

# E-Cell-3XHH Stack

## High Hardness Industrial Electrodeionization (EDI) Stack



E-Cell\*-3XHH is designed to:

- Accept high hardness feed water, at up to 2.5 ppm as CaCO<sub>3</sub> at 80% recovery
- Provide ultrapure water for industrial applications including Power & General Industry.
- Produce Mixed Bed quality water on a continuous basis.
- Require no caustic or acid for regeneration of ion exchange resin within the stack.
- Be leak free, guaranteed.
- Eliminate brine injection and concentrate recirculation, simplifying system design.

### Description and Use

E-Cell-3XHH stacks are electrodeionization (EDI) stacks which use electrical current to deionize and polish reverse osmosis (RO) permeate water. The product water for the E-Cell-3XHH is at an Ultrapure level required in today's most demanding applications.

### Typical Applications

- Power Generation (NO<sub>x</sub>, Boiler Feed)
- General Industry

### Quality Assurance

- CE, UL & CSA marked
- Manufactured in a ISO 9001:2000 facility

### E-Cell-3X Stack Specifications

Nominal Flow	5.0 m <sup>3</sup> /hr	22.0 gpm
Flow Rate Range	2.27 – 6.36 m <sup>3</sup> /hr	10 – 28 gpm
Shipping Weight	135 kg	298 lbs
Dimensions (width x height x depth)	31cm x 61cm x 66cm	12" x 24" x 26"

### Typical Performance

Product Quality		
Resistivity	> 16 MOhm-cm	
Sodium	< 3 ppb	
Silica (SiO <sub>2</sub> ) Removal	Up to 98% or < 10 ppb	
Boron Removal	> 90%	
Operating Parameters		
Recovery	Up to 95%	
Concentrate Flow	Counter current to Product Flow <sup>1</sup>	
Voltage	0–400 VDC	
Amperage	0–5.2 ADC	
Inlet Pressure at Nominal Flow	4.1–6.9 bar	60–100 psi
Pressure Drop at Nominal Flow	1.4–2.8 bar	20–40 psi

Actual performance may vary depending on site conditions.  
Reference E-Calc projection software to verify actual performance.  
Patents pending.

<sup>1</sup> Co-flow operation is acceptable when feed hardness concentrations are <0.1 ppm as CaCO<sub>3</sub>.



Maximum Feed Water Specifications		
Feed Water - Total Exchangeable Anions (TEA as CaCO <sub>3</sub> )	<25 mg/l	<25 ppm
Feed Water - Conductivity, NaHCO <sub>3</sub> equivalent	< 43 µS/cm	< 43 µS/cm
Temperature	5–40°C	40–104°F
Total Hardness (as CaCO <sub>3</sub> )	< 2.5 mg/l	< 2.5 ppm
Silica (SiO <sub>2</sub> )	< 1.0 mg/l	< 1.0 ppm
Total Organic Carbon (TOC as C)	< 0.5 mg/l	< 0.5 ppm
Total Chlorine	< 0.05 mg/l	< 0.05 ppm

E-Cell Stacks						
Product Description	Application	Nominal Flow	Flow Range	Resistivity	Nominal Recovery	Hardness
E-Cell-3X	Industrial	22 gpm 5.0 m <sup>3</sup> /hr	10 – 28 gpm 2.3 to 6.4 m <sup>3</sup> /hr	> 16 MOhm-cm	87-95%	< 1.0 ppm
E-Cell-3XHH	High Hardness Industrial	22 gpm 5.0 m <sup>3</sup> /hr	10 – 28 gpm 2.3 to 6.4 m <sup>3</sup> /hr	> 16 MOhm-cm	80-95%	< 2.5 ppm
E-Cell MK-3	Industrial	15 gpm 3.4 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 16 MOhm-cm	87-95%	< 1.0 ppm
E-Cell MK-3Pharm	Pharmaceutical	15 gpm 3.4 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 10 MOhm-cm	87-95%	< 1.0 ppm
E-Cell MK-3PharmHT	Pharmaceutical Hot water Sanitizable	15 gpm 3.4 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 10 MOhm-cm	87-95%	< 1.0 ppm
E-Cell MK-3Mini	Industrial Pharmaceutical	5 gpm 1.1 m <sup>3</sup> /hr	2.5 to 6.5 gpm 0.6 to 1.5 m <sup>3</sup> /hr	> 16 MOhm-cm	78-93%	< 1.0 ppm
E-Cell MK-3MiniHT	Industrial / Pharm Hot water Sanitizable	5 gpm 1.1 m <sup>3</sup> /hr	2.5 to 6.5 gpm 0.6 to 1.5 m <sup>3</sup> /hr	> 10 MOhm-cm	78-93%	< 1.0 ppm
<b>MK-2 Generation stacks are only provided as replacement stacks to support existing system installations.</b>						
E-Cell MK-2E	Industrial	15 gpm 3.4 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 16 MOhm-cm	90-95%	< 0.5 ppm
E-Cell MK-2Pharm	Pharmaceutical	18 gpm 4.1 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 10 MOhm-cm	90-95%	< 0.5 ppm
E-Cell MK-2PharmHT	Pharmaceutical Hot water Sanitizable	18 gpm 4.1 m <sup>3</sup> /hr	7.5 – 20 gpm 1.7 to 4.5 m <sup>3</sup> /hr	> 10 MOhm-cm	90-95%	< 0.5 ppm
E-Cell MK-2Mini	Industrial Pharmaceutical	5 gpm 1.1 m <sup>3</sup> /hr	2.5 to 6.5 gpm 0.6 to 1.5 m <sup>3</sup> /hr	> 16 MOhm-cm	90-95%	< 0.5 ppm
E-Cell MK-2MiniHT	Industrial / Pharm Hot water Sanitizable	5 gpm 1.1 m <sup>3</sup> /hr	2.5 to 6.5 gpm 0.6 to 1.5 m <sup>3</sup> /hr	> 10 MOhm-cm	90-95%	< 0.5 ppm

Other stack details can be found on the stack specific Fact Sheets.

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