



# Cochrane® DELTA Industrial Reverse Osmosis Systems

## Cochrane® DELTA Reverse Osmosis System Features

- Skid-mounted Reverse Osmosis units to treat well, potable or brackish surface water
- Removes total dissolved solids (TDS) from raw feed water from >500 ppm down to <10 ppm with feed water at 50 – 77°F.
- Rated for minimum of 75% overall water recovery
- Fully integrated system with vessels, elements, piping and instrumentation pre-wired and pre-tested
- Rated for continuous or intermittent duty
- Automated conductivity and flow alarms. Semi-automated flush and cleaning modes.



## Design Advantages

- **Designed for treating varied feed water sources** to produce boiler feedwater quality or as a pre-treatment for final mixed bed polishing
- Systems are fully pre-engineered for **quality assurance** and **fast delivery**
- Systems are fully **built** and factory wet **tested** by Newterra

## Process

The system is fed low pressure water at 25-40 psig from the client's raw water source through a pre-treatment cartridge filter to remove residual suspended solids. The water is re-pressurized and sent through the RO unit. Reverse Osmosis uses semi-permeable membranes with pores smaller than 0.001  $\mu\text{m}$ . Clean permeate water diffuses across the membrane leaving the salts to be discarded in the reject concentrate water. Since RO membranes require periodic cleaning a Clean-in-Place system is provided.



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# Cochrane® DELTA Industrial Reverse Osmosis

## Included Components

- 300-psig rated FRP reverse osmosis vessels
- Spiral-wound high-rejection thin-film polyamide reverse osmosis elements
- 5-micron nominal stainless-steel body pre-treatment cartridge filter with isolation valves
- Vertical, Multi-Stage Centrifugal Booster Pump with stainless steel wetted parts, VFD starter and manual isolation valves
- Lug-style actuated feed butterfly valve with stainless steel disc & stem, EPDM seat, steel body and two-way NEMA 4 UL certified 24V solenoid
- Stainless steel globe valve for reject flow control
- NSF certified paddlewheel-style flowmeters (on feed and product) with polypropylene body (> 100 psig rated up to 120°F), FKM O-rings, Titanium pin, PVDF rotor, UL certified
- Schedule 80 PVC low-pressure piping with 304 stainless steel piping on high-pressure lines
- Cartridge feed/discharge, RO feed, interstage, reject and product pressure gauges (2.5" dial, stainless case, glycerin filled)
- Manual sample ports on permeate from each vessel with PVC ball valves
- Epoxy-coated steel skid frame
- Conductivity sensor
- Optional Polyethylene tank-based clean-in-place system complete with cleaning pump, electric heater, diaphragm flow control valve and PVC piping

Model Code	Permeate Rating (gpm)	Number of Stages	Vessel Arrangement	# of elements / vessel
DELTA-100	100	2	4:2	4
DELTA -150	150	2	4:2	6
DELTA -200	200	2	5:3	6
DELTA -300	300	2	8:4	6
DELTA -450	450	2	12:6	6

## Options Available

- ASME code stamped vessels
- Substitution of flowmeters for magnetic type flowmeters
- Stainless-steel low-pressure piping
- Substitute high rejection membranes with low-pressure membranes
- Feed re-pressurization pump
- Online pH and ORP monitors
- Pre-treatment chemical dosing systems (antiscalant, acid, caustic and sodium bisulfite)
- Automatic flush with permeate option
- Seismic zone rated
- Calcite polishing filter
- Polyethylene tank-based clean-in-place system complete with cleaning pump, electric heater, diaphragm flow control valve and PVC piping



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