

E-Cell* EDI MK-5 Systems

FACT SHEET

WATER TECHNOLOGIES



Electrodeionization (EDI) Systems



Base System Features

- 1 to 12 stacks for flow range of 15 – 336gpm (3.4 - 76.3 m³/h)
- Rectifier compatible with 400VAC & 50Hz or 460VAC & 60Hz
- Individual stack current monitoring
- Flow & pressure transmitters, ability to connect to Supervisory Control and Data Acquisition (SCADA) system

System Options

- Allen Bradley Micrologix Programmable Logic Controller (PLC) with Ethernet
 - Includes Veolia 6" Color QuickPanel View Human-Machine Interface (HMI)
- NEMA (National Electrical Manufacturers Association) 4 Terminal Box - removal of PLC & HMI and all wiring terminated at terminal box

- Standard Instrumentation
 - Burkert Paddlewheel flow sensors on Dilute, Concentrate, and Electrode Outlet
 - Burkert pressure transmitters on all streams
 - Burkert conductivity analyzer and sensor on Dilute Outlet
- Premium Instrumentation
 - Rosemount vortex flow transmitters on Dilute and Concentrate Outlet
 - Burkert Paddlewheel flow sensor on Electrode Outlet
 - Burkert pressure transmitters on all streams
 - Rosemount conductivity analyzer and sensor on Dilute Outlet
- Inlet Divert Valve
 - Standard Instrumentation: Burkert
 - Premium Instrumentation: Rosemount
- ANSI (American National Standards Institute) to DIN (Deutsches Institut für Normung) conversion kits

Quality Assurance

Certification: UL (Underwriters Laboratories), CSA (Canadian Standards Association)

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 Inlet (optional)
Dilute Outlet

Feed Water Requirements

Total Exchangeable Anions	< 25.0 ppm
	(as CaCO ₃) (TEA)
Including CO ₂ as calculated by E-Calc	
pH	4 – 11
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 Parameters¹

Outlet (Dilute) Product Quality	> 16 MOhm-cm
Outlet Product Silica Guarantee	Down to < 5ppb
Recovery:	Up to 95%
Temperature:	40 to 104°F (4.4 to 40°C)
Feed Pressure:	60 to 100 psi (4.1 to 6.9 bar)
Dilute Pressure Drop:	20 to 40 psi (1.4 to 2.8 bar)
Input Voltage:	460VAC 60Hz, 400VAC 50Hz

Material of Construction & Ratings

Welded Frame:	Painted Carbon Steel
Dilute Piping:	Sch. 80 PVC
Concentrate Piping:	Sch. 80 PVC
Flanges:	ANSI
Rectifier:	NEMA 4
Control Panel:	NEMA 4
Control Panel Power:	24VDC

E-Cell EDI MK-5 Systems

Model	MK-5-2	MK-5-4	MK-5-8	MK-5-12
Number of Stacks	1 - 2	3 - 4	5 - 8	10 - 12
Type of E-Cell EDI stack	MK-5	MK-5	MK-5	MK-5
Flow Rates:				
Product Flow Nominal	44 gpm 10 m ³ /h	88 gpm 20 m ³ /h	176 gpm 40 m ³ /h	264 gpm 59.9 m ³ /h
Range	15 – 56 gpm 3.4 – 12.7 m ³ /h	45 - 112 gpm 10.2 – 25.4 m ³ /h	75 - 224 gpm 17.0 – 50.9 m ³ /h	150 - 336 gpm 34.0 – 76.3 m ³ /h
Concentrate Outlet Flow (Depends on Recovery & Product Flow) ²	0.83 - 7.67 gpm 0.19 - 1.74 m ³ /h	2.50 - 15.34 gpm 0.57 - 3.48 m ³ /h	4.17 - 30.67 gpm 0.95 - 6.97 m ³ /h	8.34- 46.01 gpm 1.89 - 10.45 m ³ /h
Electrode Outlet Flow (Nominal)	0.70 gpm 0.16 m ³ /h	1.40 gpm 0.32 m ³ /h	2.80 gpm 0.64 m ³ /h	4.20 gpm 0.95 m ³ /h
Dimensions:				
Overall Dimensions (Width x Length x Height)	42" x 50" x 84" 1.1m x 1.3m x 2.2m	46" x 75" x 84" 1.1m x 1.9m x 2.2m	64" x 103" x 90" 1.7m x 2.6m x 2.3m	64" x 130" x 90" 1.7m x 3.3m x 2.3m
Inlet Piping	2.0"	2.5"	4"	4"
Product Outlet Piping	1.5"	2.5"	3"	4"
Rinse Outlet Piping	1.5"	2.5"	3"	4"
Concentrate Outlet Piping	0.75"	1.0"	1.5"	1.5"
Electrode Outlet Piping	0.5"	0.5"	0.5"	0.5"
All piping sizes are provided for nominal flow rates at 90% recovery.				
Shipping Weight (Approx.)	2050 lb / 925 kg	3075 lb / 1400 kg	5250 lb / 2400 kg	6190 lb / 3125 kg
Electrical:				
Maximum Output @ 400VDC	10.4 Amps	20.8 Amps	41.6 Amps	62.4 Amps
Connection Requirement	13 kVA	21 kVA	36 kVA	52 kVA

1. Performance, flow rate per stack, recovery and power consumption are all dependent on inlet feed water quality and temperature. An E-Cal projection must be completed for proper system design & for any performance guarantee to be provided.
2. Concentrate outlet flow at 95% max recovery and minimal product flow of 15gpm/stack to 87% recovery and maximum product flow of 28gpm/stack.