

GE Power & Water
Water & Process Technologies

Electrodialysis Reversal (EDR)



imagination at work

What GE offers

GE offers the broadest water and process technologies solutions portfolio—we focus on difficult-to-treat water and wastewater, and implementing water reuse solutions to provide customers with the quantity and quality of water they need for their applications.

GE's \$2 billion-plus water division has 8,000 employees worldwide dedicated to solving every kind of water problem and making GE one of the most admired and respected companies operating today.

With over 50 years of ED-EDR technology experience, we have the technical knowledge and process expertise to design solutions that are reliable and cost effective for your water purification needs. With 900+ EDR installations globally, GE offers a depth of experience for the design, manufacturing, installation, operation and maintenance of your EDR system.

By the numbers

- Up to 95% TDS reduction on brackish water
- Up to 94% water recovery
- Requires less pretreatment for suspended solids; capable of SDI₅ up to 12
- High silica levels do not impact performance and water recovery
- Handles high organic waters up to 15 mg/l TOC
- Up to 0.5 mg/l continuous chlorine feed and capable of shock treatments

The GE Advantage



Speed

- Quick delivery
- 100% Complete documentation
- Pre-engineered
- Configurable options
- Worldwide manufacturing on four major continents

Reliable Performance

- Largest provider of EDR systems in the world
- World-class designs
- Proven technology for hard-to-treat brackish water

One Source

- Systems integration
- Vertical technology integration
- Trusted performance
- Technical expertise
- Pilot plants

EDR for drinking water

In drinking water applications where source water is challenging due to high TDS or high silica, EDR provides the most reliable and lowest life-cycle cost. EDR also offers the highest water recovery for brackish water treatment, reducing the strain in water scarce areas.

A drinking water success story



Challenge: Located in Abrera, Barcelona, Spain, Aigües Ter-Llobregat's (ATLL) drinking water treatment plant was plagued by poor water quality with significant seasonal variations, water scarcity and regulatory concerns.

Solution: ATLL chose GE's EDR technology, after piloting both EDR and RO for over two years, to reduce dissolved solids and organic matter in its water supply in order to meet treatment goals and increase water quality.

Results: The GE EDR water treatment system currently provides quality, reliable drinking water for nearly 20% of Barcelona's metropolitan region. The plant is capable of producing 59 million gpd (220,000 m³/day) of product water, which blends back into the effluent of the existing treatment plant. The GE EDR solution also provides ease of operation and maintenance. Despite the Llobregat River's changing feedwater quality, GE's EDR systems are able to adapt to changing temperatures and salinity without disrupting the quality of water production. The plant operates at a 90% water recovery, which addresses the water scarcity conditions in the region.

EDR for wastewater reuse

Using EDR to treat and reuse wastewater makes sense. Because of the polarity reversal design, EDR is a self-cleaning, durable membrane system ideal for turbid wastewater. EDR technology achieves the highest water recovery for water scarce areas. Our wastewater EDR systems reclaim more than 20 million gpd (75,000 m³/d) of wastewater for irrigation purposes.

A wastewater success story



City of San Diego Uses EDR Technology to Reuse Tertiary Wastewater

Challenge: The City of San Diego, California, USA needed to meet the ever-increasing challenge of developing adequate drinking water supplies to satisfy continuous regional development. New sources of fresh water are not readily available.

Solution: They turned to GE to reclaim wastewater for irrigation using EDR technology. The tertiary treated wastewater provides high quality irrigation water, thereby reducing demand on the fresh water supply. The wastewater supply to be treated has salinity levels up to 1300 ppm TDS during the summer and early fall.

Results: The GE EDR treatment system has a capacity of 6.6 million gpd (25,000 m³/day) that is blended with up to 15 million gpd (58,000 m³/day) of irrigation water for golf courses, new home developments and other water reuse applications.

Worldwide experience

A selection of our global EDR installations.



An EDR platform that meets your needs

GE EDR systems suit multiple applications, including:

- Reducing Total Dissolved Solids (TDS), as well as problematic contaminants such as radium, arsenic, perchlorate, fluoride, nitrate, hardness and selenium in drinking water. In some cases THM precursors are also removed.
- Recycling municipal and industrial wastewater.
- Recovering reverse osmosis reject.
- Desalting well and surface waters.
- Desalting water for boiler makeup and other industrial uses.

If you would like to know how EDR can solve your drinking water or wastewater reuse challenges, contact your local GE representative.

Speed

Standardized central pump skid reduces installation costs and speeds system operability.

Reliability

Robust and durable membranes potentially eliminate the need for continuous chemical feed and associated costs.

One Source

Required pretreatment and chemistry part of the integrated GE product portfolio.

Reliability

Able to produce quality water while handling variations in feedwater quality such as suspended solids (TSS), dissolved solids (TDS), and temperature.

One Source

Designed and manufactured by EDR technology pioneers.

Speed

EDR Systems integrated into pre-engineered package for speed to market.



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