

A photograph showing rows of vibrant green lettuce plants growing in blue plastic channels, likely part of a hydroponic system. The plants are arranged in neat rows, and the background shows more of the same setup, extending into the distance.

CapDI[®] for HORTICULTURE



Tunable desalination allows significant reduction in
fertilizer consumption and operational costs

Why use CapDI for your crops?

With a growing world population and tighter regulations on water use being introduced, the demands on horticulture to act more responsibly are ever increasing. Too much sodium in irrigation water causes yield loss, hampers water and fertilizer reuse, and leads to crop damage; especially for sensitive crops such as tomatoes, peppers and berries.

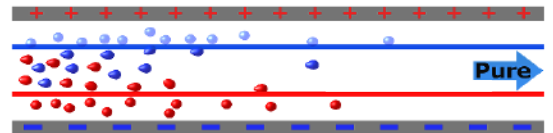
CapDI tunably removes and controls sodium and electrical conductivity (EC) levels arising from total dissolved solids (TDS) without removing all minerals, allowing users to select the optimal level of sodium and minerals for each crop's irrigation water. Excessive levels of sodium in irrigation water prevents reuse, and CapDI effectively removes the sodium to acceptable levels ($< 1 \text{ mMol/L}$) in the presence of high silica content ($> 80 \text{ mg/L}$) while maintaining high recovery ($> 80\%$) at flexible removal rates (50 - 90%).

Horticulture businesses benefit from using CapDI by its low energy consumption, no required chemicals, minimal maintenance, as well as overall reduced water and fertilizer consumption. CapDI provides optimal water quality that enables higher quality products at better yields, all while dramatically lowering operational costs!

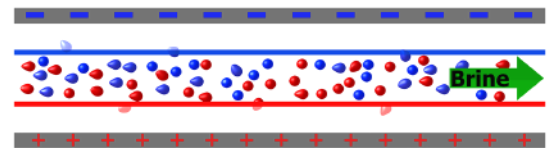
How does it work?

Water flows between electrodes in a 2-step process. Electrode surfaces are separated from the water by membranes that selectively allow positive or negative ions to pass.

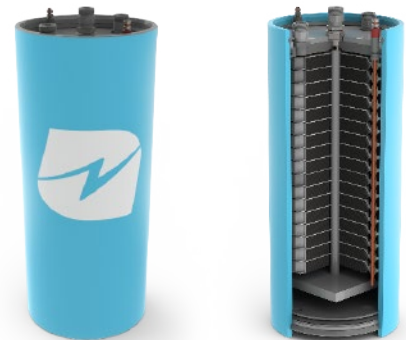
Purification: Saline water passes between oppositely charged electrodes, which electrostatically remove dissolved ions, leaving pure water flowing out of the cell.



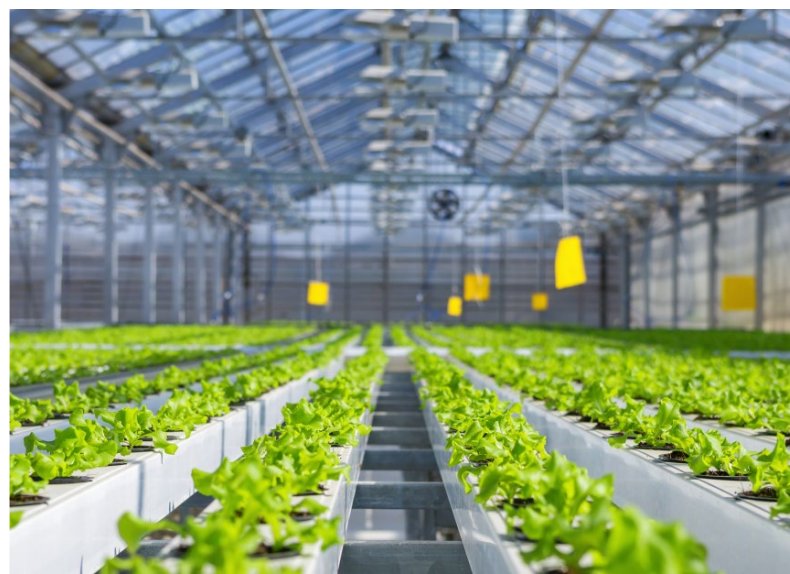
Regeneration: Feed water flushes through the cell at a lower flow rate, while electrode polarity is reversed. Ions are rejected from the electrode surface, concentrated in the flow channel, and flushed from the cell.



Voltea's Industrial Series System 12 (IS12)



C18 Module



What are the benefits?



CapDI is Tunable!

- Up to 90% EC or sodium removal
- Perfect for sodium sensitive crops, such as tomatoes, peppers and berries
- Tunable desalination; growers can choose the optimal level of minerals needed for each crop
- Reduction of bicarbonates to < 1 mMol/L (bicarbonates cause salt formation that plugs water lines)

We Take Care of the Environment

- Up to 90% water recovery; reduces impact to municipal water sources and aquifers
- CapDI is more efficient and environmentally friendly than any other traditional technology
- No chemicals required; avoids polluting aquifers and permitting requirements for discharge

Lowest OpEx!

- Low energy consumption; dramatic savings
- High water recovery; reduces water demand and pumping costs
- Lower CapEx and OpEx than any other traditional desalination technology
- Significant savings in fertilizer consumption due to the ability to recycle up to 35% of nutrients

Fully Automated

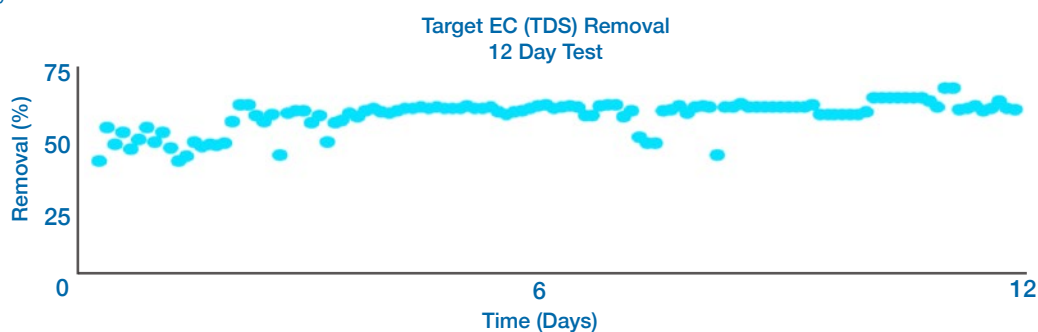
- Fully automated operation; low maintenance allows growers to focus on their daily operations
- Dynamic control subscription allows continuous monitoring of water quality by our field experts

Silica Becomes Manageable!

- Removal of other minerals is not affected by the presence of silica
- Water recovery of up to 90% even when silica concentration is at 80 ppm
- Silica is easily managed by passing through module spacers with low risk of clogging

CapDI is all about results!

Voltea's first horticulture application was at a facility in the central region of Mexico, where silica levels are sky high and aquifers almost bare. CapDI was tested at a range of EC (sodium) removal rates ranging from 50 - 90%, where the technology consistently and accurately performed as expected. The below graph represents the required EC removal rate (%) for this grower, and the twelve day test period at that target removal. CapDI consistently produces clean, quality water!





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