

# E-Cell\* EU 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 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.
- Basic and Premium models available
- Siemens S1200 PLC & 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 <sub>2</sub> as calculated by E-Calc)	< 25.0 ppm (as CaCO <sub>3</sub> )
pH	5 – 9
Hardness	< 1.0 ppm (as CaCO <sub>3</sub> )
Silica (Reactive)	< 1.0 ppm
SDI (15 min)	< 1
TOC	< 0.5 ppm
Total Chlorine	< 0.05 ppm
Fe, Mn, H <sub>2</sub> 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:	PVC	DC Drive:	IP55
Concentrate Piping:	PVC	Control Panel:	IP55
		Control Panel Power:	24VDC

## E-Cell Standard Systems

Model	GEMK3-15 EU	GEMK3-18 EU	GEMK3-24 EU	GEMK3-27 EU
<b>General Information</b>				
Number of Stacks	10 - 15	12 - 18	16 - 24	18 - 27
Type of stack	MK-3	MK-3	MK-3	MK-3
<b>Flow Rates</b>				
Product Flow Nominal	51.0 m <sup>3</sup> /h	61.2 m <sup>3</sup> /h	81.6 m <sup>3</sup> /h	91.8 m <sup>3</sup> /h
Product Flow Range	34.1-68.1 m <sup>3</sup> /h 150-300 gpm	40.9-81.8 m <sup>3</sup> /h 180-360 gpm	54.5-109.0 m <sup>3</sup> /h 240-480 gpm	61.4-122.6 m <sup>3</sup> /h 270-540 gpm
Concentrate Outlet Flow (Depends on Recovery & Product Flow)	3.86-106.29 lpm 0.67-28.08 gpm	3.07-127.56 lpm 0.81-33.70 gpm	4.05-170.08 lpm 1.07-44.93 gpm	4.58-191.35 lpm 1.21-50.55 gpm
Electrode Outlet Flow	19.87 lpm 5.25 gpm	23.85 lpm 6.30 gpm	31.80 lpm 8.40 gpm	35.77 lpm 9.45 gpm
<b>Dimensions</b>				
Overall System Dimensions (Width x Length x Height)	1.5m x 5.3m x 2.1m 60" x 209" x 84"	1.5m x 5.6m x 2.1m 60" x 222" x 84"	1.5m x 6.9m x 2.1m 60" x 270" x 84"	1.5m x 7.2m x 2.1m 60" x 283" x 84"
Inlet Piping	DN150	DN150	DN150	DN150
Product Outlet Piping	DN150	DN150	DN150	DN150
Rinse Outlet Piping	DN150	DN150	DN150	DN150
Electrode Outlet Piping	DN25	DN25	DN25	DN25
Concentrate Outlet Piping	DN40	DN40	DN40	DN40
All piping sizes are provided for nominal flow rates at 90% recovery.				
Shipping Weight	3538 kg 7800 lbs	3855 kg 8500 lbs	4990 kg 11000 lbs	5443 kg 12000 lbs
<b>Electrical</b>				
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	0.13 – 0.26 kWh/m <sup>3</sup> (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 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.