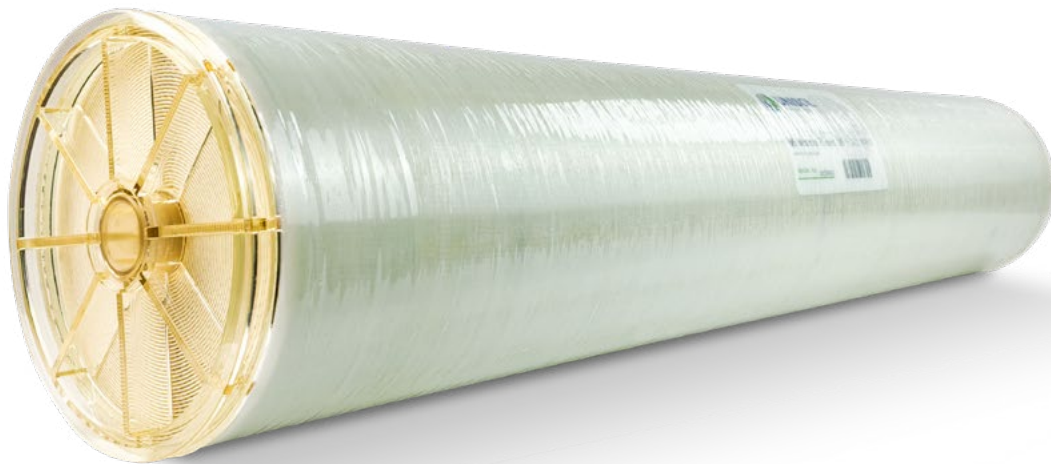


High Temperature Reverse Osmosis Elements

HTRO Spiral Wound Membrane Elements



Reverse osmosis (RO) membrane is a semi-permeable membrane that separates water from a solution by pressure and remove dissolved solids, colloids, bacteria and other substances. It's an efficient and low-energy membrane separation technology, widely used in water treatment, food & beverage, pharmaceutical, electronics and environmental protection with multiple advantages and prospects.

Temperature is one of the important factors affecting the performance of RO membrane, usually it's between 5°C~45°C. When running beyond the temperature range, the membrane performance will be significantly degraded, and accelerates product aging, mechanical strength loss and affects the desalination. In order to ensure the long-term stability of the RO system and extend the life, it is necessary to ensure that the temperature is controlled within the recommended range.

High Temperature Reverse Osmosis (HTRO)

HTRO is a novel membrane separation technology capable of running at high temperatures, it is particularly important under specific industrial and environmental conditions. It can be used in water treatment, chemical, food, pharmaceuticals, heat liquid discharge treatment, and high-purity & high-efficiency ion single crystals production.

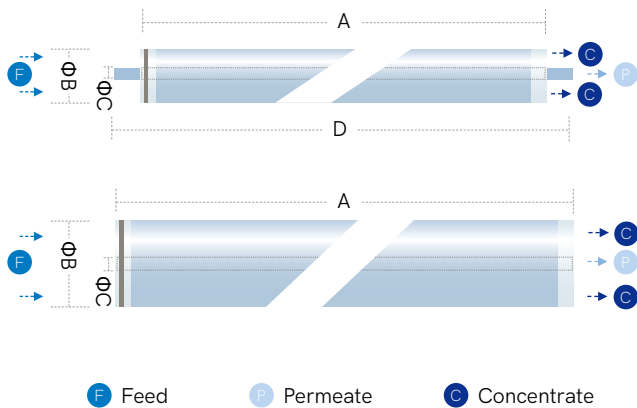
As compared with ordinary RO membrane, HTRO membrane is able to operate stably for a long time in high temperature environments. It is made of high temperature resistant materials and able to maintain good chemical & thermal stability in high temperature environments. It effectively avoids the problems of water production, salt permeability, desalination rate, energy consumption and maintenance costs, which the ordinary RO membranes cannot solve.



Why Choose UNISOL

UNISOL's HTRO membrane elements have excellent desalination performance under high temperature conditions by selecting heat stable materials and optimized structure design. It is suitable for water treatment processes in high temperature environments.

Maximum 80°C operating temperature, can effectively reduce the size of the cooling & heating system, save the operating & investment costs. While improving energy utilization, it also improves the economic benefits and environmental friendliness of enterprises.

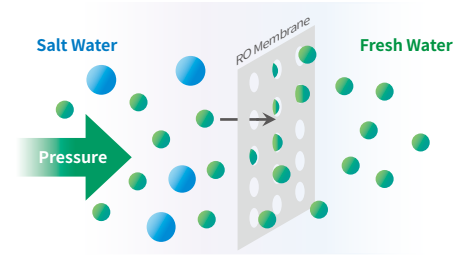


Operating Reference

Membrane Type	Heat-resistant composites
Max. Operating Temperature	80°C (176 °F)
80°C Max. Operating Pressure	30 bar (435psi)
Max. Pressure Drop	1 bar (14.5 psi) for individual element
Hydrogen Peroxide Limit	20 ppm
Max. Inlet Sludge Density Index	5
Cleaning pH Range	2-12
Free Chlorine Tolerance	< 0.1 ppm



Reverse Osmosis



Advantages

- Able to maintain stable desalination and permeability in high temperature environments.
- Effectively reduce the contaminants accumulation caused by high temperature, reduce the blockage risk on membrane.
- Membrane mechanical strength will be maintained in high temperature environment, avoids membrane damage or performance degradation, ensures the service life of the membrane & systems.
- Supports long-time stably operation under high temperature conditions, saving cost by reduce the frequency of maintenance.
- Efficient filtration, high effluent quality, antibacterial and energy-saving, zero secondary pollution, simple process, stable performance and easy operation.
- Capable to build custom elements in the size and configurations to meet your specific requirements.

Applications

- Hot water treatment recycling
- Chemical wastewater treatment
- Industrial wastewater treatment
- Pharmaceuticals
- Syrup and juice concentrate
- Mine wastewater treatment
- Electric wastewater treatment



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