



SPI Reverse Osmosis Pilot System

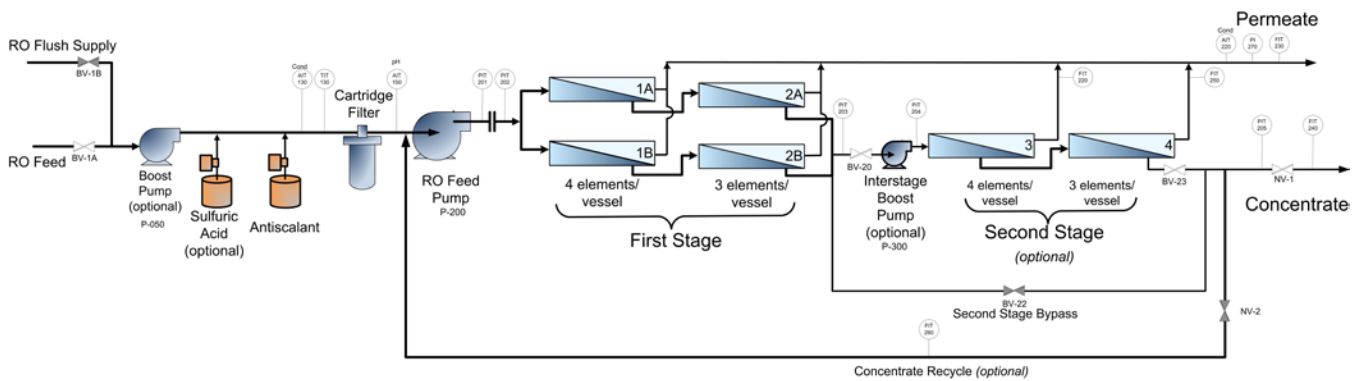
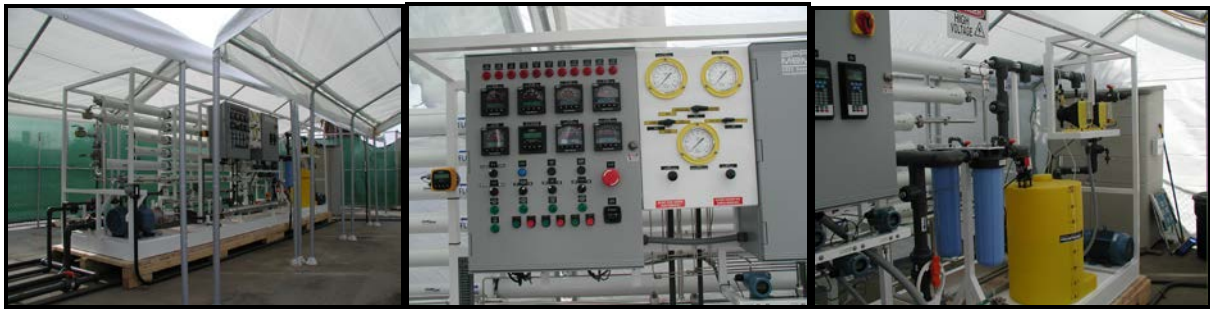
The SPI RO Pilot System is a self contained unit capable of either brackish or seawater desalination applications. The system uses 4” diameter membrane elements in three and four element long vessels.

The array is configurable to either a single-stage or two-stage array depending on the application and operating recovery. Each stage utilizes four-element long vessel(s) followed by three-element long vessel(s) to simulate a full-scale seven-element long vessel, while retaining the smaller system footprint needed for a pilot.

Single Stage: 2:2 array with a total of 14 elements
 Two-Stage Array: 2:2:1:1 array with a total of 21 elements

The system has a VFD driven Danfoss feed pump capable of delivering up to 1,000 psi for seawater applications. The system is configurable to operate at reduced pressures for nanofiltration and brackish RO applications.

A basic Process Flow Diagram and specification sheet are provided below and a complete P&I drawing is available.



System Performance Specifications

Nominal Permeate Flow	15 GPM (two-stage 2:2:1:1) 6 GPM (single stage 2:2)
Feed Water Salinity Capability	500 – 34,500 mg/L TDS
Feed Pressure	Up to 1,000 psi
Product Water Quality	Variable (will depend on pilot operation and membrane in use)
Recovery (with adjustable array configuration)	75% + (two-stage 2:2:1:1 array) 40-60% (single-stage 2:2 array)

System Specifications

Membrane Type	Nanofiltration, Brackish or Seawater (NOT INCLUDED)
Number of Membranes	21 max (NOT INCLUDED)
Size of Elements	4" diameter 40" long
Array	Configurable to 2:2:1:1 or 2:2
Number of Pressure Vessels	Qty 3) 4-element vessels Qty 3) 3-element vessels
Number of Elements per Pressure Vessel	3 and 4
Size of Pressure Vessels	4" diameter x 120" long 4" diameter x 160" long
Overall Dimensions, Approximate	230"L x 48"W x 79 "H
Line Sizes, Flange Connections	Feed Inlet: 2" Product: 1.5" Concentrate: 1.5"
Shipping Weight, approximate	2,475 lbs.
Electrical	460V, 3 Phase, 60 HZ