

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

.....Electrode Outlet
 Pressure..... Dilute Inlet, Dilute Outlet
Concentrate Inlet, Concentrate Outlet
Electrode Outlet
 Resistivity Dilute (Product) Outlet
 Dilute Outlet

Feed Water Requirements

Total Exchangeable Anions..... < 25.0 ppm
 (as CaCO₃) (TEA) Including CO₂ as calculated by E-Calc
 pH5 – 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 GuaranteeDown to < 5ppb
 Recovery: Up to 95%
 Temperature: 40 to 100°F (4.4 to 38°C)
 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

Model	GEMK3-15	GEMK3-18	GEMK3-24	GEMK3-27
General Information:				
Number of Stacks	10 - 15	12 - 18	16 - 24	18 - 27
Type of stack	MK-3	MK-3	MK-3	MK-3
Flow Rates:				
Product Flow	225 gpm	270 gpm	360 gpm	405 gpm
Nominal Range	150-300 gpm 34.1-68.1 m ³ /h	180-360 gpm 40.9-81.8 m ³ /h	240-480 gpm 54.5-109.0 m ³ /h	270-540 gpm 61.4-122.6 m ³ /h
Concentrate Outlet Flow (Depends on Recovery & Product Flow)	0.67-28.08 gpm 3.86-106.29 lpm	0.81-33.70 gpm 3.07-127.56 lpm	1.07-44.93 gpm 4.05-170.08 lpm	1.21-50.55 gpm 4.58-191.35 lpm
Electrode Outlet Flow	5.25 gpm 19.87 lpm	6.30 gpm 23.85 lpm	8.40 gpm 31.80 lpm	9.45 gpm 35.77 lpm
Dimensions:				
Overall Dimensions (Width x Length x Height)	60" x 209" x 84" 1.5m x 5.3m x 2.1m	60" x 222" x 84" 1.5m x 5.6m x 2.1m	60" x 270" x 84" 1.5m x 6.9m x 2.1m	60" x 283" x 84" 1.5m x 7.2m x 2.1m
Inlet Piping	6"	6"	6"	6"
Product Outlet Piping	6"	6"	6"	6"
Rinse Outlet Piping	6"	6"	6"	6"
Electrode Outlet Piping	1"	1"	1"	1"
Concentrate Outlet Piping	1.5"	1.5"	1.5"	1.5"
All piping sizes are provided for nominal flow rates at 90% recovery.				
Shipping Weight	7800 lbs 3538 kg	8500 lbs 3855 kg	11000 lbs 4990 kg	12000 lbs 5443 kg
Electrical:				
Maximum Output @ 300VDC	78.0 Amps	93.6 Amps	124.8 Amps	140.4 Amps
Connection Requirement	36 kVA	42 kVA	56 kVA	63 kVA
Typical Power Consumption: 1 - 2 kWh/1000gal (0.53 – 1.06 kWh/m ³)				

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.

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