



# FEDI®

The next generation of EDI

## FEDI-2 FRACTIONAL ELECTRODIONIZATION 5X, 10X, 20X, 30X AND 45X

FEDI® stacks are designed to produce high purity water up to 18 MΩ.cm using a patented process with double sets of electrodes per stack. The FEDI® stack is designed to replace mixed bed technology and produces pure water continuously, without the use of regeneration chemicals. Applications include the semiconductor, power, pharmaceutical, and food and beverage industries.

### Features FEDI-2

FEDI-2 is available in two operating modes: Dual Voltage (DV) and Single Voltage (SV). The stacks contain media on the concentrate side, eliminating the need for a salt injection.

#### DV Mode

- High hardness tolerance - reduces cleaning frequency, while increasing stack reliability
- Apply after a Single Pass RO system, ultimately lowering overall system cost
- Low feed pressure - no counter current operation required
- Improved removal of strongly and weakly ionized impurities
- No concentrate recirculation

#### SV Modes

- Reduced hardness tolerance
- Excellent product water quality
- High recovery

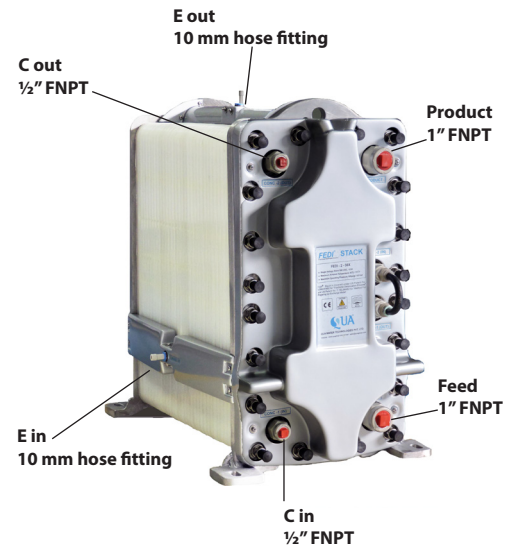
The information provided in this data sheet are the general characteristics of a FEDI® stack. QUA believes that this information is updated and accurate, however, the content of this data sheet might be subject to changes with further developments of the product line. Make sure that the FEDI® stacks are operated according to the latest version of the QUA Operation and Maintenance/Technical Manual guidelines.

Contact QUA for assistance in the selection of FEDI® stacks specifically designed for your application.

### FEDI-2 CONNECTIONS - DV MODE



### FEDI-2 CONNECTIONS - SV MODE



## FEDI-2 SPECIFICATIONS - STACK FLOWS

Parameters	Unit	5X**	10X	20X	30X	45X
Typical Product Flow	m <sup>3</sup> /hr gpm	0.6* 2.6	1.2* 5.2	2.3* 10	3.5* 15.4	5.3* 23.3
Maximum Product Flow	m <sup>3</sup> /hr gpm	0.85 3.7	1.7 7.5	3.3 14.5	5.0 22	7.5 33
Minimum Product Flow	m <sup>3</sup> /hr gpm	0.25 1.1	0.5 2.2	1.0 4.4	1.5 6.6	2.3 10.1
Min. Concentrate Flow (Conc.1 + Conc. 2) DV Mode	m <sup>3</sup> /hr gpm	N/A N/A	0.10 0.44	0.20 0.88	0.30 1.32	0.46 2.03
Max. Concentrate Flow (Conc.1 + Conc. 2) DV Mode	m <sup>3</sup> /hr gpm	N/A N/A	0.18 0.79	0.34 1.50	0.5 2.2	0.76 3.35
Min. Concentrate Flow SV Mode	m <sup>3</sup> /hr gpm	0.025 0.11	0.05 0.22	0.10 0.44	0.15 0.66	0.23 1.01
Max. Concentrate Flow SV Mode	m <sup>3</sup> /hr gpm	0.05 0.2	0.09 0.4	0.17 0.7	0.25 1.1	0.38 1.67
Min. Electrode Rinse Flow	m <sup>3</sup> /hr gpm	0.06 0.26				
Max. Electrode Rinse Flow	m <sup>3</sup> /hr gpm	0.1 0.44				

Flows should be kept within these ranges for optimal performance

\*Depending upon feed water hardness, to be confirmed by FEDI Engineering Tool

\*\* 5X IS APPLICABLE ONLY FOR SV STACKS

## WEIGHT AND DIMENSIONS

Parameters	Unit	5X	10X	20X	30X	45X
Weight (Per Stack)	kg lbs.	44 97	60 132	80 176	100 220	140 309
Shipping Weight (Per Stack)	kg lbs.	54 119	80 176	115 253	130 286	180 397
Length	mm inch	275 10.8	345 13.6	490 19.3	637 25.1	845 33.3
Width	mm inch	400 15.8				
Height	mm inch	619 24.4				

## ELECTRICAL DV OPERATION

Parameters	Unit	10X	20X	30X	45X
Voltage 1 Voltage 2	Typical	VDC 90 140	170 270	250 400	400 500
Voltage 1 Voltage 2	Maximum	VDC 180	350	500	600
Current 1/Current 2 Typical	AMP	1.5 / 2.5			
Current 1/Current 2 Maximum	AMP	2.5 / 3.5			

## FEED WATER SPECIFICATIONS

Parameters	Unit	Specifications
Feed Conductivity Equivalent (FCE) (Including CO <sub>2</sub> ) *	µS/cm	< 40
pH		6 - 10
Silica (Reactive)	ppm	< 1.0
Total Hardness as CaCO <sub>3</sub>	ppm	< 2.0 DV** < 1.0 SV
TOC	ppm	< 0.5
Heavy Metals (Fe, Mn etc.)	ppm	< 0.01
Free Chlorine as Cl <sub>2</sub>	ppm	< 0.05
Feed Water SDI		< 1.0

\* Feed Conductivity Equivalent, FCE, (µS/cm) = Feed water conductivity (µS/cm) + ppm CO<sub>2</sub> x 2.83 + ppm SiO<sub>2</sub> x 2.08

\*\* NOT APPLICABLE FOR FEDI-2-5X

## PRODUCT WATER SPECIFICATIONS

Parameters	Unit	Specifications
Product Resistivity	MΩ.cm	5 - 18
Silica (Reactive)	ppb	<5 - 50

## OPERATING CONDITIONS

Parameters	Unit	5X, 10X, 20X, 30X, 45X
Recovery	%	up to 95
Feed Water Temperature	°C °F	5 - 40 41 - 104
Pressure Drop (Feed to Product) @ Typical Flow	BAR PSI	1.7 - 2.4 25 - 35
Recommended Operating Pressure	BAR PSI	< 4.8 < 70
Max. Feed Pressure	BAR PSI	6.9 100

## ELECTRICAL SV OPERATION

Parameters	Unit	5X	10X	20X	30X	45X
Voltage	VDC	60	110	210	300	450
Voltage Maximum	VDC	90	180	350	500	600
Current	AMP	4				
Current	AMP	6				