRRO-S 10-AD	10000 (37.9)	99.50%

Notes: The average desalination rate is tested after 24 hours operation.

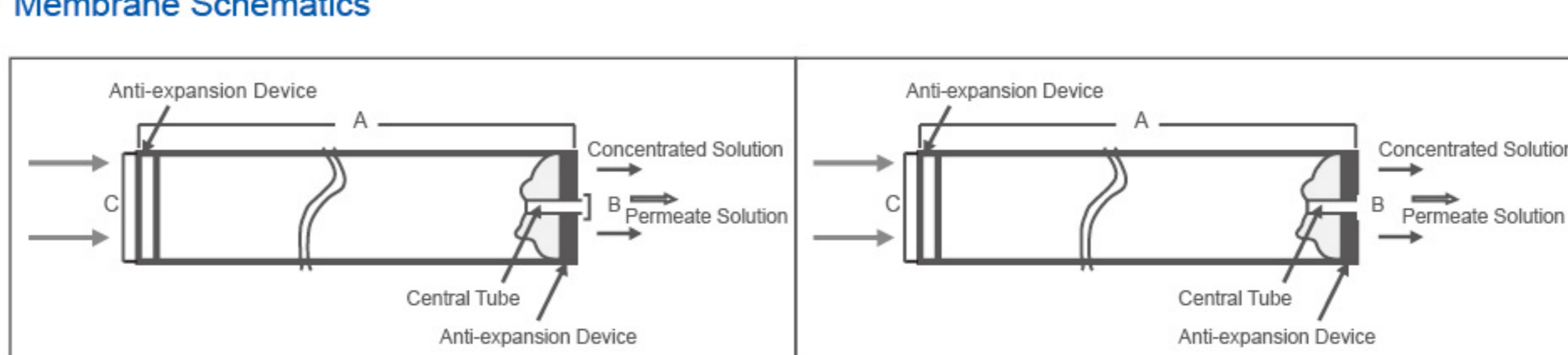
Flow fluctuation range of single membrane could be ±25%.

Test Condition : 2000ppm NaCl solution, 225 psi operating pressure, 25°C temperature , pH=7, 15% recovery rate.

### Parameters of Membrane Operating and Cleaning

Product Models	Max Operating Pressure	Pressure Drop of Single Membrane	Recovery Rate	Max Operating Temperature
PRRO-S Series	1700psi	<12psi	50%	50°C
Max Cleaning Temperature	PH Range of Continuous Working	PH Range of Cleaning	Allowable Max Contents of Residual Chlorine	Inlet Water
50°C	4.0-11.0	2.0-11.5	500ppm-h	NTU <1 SDI < 5

### Membrane Schematics



### Specifications and Parameters

Specifications	Joint	Diameter Inch(cm)			Package Weight (kg)
		A	B	C	
2540	Male Joint	40.00 (101.6)	0.75 (1.9)	2.4 (6.1)	3
4040	Male Joint	40.00 (101.6)	0.75 (1.9)	3.9 (9.9)	4
8040	Flat Joint	40.00 (101.6)	1.125 (2.85)	7.9 (20.1)	16

Special Notes:

- All membrane components are packaged under the dry/ semi-dry condition;
- Each membrane element is equipped with an accessory kit, fitted with a connector and 4 O-rings.

### Storage Conditions

- Before the first use, all membrane elements must be stored under the original packaging conditions.
- The membrane is best placed in the original packaging and opened before the using of water treatment system.
- The transport temperature below 0°C may cause irreversible membrane damage, and the transport temperature above 30°C may cause membrane degradation and deterioration of the protection solution.
- Store in a cool, dry condition and the place where is not directly exposed to sunlight or artificial lighting. Storage temperature stays at 0°C to 30°C , and the longest storage time is 6 months.

### General Information

- Once wetted, the membrane element must always be wet.
- The limited warranty we promised will expire due to the fact that the user does not strictly follow the operational restrictions and guidelines set forth in this Code.
- If the system is in a shut down state for a long time, the membrane element is advised to be placed in the protective solution to prevent the growth of microorganisms.
- It is the user's responsibility if use an incompatible chemical and lubricant, and cause undue influence on the original.
- The maximum allowable pressure drop of single pressure vessel is 60 psi (4.1bar).
- At no time can the backpressure be produced on the side of producing water to avoid the occurrence of harmful problems.

## INSTALLATION METHOD OF MEMBRANES

### Opening Membrane Packages

1. Open the membrane package, and take out membrane elements and parts. Parts are individually packaged in small plastic bags.
2. Prepare the necessary parts according to the following list.

Component Part Names	Required Quantities
Seal Ring of Concentrated Water	One Piece for Every Membrane
O-ring	Four Pieces for Every Membranes
Open-type Product Water Adapter	One Piece for Every Pressure Vessel
Close-type Product Water Adapter	One Piece for Every Pressure Vessel
Product Water Connecting Pipe	Numbers of Membrane Elements- Numbers of Pressure Vessels

3. Attach O-rings to the membrane elements. Lubricate with glycerin during installation and carefully install to prevent scratches on the O-rings. Put the assembled adapter in a clean place before inserting the water pipe (Figure 1).

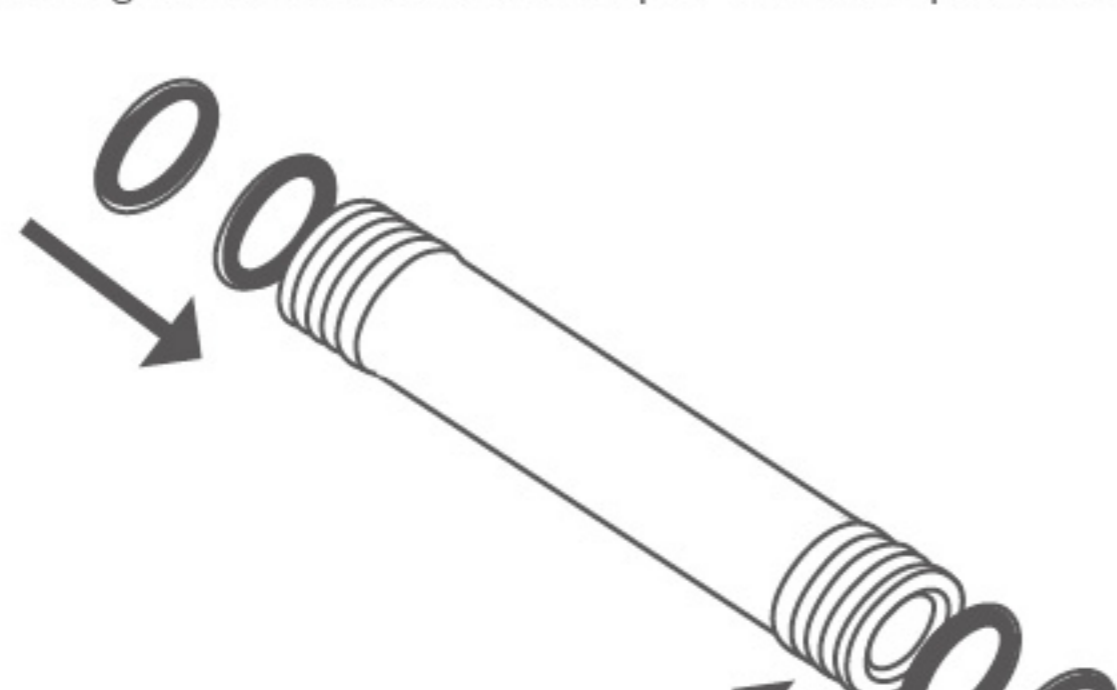


Figure 1

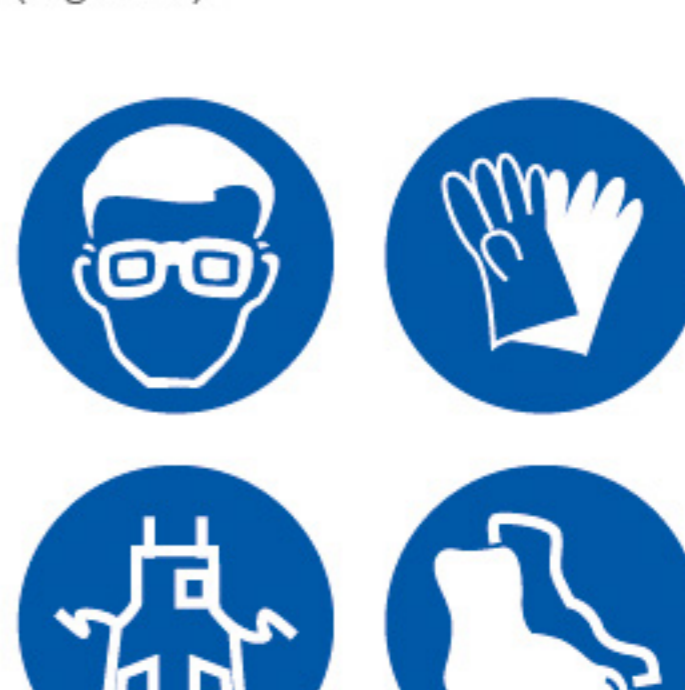


Figure 2

4. Safety instructions before opening the package:

The package of the new membrane contains about 0.5-1.0% sodium bisulfate or a magnesium sulfate solution with oxygen absorbent. This solution has irritating effects on the skin and eyes. Do not eat, and please prepare necessary protective equipment (Figure 2). The membrane housing is made of FRP. Please be careful of glass fiber.

5. Open the membrane package and prepare to fill (Figure 3).

In order to facilitate direction and description, the membrane element has an arrow indicating direction on the housing. This arrow does not indicate the installation direction that must be followed.

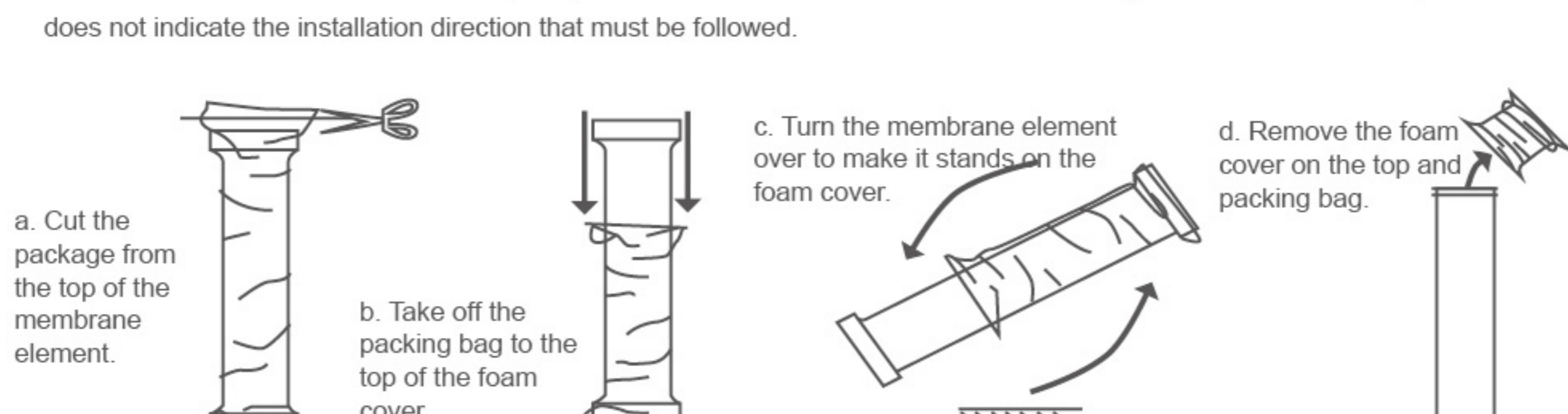


Figure 3

Explanation: the packing bag is made of a material that has a very high oxygen isolation effect, which can extend the storage time of the storage solution. If the packing bag is cut only from one end, it can be stored for use when the membrane needs to be stored and transported.

## INSTALLATION METHOD OF MEMBRANES

### Assembly of membrane elements and components

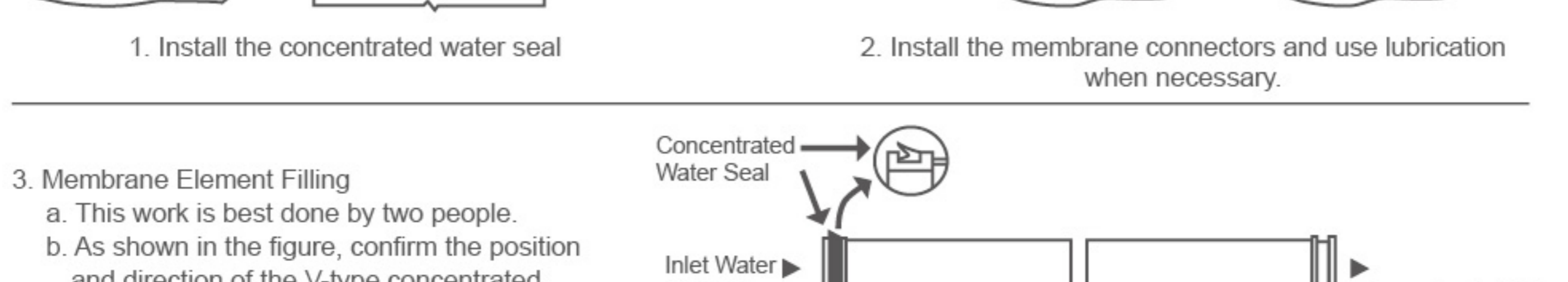
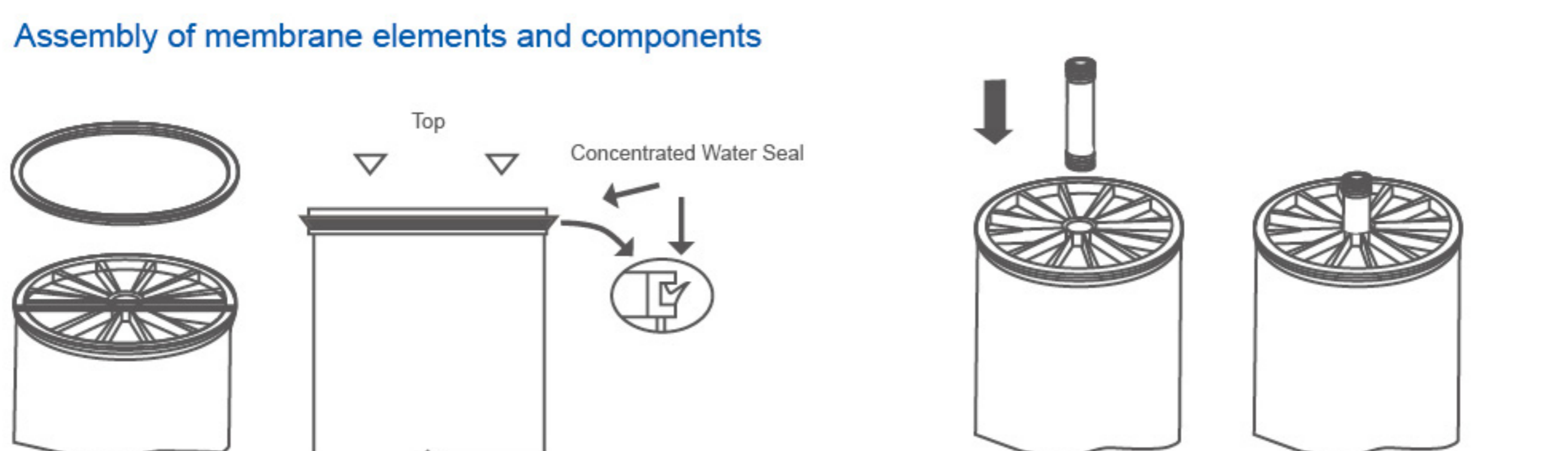


Figure 4

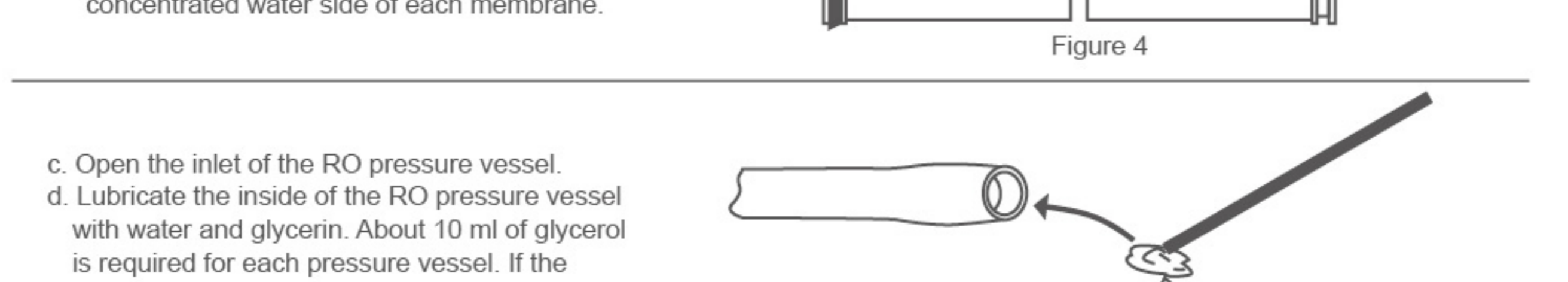


Figure 5



Figure 6

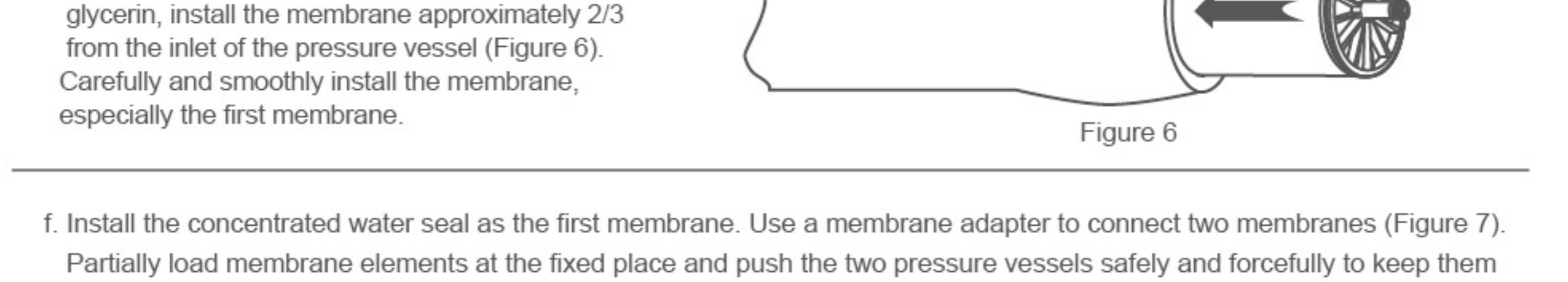


Figure 7

- f. Install the concentrated water seal as the first membrane. Use a membrane adapter to connect two membranes (Figure 7). Partially load membrane elements at the fixed place and push the two pressure vessels safely and forcefully to keep them in a straight line and avoid damages to the membrane adapter or the concentrated water seal.
- g. Repeat the above steps to load the membrane element into the pressure vessel one by one. When the last membrane element is installed, load the product water adapter by the pressure vessel manufacturer and push it into the position to ensure that the first loaded membrane has been connected tightly.

