

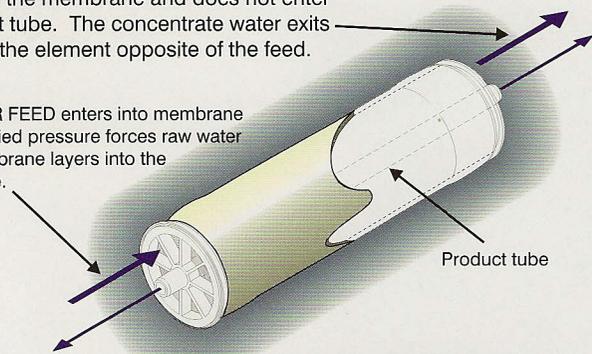
The Reverse Osmosis Process

The Reverse Osmosis process uses a semi-permeable membrane to separate and remove dissolved solids, organics, pyrogens, submicron colloidal matter, viruses, and bacteria from water. The process is called "Reverse" Osmosis since it requires pressure to force pure water across a membrane, leaving the impurities behind. Reverse Osmosis is capable of removing 95 - 99% of the total dissolved solids (TDS) and 99% of all bacteria, thus providing safe, pure water.

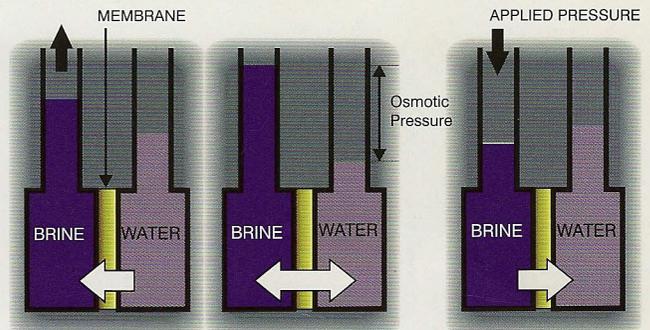
THE REVERSE OSMOSIS MEMBRANE ELEMENT

CONCENTRATE WATER containing salts is rejected by the membrane and does not enter the product tube. The concentrate water exits the side of the element opposite of the feed.

RAW WATER FEED enters into membrane layers. Applied pressure forces raw water across membrane layers into the product tube.



PRODUCT WATER collects in the product tube and can be output from either end of the membrane element.



OSMOSIS
Water flows from low concentration of salts to higher concentration.

EQUILIBRIUM
Osmotic Pressure is the pressure required to stop water flow and reach equilibrium.

REVERSE OSMOSIS
By applying pressure greater than Osmotic Pressure, flow of water is reversed; water flows from higher concentration solution to lower.

Crane Environmental uses spiral-wound Reverse Osmosis elements constructed from a thin-film composite membrane material. Raw water containing salts and impurities is fed into the membrane element, and the feed pressure supplied by the Reverse Osmosis system pump forces the water through the pores in the membrane for collection in the product tube in the center of the membrane element. Water containing impurities is passed out of the element along the surface of the membrane and does not enter the product tube.

Selecting the Right Reverse Osmosis System

Crane Environmental has the most complete line of Reverse Osmosis equipment in the industry. To select the right Reverse Osmosis system for your application, there are four primary considerations; the type of raw water, the quality of the product water required, the capacity of product water required, and any special features such as storage, repressurization, or mounting. Crane model numbers describe the amount of product water each system will produce; the EPRO model numbers indicate the gallons per day (GPD) of product, and the DELTA system model numbers indicate the number of gallons per minute (GPM) of product.

RAW WATER	Quality of Product Water Required	Volume of Product Water Required	Recommended Reverse Osmosis System	Special Features
TAP WATER TDS up to 1,500 ppm	High Purity Water TDS < 10 ppm	Up to 10,000 gpd	EPRO DOUBLE-PASS	
		Over 10,000 gpd	DELTA DOUBLE-PASS	
	Potable or Process Water TDS > 10 ppm	Up to 8,000 gpd	EPRO Series Systems	Storage & Repressurization
		Up to 1,500 gpd	EPRO 'XP' Series	Pressurized Storage
		Up to 3,000 gpd	EPRO 'P' Series	Atmospheric Storage
BRACKISH WATER TDS up to 10,000 ppm	High Purity Water TDS < 10 ppm	Up to 10,000 gpd	EPRO 'A' Series	Stainless Steel Cabinet
		Over 2 gpm	EPRO 'C' Series	Wall-Mount Frame
	Potable or Process Water TDS > 100 ppm	Up to 10,000 gpd	EPRO Wall-Mount Series	Basic System
		8 to 400 gpm	EPRO-10000 Series	Full-Featured System
			DELTA Series	Compact Size
SEA WATER TDS up to 40,000 ppm	Potable or Process Water TDS > 500 ppm	Up to 6,000 gpd	DELTA Series	
		Over 5 gpm	EPRO Sea Water	
			SeaMega	

CRANE

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