

## Two Bed Deionization System

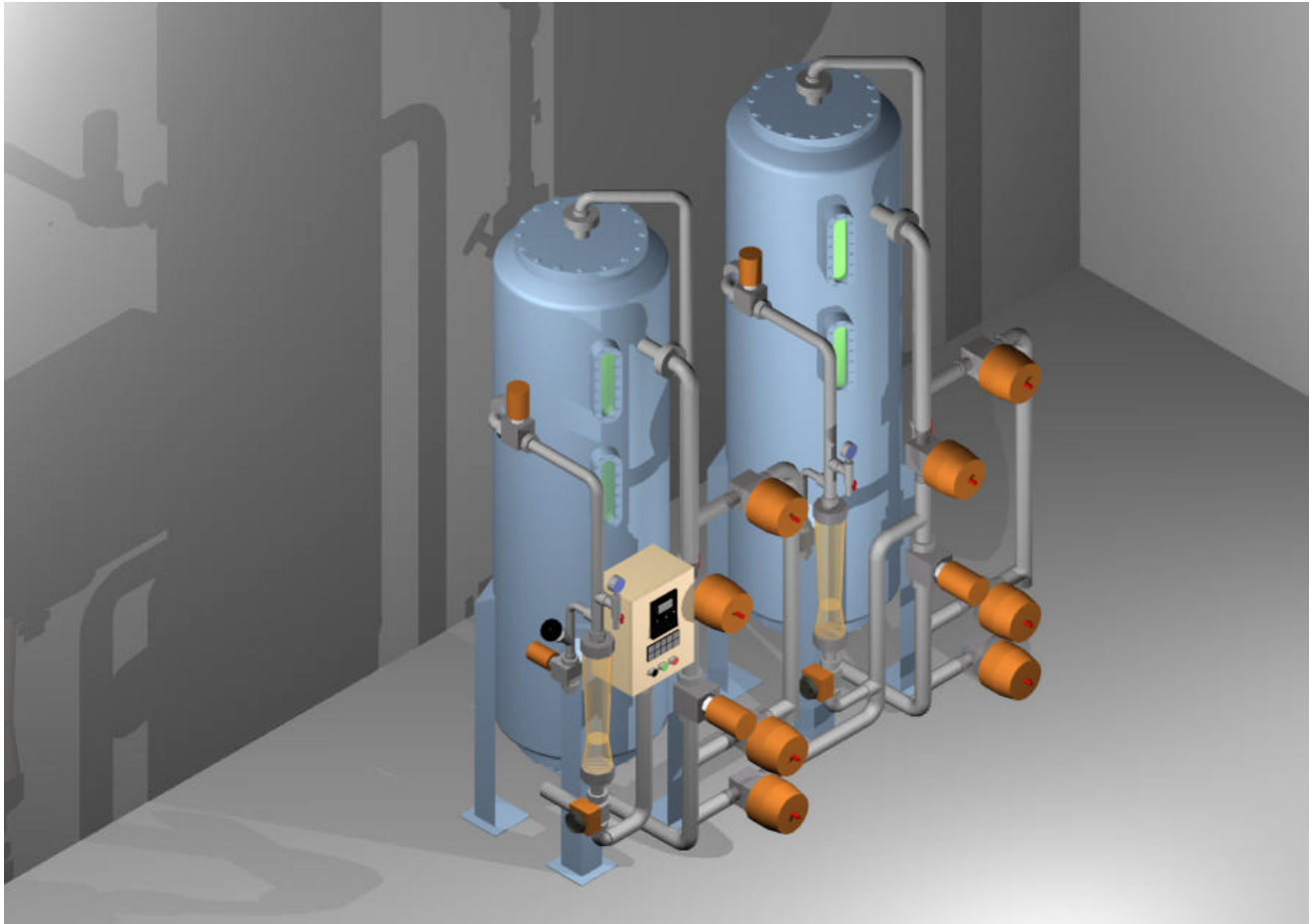
*Two Bed Deionization System consists of two separate columns each containing different type of resins.*

*The first column usually contains cation resins while the second column in series contains anion resins. The two resin columns work together to remove cations and anions from the feed water. The effluent quality from a typical Two Bed DI System can reach 1 Mohm-cm.*

*Two Bed DI System can either be placed downstream of a Reverse Osmosis (RO) System to increase the quality of the RO permeate or be used without the RO System. In the latter case, the service life of the Two Bed DI system is only about one twentieth of that of the former.*

### Benefits

*Two Bed DI System is low in capital cost and simpler in operation when compared with other DI Systems, such as Multistep DI and Mixed Bed DI. If You are not demanding Multi-Megohm water, Two Bed DI System is the technology of choice.*



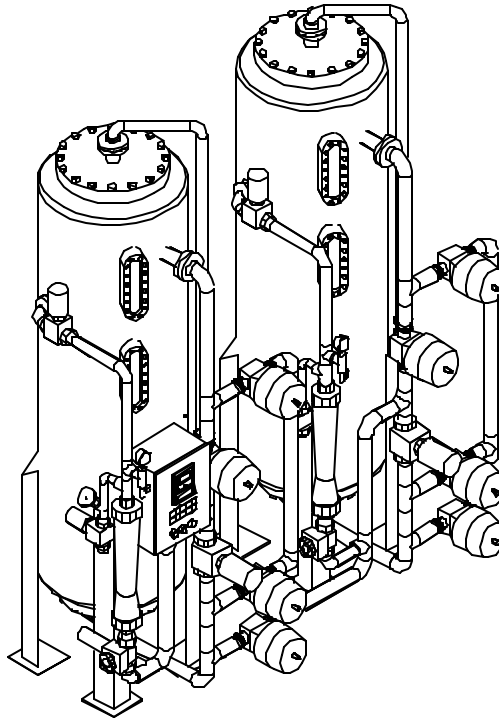
**24" TWO BED DI SYSTEM**

## Standard Features

- Rubber lined carbon steel vessels designed for 7 bar working pressure.
- Sight glass to permit visual inspection of resin level and backwash flow.
- PVC SCH 80 face piping and valves.
- Separate regeneration distributors for efficient distribution of regenerant flow.
- Flow controllers for backwash flow rate control.
- PVC Pneumatic Control valves.
- Feed water rotameter.
- Regeneration flow rotameters.
- Inlet and Outlet pressure gauges.
- PVC eductors for regenerant introduction.
- Sampling ports for acid and caustic concentration.
- Sampling cylinders for non-hazardous sampling.
- Programmable Logic Controller.
- NEMA 4X Control panel for electrical and solenoid valves.
- Indicator lights to show each regeneration step.
- Automatic and manual step through of each regeneration steps.
- Resistivity monitor.

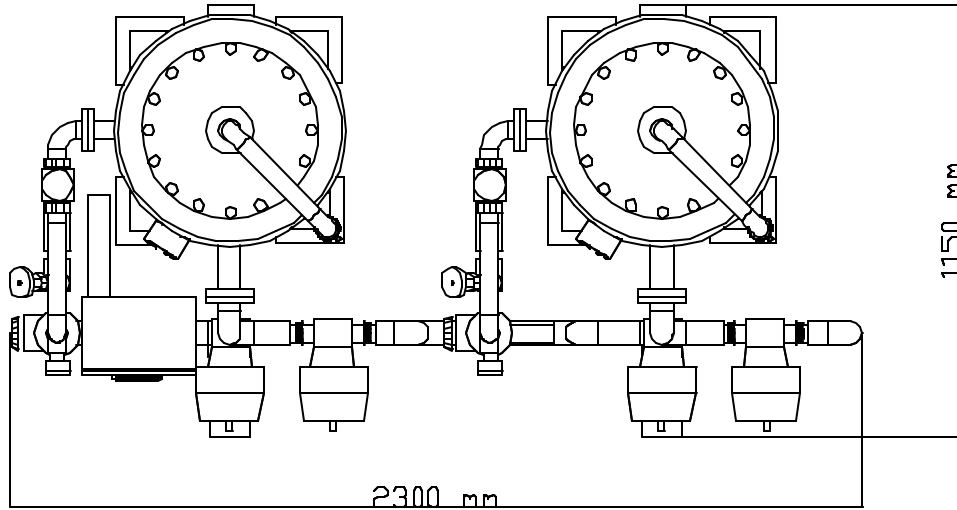
## Optional Features

- Electronic flow meter (Optional)

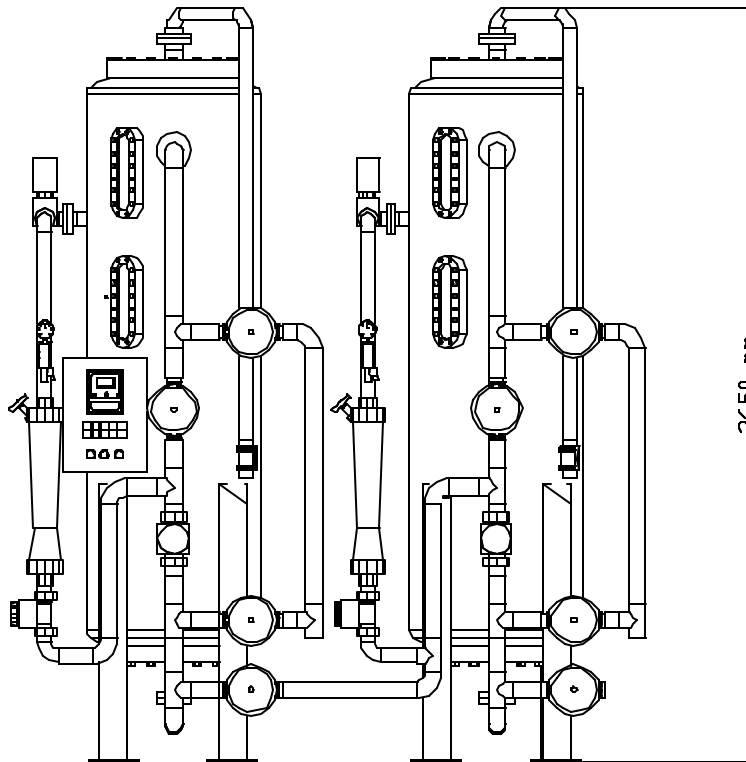


**ISOMETRIC VIEW**

Dimensions



PLAN VIEW



FRONT VIEW

## Specifications

Operation Mode	Automatic Two Bed DI System
Model	TB 24
Cation Exchange Resins	Strong Acidic H <sup>+</sup>
Anion Exchange Resins	Strong Base OH <sup>-</sup>
Operating Data	
Flow rate: Minimum	14 gpm
Normal	30 gpm
Maximum	40 gpm
Operating Pressure	7 bar (100 psi)
Ion Exchange Data	
Cation resins, ft <sup>3</sup>	9.7 (275 liters)
Anion resins, ft <sup>3</sup>	9.7 (275 liters)
Exchange Capacity (Nominal)	150 kgrains as CaCO <sub>3</sub>
Regenerant Chemicals	
Cation resins, 100% Hcl, lb	60
Approx. gals. 30% Hcl	21
Anion resins, 100% NaOH, lb	80
Approx. gals. 50% NaOH	12.5
Dimensions	
Diameter, mm	610
Height, mm	2650
Floor Space, mm	1150 x 2300 x 2650

### Regeneration Waste Water Volumes (Cation Resin Bed)

Regeneration Phase	Flow Rates			Total Time Min.	Total Gallons Each Phase
	Water GPM	30% Hcl GPM	Total Flow GPM		
Backwash	19		19	15	285
Regenerant Introduction	4.4	0.6	5	35	175
Slow Rinse	4.4		4.4	30	132
Fast Rinse	31		31	9.5	295
<b>Total Waste Volume</b>					887 Gallons

### Regeneration Waste Water Volumes (Anion Resin Bed)

Regeneration Phase	Flow Rates			Total Time Min.	Total Gallons Each Phase
	Water GPM	50% NaOH GPM	Total Flow GPM		
Backwash	9.4		9.4	15	141
Regenerant Introduction	4.7	0.3	5	46	230
Slow Rinse	4.7		4.7	30	141
Fast Rinse	31		31	9.5	295
<b>Total Waste Volume</b>					807 Gallons

#### NOTES:

Caustic and acid introduction are based on use of 50% liquid caustic and 30% hydrochloric acid during regeneration.

Total rinse volume is affected by the quality and temperature of the rinse water supply, the product water purity required by the customer for service use. Due to these variables, total time and gallons for final rinse can only be determined during actual operation and may vary for each regeneration.