

THE ELECTRODEIONIZATION (EDI) SYSTEM

"High Quality Water Purification by Electropure EDI"



The Electrodeionization (EDI) system has become an important technology in producing high purity water for world wide manufacturing. It combines ion exchange resin and ion-selective membrane sandwiched between two electrodes under a dc voltage potential.

Advantages - over the conventional DI system.

- *Product water quality 10-18 MΩ.cm*
- *No Regeneration Chemical required*
- *No Shutdown require for regeneration*
- *Easy in Startup and Operation*
- *Less Floor Space required*
- *Little Energy required*

As the RO Water has been required for EDI feeding, the combination of Reverse Osmosis System and EDI system installed in the same unit is highly efficient and strongly competitiveness. Whenever the high pure water quality is required, RO/EDI package is the first selection of more manufactureres in the world.



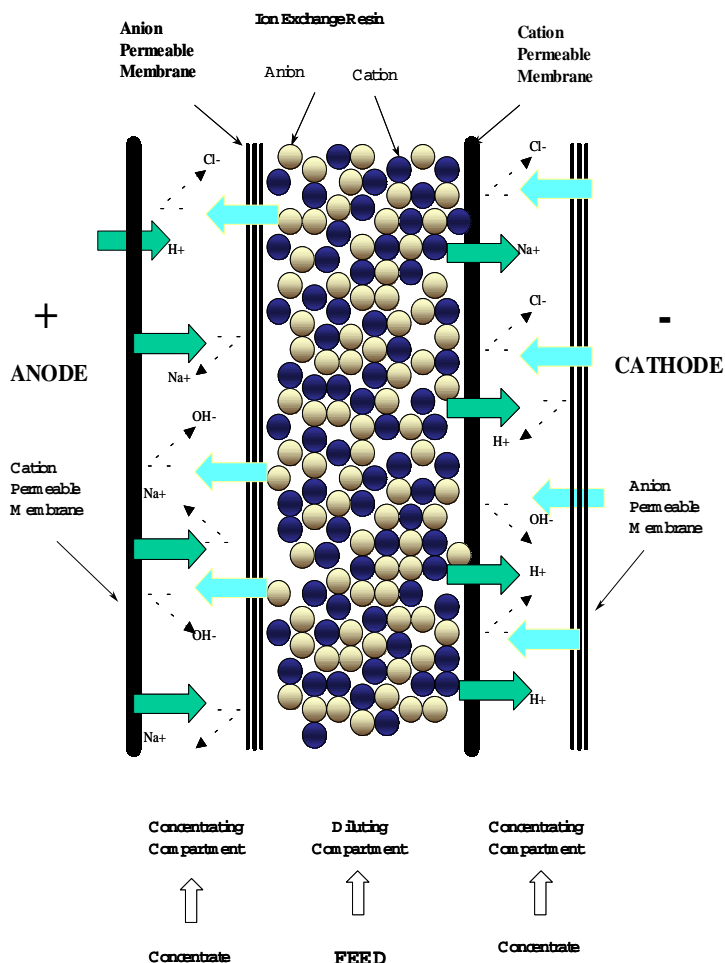
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Detail of EDI Process

Water contains many impurities including dissolved salts, which are composed of negatively charged ions (anions) and positively charged ions (cations). Typical ions include sodium, calcium, magnesium, chloride, sulfate, nitrate, carbonate, bicarbonate, etc. Over 98% of these ions can be removed by appropriate reverse osmosis (RO) treatment. Municipal water also contains organics, dissolved gases (e.g., O₂, CO₂), trace metals, and weakly-ionized inorganic compounds (e.g., boron and silica), which must be removed for use in most industrial process. The RO system and its pretreatment also removes many of these impurities.

RO permeate (the EDI feedwater) should range from 4–30 µs/cm (conductivity). Ultrapure (deionized) water typically ranges from 10–18 MΩ.cm depending on the application. Typically, the fewer ions in the EDI feed, the higher quality the permeate.



Technical Specification

Product	Flow Range, gpm	Flow Range, m ³ /h	Operating Voltage, VDC	Dimensions* Width 8 3/8" Height 22"	W 21 cm H 56 cm
XL-100	1/2 to 3/4	50 to 150 l/h	30-60	Depth : 6"	D 15 cm
XL-200	1/2 to 1 1/2	100 to 300 l/h	60-120	7"	18 cm
XL-300	1 1/2 to 4	300 to 900 l/h	100-160	9"	23 cm
XL-400	3 to 7	0.7 to 1.5	150-200	11"	28 cm
XL-500	6 to 10	1.3 to 2.3	250-300	14"	36 cm

Remarks : Large capacity is available



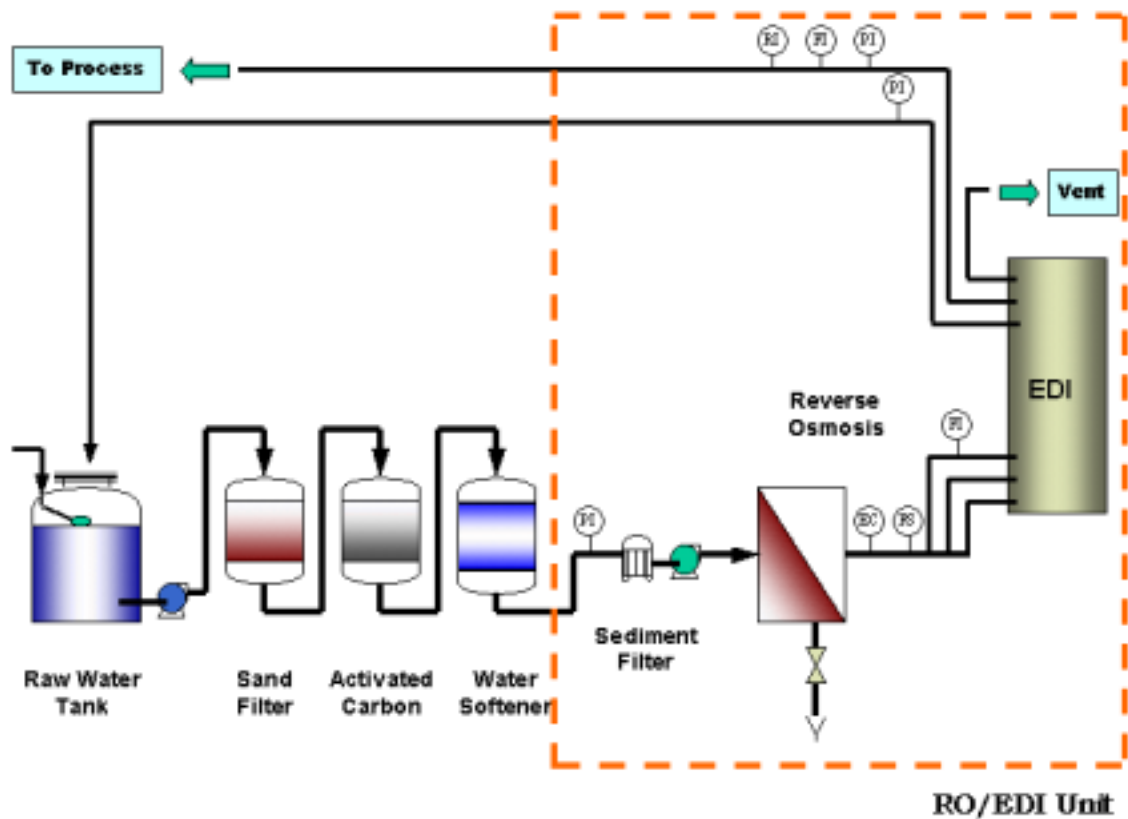


Figure : A Simple RO/EDI System

Function of Components

Sand Filter	:	To remove suspended Solid and colloid, and some particles
Activated Carbon	:	To remove Chlorine, chloramine, and many organics solvents.
Water Softener	:	To remove Hard Cations in order to prevent scaling in the RO/EDI
Sediment Filter	:	To remove undissolved matter to prevent RO membrane fouling
Reverse Osmosis Unit	:	To remove the bulk of dissolved salts and organics.
Flow Meters (FI)	:	To measure the flow rates of the various streams
Flow Switches (FS)	:	To ensure that EDI receives power only when water flow is present
Conductivity Meter (EC):		To measure and display the quality of the product from RO
Resistivity Meter (RI)	:	To measure and display the quality of the product from EDI
Power Supply	:	Source of DC power for the potential across the EDI module.
Pressure Relief Valve	:	To protect against excessive pretreatment pressure fluctuation
EDI Module	:	Act as a polish by means of Electrodeionization Technology



Benefits

- One-stage RO as feed
- No concentraterecirculation needed
- Easier to array modules side-by-side on skid
- Lightweight and compact
- Plumbing attachments out one face
- Waterproof electrical attachment on the opposite face
- Stack and bolts hidden internally

Figure : The Complete EDI Unit

