

Electro Deionisation



Continuous Electro Deionisation Unit *model Pharma CEDI*

Technology

The compact and sanitary continuous electro deionisation unit (CEDI) is specifically designed to purify reverse osmosis product water (permeate) to Purified Water (0,055 – 0,5 $\mu\text{S}/\text{cm}$).

The CEDI technology is a continuous process using ion exchange membranes, resins and electricity. DC electric potential is the driving force for removing ions from the feed stream while continuously regenerating the resin pack.

Construction of CEDI-module

CEDI-modules consist of two different functional type of compartments within a single stack. The product as well as the reject compartments are filled with ion exchange resin and are located side by side, with cation and anion selective membranes in between. Feed water entering the CEDI stack flows parallel to the membrane surface. Resin captures the dissolved ions. Electric potential drives captured cations through cation membranes and captured anions through anion membranes. The cation-permeable membranes prevent anions from leaving concentrating compartments. Visa versa anion-permeable membranes prevent cations from leaving the concentrating compartments.

Specific features

- **NO chemicals needed for regeneration**
Unlike traditional DI systems, CEDI unit does NOT need acid or caustic chemicals for regeneration. This means safe operation and no hazardous waste or neutralisation equipment.
- **Consistent ultra pure water**
Due to continuous electrical regenerating the resin never gets exhausted. The product quality is consistent, week after week, month after month, without the necessity of taking the system out of operation.
- **Low operational costs**
The CEDI unit can operate in continuous mode with low energy consumption and does not need any frequent maintenance.

Typical markets for Pharma CEDI

- Pharmaceutical to USP29
- Cosmetics
- Hemo Dialysis
- Hospital Pharmacy

*The compact sanitary Pharma CEDI unit is manufactured according the guidelines of the FDA / ISPE Baseline Pharmaceutical Engineering Guide for Water and Steam Systems
DQ, IQ & OQ Validation available.*

www.reverseosmosis.co.uk

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Environmental Water Systems
Total Capability in Water Purification and Water Recovery



Pharma CEDI

Technical data

Performance

Reference number	Capacity l/h	Recovery %	Pressure Bar	P kW
CEDISX041	220 - 660	90 - 95	2 - 7	0,2
CEDISX101	550 - 1.650	90 - 95	2 - 7	0,5
CEDISX181	1.100 - 3.100	90 - 95	2 - 7	0,9
CEDISX241	1.400 - 4.200	90 - 95	2 - 7	1,2
CEDISX301	1.650 - 5.000	90 - 95	2 - 7	1,5
CEDISX182	2.200 - 6.200	90 - 95	2 - 7	1,8
CEDISX242	2.800 - 8.400	90 - 95	2 - 7	2,4
CEDISX302	3.300 - 10.000	90 - 95	2 - 7	3,0
CEDISX303	5.000 - 15.000	90 - 95	2 - 7	4,5

Dimension and weight

Reference number	Operation weight kg	Width mm	Depth mm	Height mm
CEDISX041	85	600	450	1.400
CEDISX101	100	600	450	1.400
CEDISX181	115	700	450	1.400
CEDISX241	125	700	450	1.400
CEDISX301	135	800	450	1.400
CEDISX182	195	800	900	1.400
CEDISX242	215	800	900	1.400
CEDISX302	235	800	900	1.400
CEDISX303	335	800	1.400	1.600

Electrical connections

Fixed connection 3 x 400V / 50 - 60 Hz / 2 - 15 kW

Feed water specifications (RO product water)

Temperature	10 - 45 °C
pH	4 - 11
Conductivity equivalent	< 40 µS/cm
Total hardness	< 1 mg/l CaCO ₃
Free chlorine CL ₂	< 0,1 mg/l
TOC	< 0,5 mg/l
Silica SiO ₂	< 1,0 mg/l

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