

Electrodeionization Systems

2 to 220 GPM

EDI SERIES

EDI removes ions from aqueous streams, typically in conjunction with reverse osmosis (RO) and other purification devices. Our high-quality modules continually produce ultrapure water up to 18 MΩ-cm. The typical application is polishing after a reverse osmosis system which replaces mixed bed DI and the associated hazardous chemicals used for resin regeneration.



Standard Features

- Small, compact modules (light weight)
- 220V or 460V/3ph/60Hz power requirement
- Produces water up to 18 MΩ-cm
- Easy and limited maintenance
- No chemicals required
- Control unit with monitoring capability
- Simple systems: no concentrate recirculation

Custom Twin
50 GPM
EDI System



Benefits of EDI

- Consistent water quality
- Continuous operation
- No regeneration chemicals
- No hazardous waste
- Reduces facility workmanship
- Simple operation (no DI resin changes)
- Modular system more flexible, easy to expand
- Multiple module less risky than one large stack
- Dial in product water quality (by controlling Amps)
- Modules compact-smaller system footprint
- No leaking- proven module design
- Safer-lower voltages

Typical Module Performance

- Recovery: 90 – 95%
- Pressure drop range at average flow: 25 -37 psi (1.7 - 2.5 Bar)
- DC Voltage: 0 – 600
- Product resistivity: - average flow > 15 Megohm-cm*
maximum flow > 7 Megohm-cm*
- Silica (SiO₂) removal: 90 – 95%, depending on feed conditions.

*Performance based on maximum Feed Water Conductivity Equivalent (20 μS/cm)

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The need to satisfy the increasing demand for high purity water can be achieved using Electro-Deionization (EDI) equipment. The EDI process replaces conventional DI mixed resin beds to produce deionized water. Unlike DI resin, EDI does not require shutdowns for replacing resin beds or for resin regeneration using chemicals. As a result EDI minimizes water quality upsets and operating costs. EDI has become the solution to many applications, it has lower operating expenses and fewer maintenance requirements making EDI the cost effective solution over mixed bed or dual-bed polishing.

Applications

- 💧 USP purified water
- 💧 Laboratory water
- 💧 Portable exchange EDI
- 💧 Power generation
- 💧 Cosmetics
- 💧 Electronics
- 💧 Boiler feed
- 💧 Pharmaceutical
- 💧 Chemical production

Feed Water Specifications

- 💧 Feed water conductivity equivalent, including CO₂ and Silica: < 40 µS/cm
- 💧 Feed water source: RO permeate
- 💧 Temperature: 41 – 113 ° F (5 – 45 ° C)
- 💧 Inlet pressure: ≤ 100 psi (6.9 bar)
- 💧 Maximum total chlorine (as Cl): < 0.02 ppm
- 💧 Iron (as Fe): < 0.01 ppm
- 💧 Manganese (as Mn): < 0.01 ppm
- 💧 Sulfide (S²⁻): < 0.01 ppm
- 💧 pH: 4 – 11
- 💧 Total hardness (as CaCO₃): < 1.0 ppm
- 💧 Dissolved organics (TOC as C): < 0.5 ppm
- 💧 Silica (SiO₂): < 1.0 ppm

Model #	Flow Rate (GPM)			Voltage (DC)		Current (Amps)	
	Product		Concentrate	Typical Operation	Maximum	Typical (4 ppm RO Feed)	Maximum (15 ppm RO Feed)
	Average	Peak					
EDI-2	2.00	3.00	0.20	200-250	300	2	6
EDI-5	5.00	7.50	0.50				
EDI-9	9.00	13.50	0.90				
EDI-12	12.50	18.80	1.25				
EDI-15	15.00	22.50	1.50				
EDI-22	22.50	33.80	2.25				
EDI-27	27.50	41.25	2.75				
EDI-55	55.00	82.50	5.50				
EDI-82	82.50	123.75	8.25				
EDI-110	110.00	165.00	11.00				
EDI-165	165.00	247.50	16.50				
EDI-220	220.00	330.00	22.00				

Notes: For the EDI systems to function properly, it is necessary to have a reverse osmosis permeate feed with a pressure ranging from 30 to 50 psi, as well as a flow rate that exceeds the suggested flow rate for the EDI system by 10%.

Standard specifications are based on typical applications and feed water quality from a Two-Pass Reverse Osmosis (RO) System. Specifications may be changed to fit certain site conditions and changes in incoming and/or product water quality requirements.

Pure Aqua also supplies: Custom Engineered Solutions, Multimedia Pretreatment, Activated Carbon Pretreatment, Water Conditioning, Chemical Dosing Systems, Ultraviolet (UV) Sterilizers and Ozonation Systems.



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