

# E-Cell Electrodeionization Systems

## Ultrapure Water: Power, Semiconductor, Pharmaceutical, General Industry

### Features

- Ultrapure water
- Replaces regenerable deionization
- Significant space saving
- Lowers capital installation cost
- No harsh regeneration chemicals

### Description and Use

E-Cell systems make use of electric current to de-ionize reverse osmosis permeate, bringing the water up to the ultrapure level of purity required in today's most demanding applications.

### Typical Applications

- Semiconductor fabrications
- Power generation
- Boiler feed; low silica
- Pharmaceutical USP, WFI
- General industry

### Feed Water Requirements

The water fed to the E-Cell unit must be RO permeate or equivalent. Feedwater requirements:

TEA (incl. CO <sub>2</sub> ) ppm (mg/L) CaCO <sub>3</sub>	<25.0
pH	5 to 9
Hardness, ppm (mg/L) CaCO <sub>3</sub>	<0.5
Silica (reactive), ppm (mg/L)	<0.5
TOC, ppm (mg/L)	<0.5
Total chlorine, ppm (mg/L)	<0.05
Fe, Mn, H <sub>2</sub> S, ppm (mg/L)	<0.01

Color 5 APHA;  
Oxidizing Agents,  
Oil & Grease

None detectable

### Packaging Information

Individual Stacks

- Dimensions: 12" (30 cm) W x 19" (49cm) D x 24" (61 cm) H
- Shipping weight: 202 lbs (92 kg)
- Packaged systems: Delivered on skids, wood boxed and blocked for safety in transit
- Typical system: 150 gpm (34 m<sup>3</sup>/hr)
- Ship weight: 5,450 lb (2,475 kg)
- Operating weight: 5,800 lb (2640 kg)

### Safety Precautions

- High voltage, up to 600 VDC
- Ensure all safety interlocks are operating before commissioning
- Other than for system operation (valves, dials, buttons, switches) do not touch the system while the rectifier is charged
- See Owners Guide for complete list of safety requirements

### Features

- Fully engineered, robust system; continuous operation
- Modular, from 7.5 gpm (1.70 m<sup>3</sup>/hr) to 400 gpm+ (90.85 m<sup>3</sup>/hr)
- Outstanding service, support, and documentation. Excellent training.



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- Low power requirement
- No need to exchange resin
- Pharmaceutical HT stack is 176°F (80°C) sanitizable

## Product Specifications

- Ultrapure water of 16 MOhm.cm
- Silica typically under 20 ppb (depends on feed, so see detailed documentation)
- Operating parameters, sample system — 150 gpm (34 m<sup>3</sup>/hr)
- Electrical, maximum — 45 amps @ 600 VDC
- Product outlet flow range — 75 to 150 gpm (17 to 34 m<sup>3</sup>/hr)
- Pressure drop — 20 to 35 psig
- Temperature rise — 4.3°F (2°C) maximum

- Electrolyte outlet — 1.8 to 3.5 gpm (0.4 to 0.79 m<sup>3</sup>/hr) to drain
- pH — 7.0 to 9.0
- Concentrate conductivity — 150 to 1250 µS/cm
- Concentrate flow determined by recovery rate, typically 90 to 95%
- Requires periodic cleaning for biological growth and scale. Twice per year is typical.
- Cleaning skids available. Refer to sales guide for cleaning frequency

## Options Available

There are many instrumentation and materials of construction options. Contact your specialist to assist in quotation preparation.