

Electro-Deionization (EDI) Skids



Overview

The Electro-Deionization process is the latest technology to achieve ultrapure water. EDI uses ion exchange resins in the presence of a DC voltage potential to remove cation and anion contaminants from the feed water supply. Ion selective membranes are then used within the modules to continuously remove these contaminants and carry them out in a small concentrate stream. The voltage applied across the cell allows for the electrochemical “splitting” of water into hydrogen (H+) and hydroxide (OH-) ions within the ion exchange resins resulting in constant regeneration without the addition of chemicals, wastewater neutralization/disposal, and shutdown time. This results in a major advantage over the operation of traditional, regenerable Mixed-Bed Deionization and Service Exchange DI Systems.

The following are just a few of the industrial applications that can benefit from purified water produced by EDI systems:

- Power Generation
- Chemical Manufacturing
- Electronics / Semiconductor
- Industrial Process Water
- Boiler Feed
- Research Lab Facilities

Operating Parameters

- Nominal Recovery: 90–95%
- EDI Water Quality: 15–18 meg-ohm
- Feedwater Requirements: See table on reverse side
- Operating Temperature: 50–100° F
- Maximum Inlet Pressure: 100 psig
- Minimum Inlet Pressure: 60 psig
- Expected Pressure Drop: 30–40 psig
- Electrical Requirement: 460 VAC, 3-phase, 60 Hz.
120 VAC, 1-phase, 60 Hz.

Materials of Construction

- Skid Frame: Epoxy-coated carbon steel
- EDI Housings: FRP
- System piping: Sch 80 PVC
- EDI cell tubing: Polyethylene

Standard Features

- Allen Bradley MicroLogix Series PLC system
- Allen Bradley PanelView operator terminal
- DC Power supply/rectifier unit
- NEMA-4 electrical enclosures
- Electric-actuated inlet water valve
- Individual EDI cell sampling ports
- Product water resistivity monitor
- Flowmeters for product, reject, and electrolyte streams
- Feedwater pH monitor

Optional Equipment Available

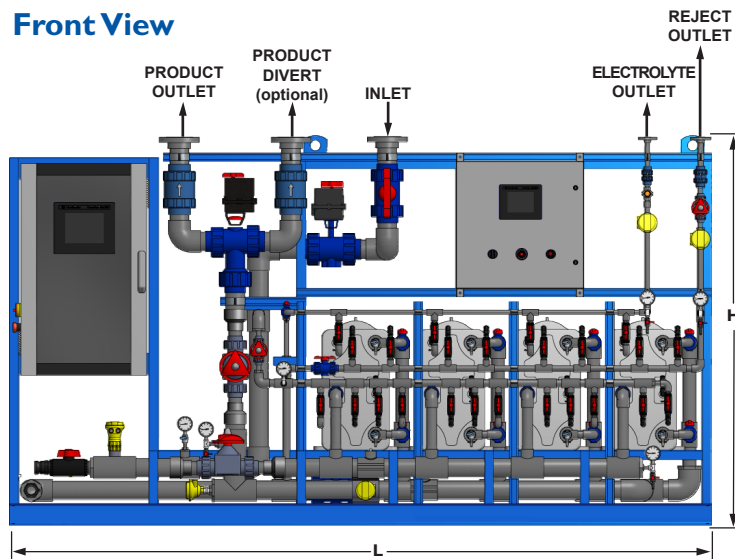
- Product water divert valve
- Alternate PLC systems
- EDI cell clean-in-place (CIP) systems
- CPVC system piping
- Feedwater resistivity monitor
- System pressure transmitters
- Product water pressure relief valve
- Two-pass Reverse Osmosis (RO) pretreatment
- Feed/product water storage tanks
- Feed/product water transfer pump systems

SYSTEM SPECIFICATIONS

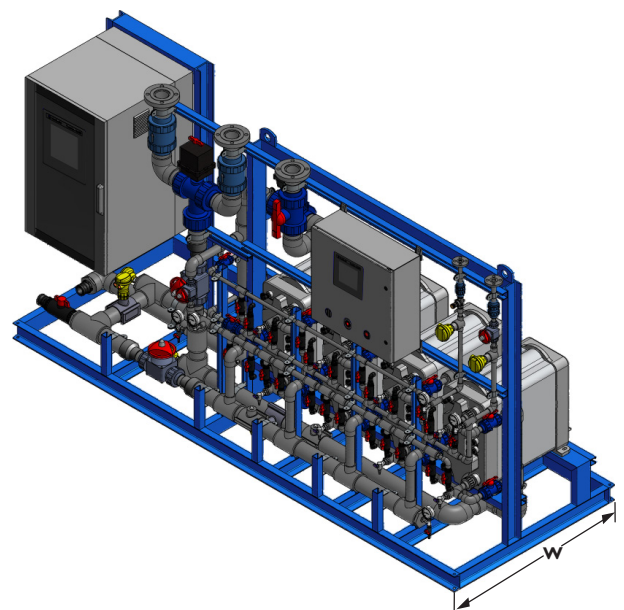
MODEL	MEDI-25	MEDI-50	MEDI-100	MEDI-150	MEDI-200
EDI WATER PRODUCTION RATE (GPM)	25	50	100	150	200
QUANTITY OF EDI CELLS	1	2	4	6	8
MAXIMUM CURRENT LOAD at 350 VDC (AMP)	6	12	24	36	48
INLET FEED WATER RATE (GPM)	28	55	110	166	220
MAXIMUM WATER TO DRAIN (GPM)	3	5	10	16	20
INLET FEED CONNECTION SIZE	2"	2"	3"	3"	4"
PRODUCT CONNECTION SIZE	2"	2"	3"	3"	4"
DRAIN CONNECTION SIZE	3/4"	3/4"	1"	1"	1"
ELECTROLYTE FLUSH CONNECTION	1/2"	1/2"	3/4"	3/4"	3/4"
SYSTEM DIMENSIONS (LxWxH)	92"x48"x73"	100"x48"x73"	133"x48"x73"	133"x48"x84"	133"x48"x84"
SHIPPING WEIGHT (LBS)	2,200	2,500	3,000	3,750	4,400

SYSTEM DIMENSIONS

Front View



ProfileView



FEEDWATER REQUIREMENTS

PARAMETERS	REQUIREMENT
FEED CONDUCTIVITY (INCLUDING CO ₂)	< 10 μ s/cm
pH	7-10
SILICA (REACTIVE)	< 0.1 ppm
TOTAL HARDNESS AS CaCO ₃	< 0.1 ppm
TOC	< 0.1 ppm
HEAVY METALS (Fe, Mn etc.)	< 0.01 ppm
FREE CHLORINE AS Cl ₂	< 0.05 ppm

Notes

- Standard specifications are based on typical applications and incoming water quality from a Two-Pass Reverse Osmosis (RO) System. Specifications may be altered to meet certain site conditions and changes in incoming and/or product water quality requirements.
- Dimensions and shipping weights are estimated only. Actual dimensions and weights differ dependant upon the final system design and options selected.

