

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 straight forward 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
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

Feed Water Requirements

Total Exchangeable Anions (TEA including CO ₂ as calculated by E-Calc)	< 25.0 ppm (as CaCO ₃)
pH	5 – 9
Hardness	< 1.0 ppm (as CaCO ₃)
Silica (Reactive)	< 1.0 ppm
SDI (15 min)	< 1
TOC	< 0.5 ppm
Total Chlorine	< 0.05 ppm
Fe, Mn, H ₂ S	< 0.01 ppm

Operating Parameters

Outlet (Dilute) Product Quality	> 16 MOhm-cm
Outlet Product Silica Guarantee	Down to < 5ppb
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	Flanges:	DIN
Dilute Piping:	PPL	DC Drive:	IP55
Concentrate Piping:	PVC	Control Panel:	IP55
		Control Panel Power:	24VDC

E-Cell Standard Systems

Model	GEMK3-1 EU	GEMK3-3 EU	GEMK3-6 EU	GEMK3-9 EU	GEMK3-12 EU
General Information					
Number of Stacks	1	2 - 3	4 - 6	6 - 9	10 - 12
Type of stack	MK-3	MK-3	MK-3	MK-3	MK-3
Flow Rates					
Product Flow Nominal	3.4 m ³ /h	10.2 m ³ /h	20.4 m ³ /h	30.6 m ³ /h	40.8 m ³ /h
Product Flow Range	2.3-4.5 m ³ /h 10-20 gpm	6.8-13.6 m ³ /h 30-60 gpm	13.6-27.3 m ³ /h 60-120 gpm	20.4-40.9 m ³ /h 90-180 gpm	27.3-54.5 m ³ /h 120-240 gpm
Concentrate Outlet Flow (Depends on Recovery & Product Flow)	3.4-5.7 lpm 0.91-1.5 gpm	11.0-17.8 lpm 2.9-4.7 gpm	22.0-35.6 lpm 5.8-9.4 gpm	33.3-53.4 lpm 8.8-14.1 gpm	44.3-71.2 lpm 11.7-18.8 gpm
Electrode Outlet Flow	1.3 lpm 0.35 gpm	4.0 lpm 1.05 gpm	7.9 lpm 2.10 gpm	11.9 lpm 3.15 gpm	15.9 lpm 4.2 gpm
Dimensions					
Overall System Dimensions (Width x Length x Height)	0.9m x 1.4m x 1.8m 36" x 54" x 72"	1.2m x 2.2m x 2.1m 46" x 86" x 84"	1.2m x 2.7m x 2.1m 46" x 107" x 84"	1.2m x 3.4m x 2.1m 46" x 132" x 84"	1.2m x 3.7m x 2.1m 46" x 146" x 84"
Inlet Piping	DN25	DN50	DN80	DN100	DN100
Product Outlet Piping	DN25	DN50	DN80	DN100	DN100
Rinse Outlet Piping	DN25	DN50	DN80	DN100	DN100
Electrode Outlet Piping	DN15	DN15	DN15	DN15	DN15
Concentrate Outlet Piping	DN15	DN15	DN20	DN25	DN40
All piping sizes are provided for nominal flow rates at 90% recovery.					
Shipping Weight	454 kg 1000 lbs	1134 kg 2500 lbs	1588 kg 3500 lbs	1950 kg 4300 lbs	2268 kg 5000 lbs
Electrical					
Maximum Output @ 300VDC	5.2Amps	15.6Amps	31.2Amps	46.8Amps	62.4Amps
Connection Requirement	3.5 KVA	8 KVA	15 KVA	22 KVA	29 KVA
Typical Power Consumption	0.13 – 0.26 kWh/m ³ (0.5 – 1.0 kWh/1000gal)				

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.