E-Cell Standard Systems
MK-3, 15 to 27 Stacks

With the combination of E-Cell and Ionics EDI technology, GE Water & Process Technologies is leading the way for Electrodeionization (EDI). Our E-Cell Standard Systems with MK-3 stacks are designed for reliable, long-term trouble free operation, with straightforward control.

Standard Features

- MK-3 E-Cell stacks allow for a simplified system design, removing the need for concentrate recirculation as well as brine injection.
- MK-3 E-Cell stack’s low energy design reduces electrical requirements and operating costs.
- MK-3 E-Cell stacks are hard piped directly to the system.
- Concentrate flow is in the opposite direction to the Dilute flow, thus allowing systems to operate at higher hardness concentrations for longer periods of time.
- Basic and Premium models available
- GE Fanuc Micro PLC & 6” color Quick Panel HMI
- Automatic Outlet Divert Valve
- Full Owners Operation & Maintenance Manual, Factory Acceptance Test results and Stack Performance Test results

Quality Assurance

Certification: .................................................. UL, CSA
Facility: .................................................... ISO 9001:2000
Full Factory Acceptance Test (FAT) completed on each system before shipment.

Instrumentation

Flow ................................................. Dilute (Product) Outlet
................................................. Concentrate Outlet

Feed Water Requirements

Total Exchangeable Anions ......................... < 25.0 ppm (as CaCO₃) Including CO₂ as calculated by E-Calc
pH ...................................................... 5 – 9
Hardness ........................................... < 1.0 ppm (as CaCO₃)
Silica (Reactive) ..................................... < 1.0 ppm
SDI (15 min) ........................................... < 1
TOC .................................................... < 0.5 ppm
Total Chlorine ...................................... < 0.05 ppm
Fe, Mn, H₂S ........................................... < 0.01 ppm

Operating Parameters

Outlet (Dilute) Product Quality............. > 16 MOhm-cm
Outlet Product Silica Guarantee ...... Down to < 5ppb
Recovery: ............................................. Up to 95%
Temperature: .............................. 40 to 100ºF (4.4 to 38ºC)
Feed Pressure: .............................. 70 to 100 psi (4.7 to 6.9 bar)
Dilute Pressure Drop: ...... 20 to 35 psi (1.4 to 2.4 bar)
Input Voltage: .................................. 480 60Hz

Material of Construction

Welded Frame: .................................. Painted Carbon Steel
Dilute Piping: ...................................... Sch. 80 PVC
Concentrate Piping: .......................... Sch. 80 PVC
Flanges: ............................................. ANSI
Rectifier: ............................................. NEMA 3R
Control Panel: ..................................... NEMA 4
Control Panel Power: .......................... 24VDC
### E-Cell Standard Systems

<table>
<thead>
<tr>
<th>Model</th>
<th>GEMK3-15</th>
<th>GEMK3-18</th>
<th>GEMK3-24</th>
<th>GEMK3-27</th>
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</thead>
<tbody>
<tr>
<td><strong>General Information:</strong></td>
<td></td>
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<tr>
<td>Number of Stacks</td>
<td>10 - 15</td>
<td>12 - 18</td>
<td>16 - 24</td>
<td>18 - 27</td>
</tr>
<tr>
<td>Type of stack</td>
<td>MK-3</td>
<td>MK-3</td>
<td>MK-3</td>
<td>MK-3</td>
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<tr>
<td><strong>Flow Rates:</strong></td>
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<tr>
<td>Product Flow</td>
<td>225 gpm</td>
<td>270 gpm</td>
<td>360 gpm</td>
<td>405 gpm</td>
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<tr>
<td>Nominal Range</td>
<td>150-300 gpm (34.1-68.1 m³/h)</td>
<td>180-360 gpm (40.9-81.8 m³/h)</td>
<td>240-480 gpm (54.5-109.0 m³/h)</td>
<td>270-540 gpm (61.4-122.6 m³/h)</td>
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<tr>
<td>Concentrate Outlet Flow (Depends on Recovery &amp; Product Flow)</td>
<td>0.67-28.08 gpm (3.86-106.29 lpm)</td>
<td>0.81-33.70 gpm (3.07-127.56 lpm)</td>
<td>1.07-44.93 gpm (4.05-170.08 lpm)</td>
<td>1.21-50.55 gpm (4.58-191.35 lpm)</td>
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<tr>
<td>Electrode Outlet Flow</td>
<td>5.25 gpm (19.87 lpm)</td>
<td>6.30 gpm (23.85 lpm)</td>
<td>8.40 gpm (31.80 lpm)</td>
<td>9.45 gpm (35.77 lpm)</td>
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<tr>
<td><strong>Dimensions:</strong></td>
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<tr>
<td>Overall Dimensions (Width x Length x Height)</td>
<td>60&quot; x 209&quot; x 84&quot; (1.5m x 5.3m x 2.1m)</td>
<td>60&quot; x 222&quot; x 84&quot; (1.5m x 5.6m x 2.1m)</td>
<td>60&quot; x 270&quot; x 84&quot; (1.5m x 6.9m x 2.1m)</td>
<td>60&quot; x 283&quot; x 84&quot; (1.5m x 7.2m x 2.1m)</td>
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<tr>
<td>Inlet Piping</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
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<tr>
<td>Product Outlet Piping</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
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<tr>
<td>Rinse Outlet Piping</td>
<td>6&quot;</td>
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<tr>
<td>Electrode Outlet Piping</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Concentrate Outlet Piping</td>
<td>1.5&quot;</td>
<td>1.5&quot;</td>
<td>1.5&quot;</td>
<td>1.5&quot;</td>
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<tr>
<td><strong>Electrical:</strong></td>
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<tr>
<td>Maximum Output @ 300VDC</td>
<td>78.0 Amps</td>
<td>93.6 Amps</td>
<td>124.8 Amps</td>
<td>140.4 Amps</td>
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<tr>
<td>Connection Requirement</td>
<td>36 kVA</td>
<td>42 kVA</td>
<td>56 kVA</td>
<td>63 kVA</td>
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<tr>
<td>Typical Power Consumption: 1 - 2 kWh/1000gal (0.53 – 1.06 kWh/m³)</td>
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### Standard Options:

1. Premium Model – flow & pressure transmitters, ability to connect to SCADA system.
2. Premium Model Option – Allen Bradley Micrologix PLC
3. Premium Model Option – removal of PLC & HMI, all wiring terminated at a NEMA 4 Junction Box

Performance, flow rate per stack, recovery and power consumption are all dependent on inlet feed water quality and temperature. An E-Calc projection must be completed for proper system design & for any performance guarantee to be provided.