

**TANKS**

<b>System Feed</b>	
Volume	Minimum 200 Gallons

**SKID MOUNTED COMPONENTS**

<b>Feed Pump</b>	
Number	One (1)
Horsepower	1.5 HP
Material	316 SS

<b>Bag Filter</b>	
Number	One (1)
Filter Rating	5-micron

<b>Cation &amp; Anion Exchangers</b>	
Number	Two (2) of each
Vessel Size	8" x 40"
Construction	PE Lined Fiberglass
Cation Resin	Strong Acid
Anion Resin	Strong Base
Volume per Vessel	0.9 ft <sup>3</sup>

<b>Controls</b>	
Inlet Conductivity	Signet 2850
Outlet Conductivity	Signet 2850
Outlet Flow	Signet 2537
Outlet pH	Signet 2750
Controller	CompactLogix
Touchscreen	5.7" PanelView 7+
Drum Low Level Sensors	One (1) of Each

**OPERATING SPECIFICATIONS**

<b>Feed Water Quality</b>	
Temperature	40°F-110°F
pH	3-10 SU
TSS	<5 mg/L
TDS	<450 mg/L
Chlorine	<2 mg/L

<b>Product Water Quality</b>	
TDS	<2 mg/L
Conductivity	<5 (uS)
System Flow	5 gpm

**REGENERATION SPECIFICATIONS**

Flow Configuration	Alternating Duplex
Regeneration	Countercurrent
Waste Flow	2 gpm
Cycle Time	42 minutes
<b>Cation Exchangers</b>	
HCl per Cycle	1 gallon
Waste per cycle	55 gallons
Grains Capacity	18,000
<b>Anion Exchangers</b>	
NaOH per cycle	0.85 gallon
Waste per Cycle	62 gallons
Grains Capacity	16,200

**UTILITIES**

Electrical Voltage	208-230/460
Full Load Amps	10/5
Make-up Water	5 gpm

**PHYSICAL DATA**

Footprint (LxWxH)	47" x 36" x 86"
Shipping/Operating Wgt	650/900 lbs
Frame/Coating	304SS/Polyurethane
Piping	Schedule 80 PVC



**Operating Profile** Removes ions from tap water through a two-stage, separate bed ion exchange process. A water quality < 3 TDS will be achieved when the equipment is operated within parameters as listed. The deionizer shall provide a near continuous flow of deionized water through the use of a duplex (two tank) configuration. This duplex configuration shall operate with 50% of the resin in reserve or in regeneration. System regenerations shall be initiated by measuring the feed water quality and flow rate, to accumulate the total loading on the system. Once the accumulated load surpasses the system's operating capacity setpoint, a regeneration is initiated.

**System Pump** The system shall use a 1.5-HP multi-stage centrifugal pump to pressurize water to the proper operating pressures and flow for the deionizer. The pump is designed to draw water from an atmospheric source. A return loop is used to provide a continuous flow of water pass the pump during operation, preventing low flow conditions. Pump construction shall be 316 stainless steel.

**Bag Filter** - There is one (1) bag filter housing rated for 15-gpm flow with isolation valves allowing filter change-out. The housing is constructed of reinforced polypropylene with nominal 5-micron filter bags

**Regeneration Valve** One is used with each set of cation and anion vessels, providing service and regeneration control. Inlet and outlet ports accept a 3/4" quick connect, double O-ring sealed adapter made of PVC. The valve requires a minimum inlet operate pressure of 60 psi, to drive valve functions. The valve controls the counter-current regeneration process including acid draw opposite the service flow and rinsing employing a fixed-flow eductor

**Media Tank** The tanks shall measure 8" in diameter and 40" tall. A total of two each cation and anion tanks will be used with one tank of each in service at all times. Tanks made of fiberglass reinforced polyester with a 2.5" threaded top opening are designed for a maximum working pressure of 125 psi and hydrostatically tested at 300 psi. Tanks. The upper and lower distribution system shall be of a slot design providing even distribution of regeneration water.

**Deionization Media** Each Cation deionizer includes 0.9-ft<sup>3</sup> per tank of 10% cross-linked high-capacity, strong acid resin with an exchange capacity of >20,000 grains/ft<sup>3</sup> when regenerated with 4-lbs. of hydrochloric acid. Each anion deionizer also includes 0.9-ft<sup>3</sup> of high-capacity strong base anion resins with an exchange capacity of >18,000 grains/ft<sup>3</sup> when regenerated with 6-lbs of NaOH. Inert plastic beads shall be used to pack the resin tanks, while still allowing the resin minimum space for expansion.

**System Skid** All system components are skid mounted and prewired. Installation hook-ups shall be limited to plumbing and electrical connections. Skid construction shall be from 304 grade stainless steel. Finish shall include cleaning and sandblasting. Skid dimensions shall not exceed 47" L x 36" W x 86" H. Skid design shall include anchoring feet for securing skid to foundation and grounding lugs for properly grounded electrical components.

**System Controls** – Operation, monitoring, and control of the integrated system utilizes an Allen-Bradley CompactLogix programmable automation controller (PAC) with Human-machine interface (HMI) through a Panelview Plus color touch screen. System operation while highly automated also employs manual control with an intuitive operator-friendly interface. Product water to process is assured with recirculation of "off-spec" water to the feed tank if above an operator-adjustable set point. System operating set points and alarms are set at the touch screen which is password protected to limit access to the operator, supervisor, maintenance, or engineer based on necessity and relative expertise.

