E-Cell* EU Standard Systems
MK-3, 1 to 12 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.
- 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.
- Premium models available
- Siemens S1200 PLC and HMI
- Automatic Outlet Divert Valve
- Full Owners Operation & Maintenance Manual, Factory Acceptance Test results and Stack Performance Test results
- Direct Current Variable Freq. Drive (DC Drive)

Quality Assurance
Certification: CE Marked
Full Factory Acceptance Test (FAT) completed on each system before shipment.

Instrumentation
Flow
- Dilute (Product) Outlet
- Concentrate Outlet
- Electrode Outlet
Pressure
- Dilute Inlet, Dilute Outlet
- Concentrate Inlet, Concentrate Outlet
- Electrode Outlet
Resistivity
- Dilute (Product) Outlet

Feed Water Requirements
- Total Exchangeable Anions < 25.0 ppm (as CaCO₃)
- pH (TEA including CO₂ as calculated by E-Calc) 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 < 5 ppb
- Recovery: Up to 95%
- Temperature: 4.4 to 40 °C (40 to 104 °F)
- Feed Pressure: 4.7 to 6.9 bar (70 to 100 psi)
- Dilute Pressure Drop: 1.4 to 2.4 bar (20 to 35 psi)
- Input Voltage: 400 VAC/3/50Hz
Material of Construction

- **Welded Frame**: Painted Carbon Steel
- **Dilute Piping**: PPL
- **Concentrate Piping**: PVC
- **Flanges**: DIN
- **DC Drive**: IP55
- **Control Panel**: IP55
- **Control Panel Power**: 24VDC

E-Cell Standard Systems

<table>
<thead>
<tr>
<th>Model</th>
<th>GEMK3-1 EU</th>
<th>GEMK3-3 EU</th>
<th>GEMK3-6 EU</th>
<th>GEMK3-9 EU</th>
<th>GEMK3-12 EU</th>
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</thead>
<tbody>
<tr>
<td>General Information</td>
<td></td>
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<tr>
<td>Number of Stacks</td>
<td>1</td>
<td>2 - 3</td>
<td>4 - 6</td>
<td>6 - 9</td>
<td>10 - 12</td>
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<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>Flow Rates</td>
<td></td>
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<tr>
<td>Product Flow Nominal</td>
<td>3.4 m³/h</td>
<td>10.2 m³/h</td>
<td>20.4 m³/h</td>
<td>30.6 m³/h</td>
<td>40.8 m³/h</td>
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<tr>
<td>Product Flow Range</td>
<td>2.3-4.5 m³/h</td>
<td>6.8-13.6 m³/h</td>
<td>13.6-27.3 m³/h</td>
<td>20.4-40.9 m³/h</td>
<td>27.3-54.5 m³/h</td>
</tr>
<tr>
<td>Concentrate Outlet Flow (Depends on Recovery &amp; Product Flow)</td>
<td>3.4-5.7 lpm</td>
<td>11.0-17.8 lpm</td>
<td>22.0-35.6 lpm</td>
<td>33.3-53.4 lpm</td>
<td>44.3-71.2 lpm</td>
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<tr>
<td>Electrode Outlet Flow</td>
<td>1.3 lpm</td>
<td>7.9 lpm</td>
<td>11.9 lpm</td>
<td>15.9 lpm</td>
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<tr>
<td>Dimensions</td>
<td></td>
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</tr>
<tr>
<td>Overall System Dimensions (Width x Length x Height)</td>
<td>0.9mx1.4m x 1.8m</td>
<td>1.2mx2.2m x 2.1m</td>
<td>1.2mx2.7m x 2.1m</td>
<td>1.2mx3.4m x 2.1m</td>
<td>1.2mx3.7m x 2.1m</td>
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<tr>
<td>Inlet Piping</td>
<td>DN25</td>
<td>DN50</td>
<td>DN80</td>
<td>DN100</td>
<td>DN100</td>
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<tr>
<td>Product Outlet Piping</td>
<td>DN25</td>
<td>DN50</td>
<td>DN80</td>
<td>DN100</td>
<td>DN100</td>
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<tr>
<td>Rinse Outlet Piping</td>
<td>DN25</td>
<td>DN50</td>
<td>DN80</td>
<td>DN100</td>
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<tr>
<td>Electrode Outlet Piping</td>
<td>DN15</td>
<td>DN15</td>
<td>DN15</td>
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<tr>
<td>Concentrate Outlet Piping</td>
<td>DN15</td>
<td>DN15</td>
<td>DN20</td>
<td>DN25</td>
<td>DN40</td>
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<tr>
<td>All piping sizes are provided for nominal flow rates at 90% recovery.</td>
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<td>Shipping Weight</td>
<td>454 kg</td>
<td>1134 kg</td>
<td>1588 kg</td>
<td>1950 kg</td>
<td>2268 kg</td>
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<tr>
<td></td>
<td>1000 lbs</td>
<td>2500 lbs</td>
<td>3500 lbs</td>
<td>4300 lbs</td>
<td>5000 lbs</td>
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<td>Electrical</td>
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<tr>
<td>Maximum Output @ 300VDC</td>
<td>5.2Amps</td>
<td>15.6Amps</td>
<td>31.2Amps</td>
<td>46.8Amps</td>
<td>62.4Amps</td>
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<tr>
<td>Connection Requirement</td>
<td>3.5 KVA</td>
<td>8 KVA</td>
<td>15 KVA</td>
<td>22 KVA</td>
<td>29 KVA</td>
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<tr>
<td>Typical Power Consumption</td>
<td>0.13 – 0.26 kWh/m³</td>
<td>(0.5 – 1.0 kWh/1000gal)</td>
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Standard Options:
1. Premium Model – flow & pressure transmitters, ability to connect to SCADA system.
2. Premium Model Option – removal of PLC & HMI, all wiring terminated at a IP55 Junction Box

Performance, flow rate per stack, recovery and power consumption are 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. Patents Pending.