TORAY
Innovation by Chemistry

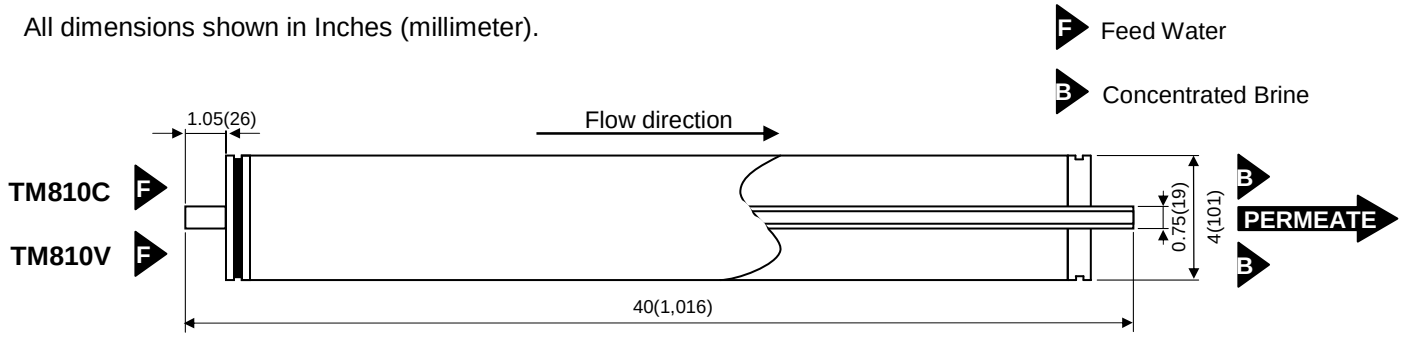
# Sea Water RO Elements
# SWRO(4inch)

| Type | Diameter Inch | Membrane Area $ft^2(m^2)$ | Salt Rejection % | Product Flow Rate gpd($m^3$ / d) | Feed Spacer Thickness mil |
|---|---|---|---|---|---|
| TM810C | 4” | 73(7) | 99.75 | 1,200(4.5) | 31 |
| TM810V | 4” | 87(8) | 99.8 | 1,900(7.2) | 28 |

| | | |
|---|---|---|
| 1. Membrane Type | | Cross Linked Fully Aromatic Polyamide Composite |
| 2. Test Conditions | Feed Water Pressure<br>Feed Water Temperature<br>Feed Water Concentration<br>Recovery Rate<br>Feed Water pH | 800 psi(5.52MPa)<br>77° F(25℃)<br>32,000 mg/l Nacl<br>8%<br>8 |
| 3. Minimum Salt Rejection | | 99.5% |
| 4. Minimum Product Flow Rate | | 1,000gpd(3.8$m^3$/d)(TM810C)<br>1,550gpd(5.9$m^3$/d)(TM810V) |

## Dimensions

All dimensions shown in Inches (millimeter).



## Operating Limits

| | |
|---|---|
| Maximum Operating Pressure | 1200psi (8.3 MPa) |
| Maximum Feed Water Temperature | 113° F (45℃) |
| Maximum Feed Water $SDI_{15}$ | 5 |
| Feed Water Chlorine Concentration | Not detectable |
| Feed Water pH Range, Continuous Operation | 2-11 |
| Feed Water pH Range, Chemical Cleaning | 1-12 |
| Maximum Pressure Drop per Element | 20psi (0.14 MPa) |
| Maximum Pressure Drop per Vessel | 60psi (0.4 MPa) |

## Operating Information

1. For the recommended design range, please consult the latest Toray technical bulletin, design guidelines,computer design program, and/ or call an application specialist. If the operating limits given in this Product Information Bulletin are not strictly followed, the Limited Warranty will be null and void.
2. All elements are wet tested, treated with tested feed water solution, and then vacuum packed in oxygen barrier bags with deoxidant inside. To prevent biological growth during system shutdown, it is recommended to perform 30-60 minutes flushing of Toray elements with seawater once in every two days.
3. The presence of free chlorine and other oxidizing agents under certain conditions, such as heavy metals which acts as oxidation catalyst in the feed water will cause unexpected oxidation of the membrane. It is strongly recommended to remove these oxidizing agents contained in feed water before operating RO system.
4. Permeate from the first hour of operation shall be discarded.
5. The customer is fully responsible for the effects of chemicals that are incompatible with the elements. Their use will void the element Limited Warranty.

## Notice

1. Toray accepts no responsibility for results obtained by the application of this information or the safety or suitability of Toray's products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each product combination for their own purposes.
2. All data may change without prior notice, due to technical modifications or production changes.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