

Process / Potable Water Treatment

Electro-Deionization (EDI)



Product Application

The Electro-Deionization (EDI) process is mainly used to produce (demineralized) high purified water required for different industries. The process combines semi-impermeable membrane technology with ion-exchange media. Electrical current is used to continuously regenerate the resin, eliminating the need for using harsh chemicals for the regeneration of ion exchange resin. The EDI technology is used to produce high purified water ($< 0.06 \mu\text{m}$) mainly for the following industries:

- Steam generation for Petrochemical, chemical, Oil & Gas industries
- Injection water for Pharmaceutical and Autoclave steam disinfection
- Steam generation for combined cycle power plant, thermal power plants
- Food and beverage, especially within wine industries
- Semi-conductor industries

Process Description

Electro-deionization (EDI) is an electrically driven water treatment technology that uses electricity, with a combination of ion exchange resin & membrane. This technology is used to polish the water (Feed Water conductivity: $< 40 \mu\text{m}$) to reduce conductivity to less than $< 0.06 \mu\text{m}$ and produce (demineralized) high purified water.

The system consists of Pretreatment to insure feed water conductivity less than $< 40 \mu\text{m}$, two streams (Feed & Brine) pass the EDI, and two streams (Permeate & Brine) generated after the EDI. Permeate is the high purified water, brine is the concentrated water.

Product Benefits:

- Simple and continuous operation
- Chemicals for regeneration and neutralization eliminated
- Cost effective operation and maintenance
- Low power consumption
- Non polluting, safety and reliability
- Minimum monitoring instrumentation & automatic valves
- Minimum footprint
- Continuous & Constant flow during regeneration
- It provides complete removal of dissolved inorganic particles

Service And Features:

- Complete supply including Pretreatment to achieve the performance guarantee values
- Modular type, easy to expand
- Fast track delivery
- Retrofit for existing plants by replacing conventional Demineralization plans.
- Installation & supervision commissioning
- Operation & maintenance services