

Reverse Osmosis

Critical industries and infrastructure, such as data centers, power generation, food and beverage, and semiconductor and pharmaceutical manufacturing, rely on purified water to keep their systems operating. Nviro's Reverse Osmosis (RO) systems are designed to provide a high recovery rate of purified product water (permeate), helping facilities maintain operation.

Osmosis is the method by which water flows through a semi-permeable membrane from areas of high water molecule concentrations (low in impurities) to areas of low water molecule concentration (high in impurities). Plant roots use this principle to draw water in from the soil.

Reverse Osmosis counters this natural flow by applying pressure to the feed water side of the membrane. The pore size of the semi-permeable membrane then filters dissolved salts, generating a purified permeate while rejecting dissolved solids in the concentrate.

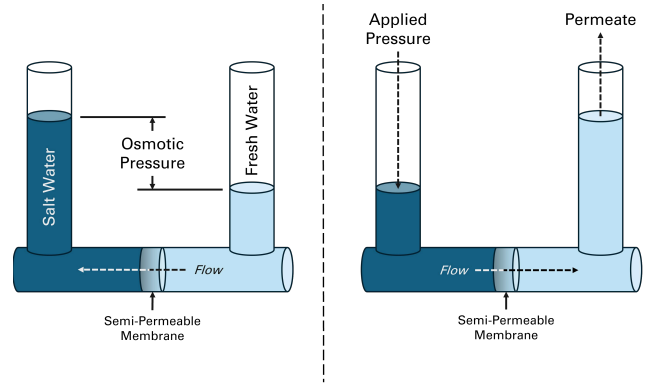


Figure 1: Osmosis (left) and Reverse Osmosis (right) between high-impurity water (i.e. salt water) and fresh water (permeate).

NVIRO'S REVERSE OSMOSIS SYSTEM

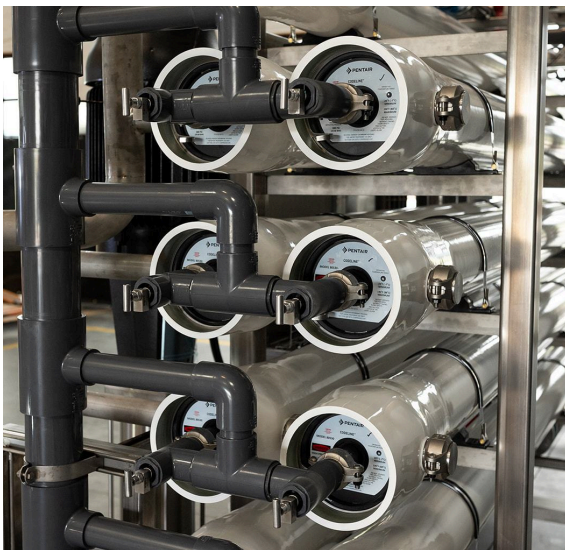


Figure 2: RO pressure vessels house multiple membranes in series to achieve removal rates up to 99.8%.

Multi-stage RO membranes reduce concentrate volumes, providing high recovery rates for closed-loop and zero liquid discharge applications.

Custom-built treatment skids house the membrane pressure vessels and all the equipment necessary to operate and maintain the system, including booster pumps, valves, and dechlorination and anti-scaling chemical equipment, all controlled by Nviro's fully automated PLC-based control system.

Key Features

- Compact and scalable for retrofits and new installations
- Membranes designed for a variety of feed water sources
- Helps meet stringent water quality standards for drinking water and reuse applications