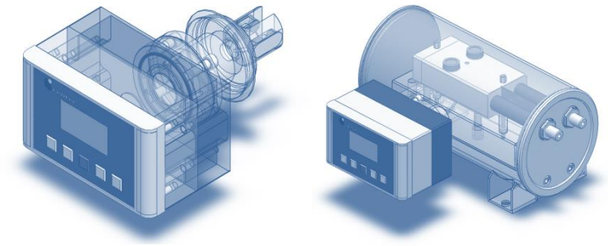
The Centec Group

Centec is a privately owned group of companies. From conventional power plants to solar energy and biofuel – there is a broad range of applications for our automated process skids. We are a leading supplier of water purification and deaeration technologies. Automated CIP-systems designed and manufactured by Centec are installed around the globe Centec technology includes a range of high precision process sensors for accurately measuring critical product properties such as the concentration of acidic and caustic solutions and O_2 content. The largest energy groups in the world and numerous power plants are among our key customers.



Accuracy. Reliability. Centec.

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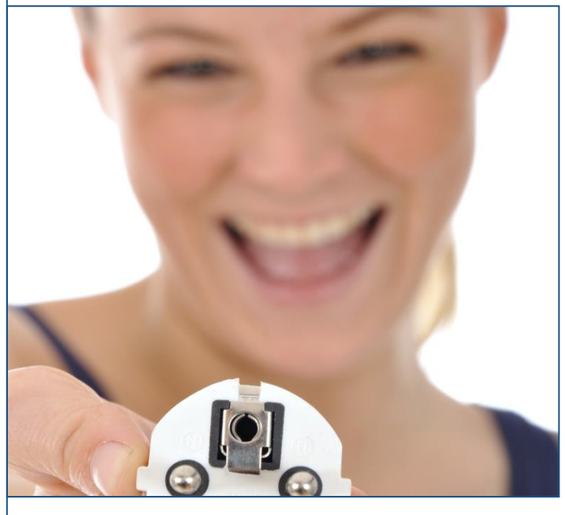
IONTEC

Water Softening & Demineralization

Centec Energy Systems



More information at **www.centec.de**

Automated process skids and high precision sensors from a single source. Centec.

IONTEC

The Principle

The Centec ion exchange system IONTEC softens or demineralizes water. The unit contains ion exchange resins which are insoluble granular polymers. In their molecular structure they contain loosely held positive cations or negative anions. These ions exchange with the ions in the treated solution as it passes through the unit. For softening of water, a cation resin containing Na^{+} is applied. The calcium and magnesium ions forming the hardness in water and creating scale deposits are exchanged for the sodium ions of the resin which binds more strongly with Ca^{++} and Mg^{++} than with Na^{+}. When most of the ions in the resin have been replaced the resin is exhausted and the regeneration cycle is initiated. Regeneration is done with brine which effectively strips out the Ca^{++} and Mg^{++} from the exhausted resin. For demineralization, basically all dissolved ions are removed from the water. Therefore, the solution passes through a cation resin containing H^{+} replacing all cations and through an anion resin containing OH^{-} replacing all anions. The H^{+} and OH^{-} then combine, to form purified water. For regeneration the cation resin is treated with an acid. The anion resin is regenerated with a strong base.

- **Application Specific and Energy Efficient**
  execution in various materials available
  appropriate resin regeneration on demand
  mixed bed ion exchange design possible
- **Modular Design with Standard PLC**
  skid mounted for easy installation and start-up
- **Hygienic Execution and Full CIP Capability**
- **Outstanding Price-Performance-Ratio**

Experience. Expertise. Centec.

Particle Pre-Filtration · Disinfection · Water Softening & Demineralization · Ultrafiltration · Reverse Osmosis
Electro Deionization · WFI Distillation · Membrane Deaeration · Column Deaeration · Vacuum Deaeration
Multi Component Mixing · Additive Dosing · Flash Pasteurization · Cleaning-in-Place · Pure Steam Generation

Technical Data

Capacity	1 - 500 t/h
Residual Conductivity	< 1,1 µS/cm (20°C) for mixed bed
Pressure of Operation	0 - 8 bar
Temperature of Operation	2 - 60 °C
Temperature of CIP	max. 85 °C
Material	epoxy/PP/PE 1.4301/1.4404 AISI 304/316L
PLC	SIMATIC S7
Options	hardness control pre-filtration reverse osmosis electro deionization disinfection

The Centec production is certified according to ISO 9001.