



ION EXCHANGE DEMINERALIZATION

Data Sheet

Protecting Liquid Processing Streams

Naturally occurring impurities are present in all raw water supplies, and will be introduced in the process operation or end product when untreated water is used. Typical impurities are calcium, magnesium, sodium, alkalinity, chlorides, sulfates, nitrates, and silica. All of these contaminants cause scaling in boilers, spotting on finished surfaces, precipitation in chemical products, defects in electronic components as well as other problems in each process application. The EBD Water IED Ion Exchange Systems will reduce these contaminants to negligible levels.



Principles of Operation

An EBD Water IED Demineralizer is a complete system utilized to deionize water or other liquids to an acceptable level for various industrial uses.

The EBD Water Demineralizers can be used as primary or polishing Ion Exchangers. When used as a primary ion-exchanger following an EBD Water Reverse Osmosis System, water of 10 - 18 megohm is produced. As a polisher, an EBD Water Demineralizer can produce water of up to 18.3 megohm quality.

EBD Water Demineralizers consist of single or multiple two bed or mixed bed units, depending upon production requirements and the degree of purity needed for a particular process. Because of the characteristics of the raw water supply, many systems require cation and anion exchangers of unequal sizes to obtain optimum performance. The addition of a decarbonator for the removal of will reduce the load on the anion exchanger.

Weak base resins are used to produce low solids water, however silica and are not removed by these units and require the use of strong base.



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Typical Features

- 100 Psig Vessels
- Graded Fiberglass on FRP models up to 48 inch sizes
- Epoxy coating and rubber lining on carbon steel models from 36 inch diameter and higher
- Manual, automatic, or semi-automatic operation
- Resin removal nozzle
- Inlet water meter and flow indicator
- Solenoids with manual override and air flow control
- Effluent sight strainer
- Drain piping to common point
- Sample and test points
- Acid and Caustic rate set valves
- Resistivity indicators
- Backwash sight Glass
- Position indicators on automatic valves
- Limit stops for flow control
- Air regulator/filter where air used for mixing
- Manholes and handholes
- Separate, supported regenerant distributors
- Visual and audible alarms
- Decationized water caustic tank fill
- Skid mounted systems



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Selective Data

MODEL	FLOW RATE Primary (g pm)	FLOW RATE Polishing (gpm)	Total Resin Volume Primary	Total Resin Volume Polishing	Tank dia. (in.)	Pipe Size Primary (in.)	Pipe Size Polishing (in.)
IED-24	30	40	12.4	12.4	24		1 1/2
IED-30	50	70	19.4	19.4	30	1 1/2	1 1/2
IED-36	70	100	31.0	33.0	36	2 1/2	3
IED-42	90	140	43.0	41.0	42	2 1/2	3
IED-48	120	180	57.0	42.0	48	3	3
IED-54	150	230	73.0	53.0	54	3	4
IED-60	180	280	90.0	66.0	60	3	4
IED-66	230	340	110.0	81.0	66	3	4
IED-72	270	410	132.0	97.0	72	4	6
IED-84	370	560	182.0	135.0	84	4	6
IED-90	430	640	212.0	155.0	90	6	8

Notes:

1. The resin ratio, anion to cation is selected as required.
2. Standard tanks for primary demineralization are 8'0" straight height while polishing demineralization are 6'0" straight height.
Optional 6'0" straight height primary demineralizer is also available.

Instrumentation and Controls

The EBD Water IED Demineralizers are automatically controlled by solid state Programmable Logic Controllers (PLC) in conjunction with pilot solenoid valves or stagers. The pilot solenoid valves and the stagers can be provided with manual by-pass. The controller is capable of controlling individual or multiple regenerations. A resistivity controller monitors the quality of treated water and initiates the regeneration sequence. Silica analyzer can also be provided as an option.

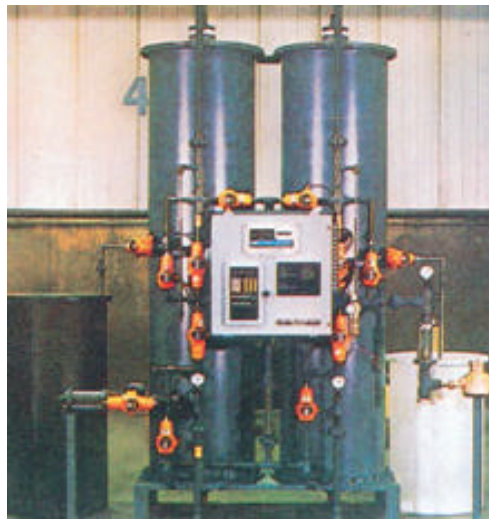
The following controlling instruments are installed within the IED Systems:

- Rate of flow indicator for water and air.
- Resistivity monitor.
- Automatic reset totalizing water meter (option).
- Electrical interlock for multiple units.
- PC based monitoring and control system (option)



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Optional Accessories

- Programmable Logic Controller
- Process Instruments
- Process Equipment
- Spare Parts

Auxiliary Equipment

- Softeners
- Filters
- Degasifiers
- Raw Water and Product Pumps
- Caustic Dosing System
- Acid Dosing System
- Recirculation System
- Storage Tanks

DESALINATION PROCESSES
DEIONIZATION PROCESSES
MUNICIPAL WATER TREATMENT
INDUSTRIAL WATER TREATMENT
MUNICIPAL WASTEWATER TREATMENT
INDUSTRIAL WASTEWATER TREATMENT
CHEMICAL SERVICES
TECHNICAL SERVICES