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 µm. 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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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
- Optional Polyethylene tank-based clean-in-place system complete with cleaning pump, electric heater, diaphragm flow control valve and PVC piping

<table>
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<tr>
<th>Model Code</th>
<th>Permeate Rating (gpm)</th>
<th>Number of Stages</th>
<th>Vessel Arrangement</th>
<th># of elements / vessel</th>
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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