



## ABOUT MAGNA IMPERIO

Magna Imperio Systems Corporation (MIS) was founded to develop and commercialize the world's highest recovery and most energy efficient water desalination systems. Our dedicated team of engineers and scientists provide customers with the application, manufacturing, and service expertise to tackle the most challenging water treatment problems. Based in Houston, TX, Magna Imperio is positioned to deliver high efficiency desalination systems to a wide range of industrial and municipal clients throughout the US and worldwide.



## APPLICATION TESTING

Laboratory bench testing of each application ensures that every END® system is optimized before ever leaving our factory. Bench testing completely simulates the full-scale process to ensure that all results are directly scalable to each site. Please contact our Application Engineering team for more information.



## SYSTEM & SERVICE


Each END® system is designed and fabricated by our in-house team of application engineers and scientists. Our world-class team has extensive experience in the design, operation and service of advanced water treatment technologies. Worldwide service and support are available anytime from our Houston, TX facilities.



## CONTACT US

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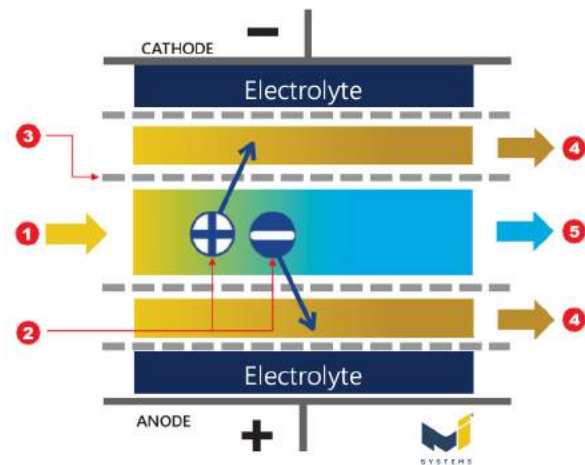
# — END® —

Magna Imperio Systems Corporation (MIS) designs and builds the world's highest recovery and most energy efficient water desalination systems. Founded on groundbreaking electrolytic cell research conducted for the US Navy, the company's END<sup>®</sup> system significantly advances the performance and efficiency of traditional treatment technologies.

END<sup>®</sup> systems deliver up to 98% water recovery at up to 50% lower specific energy use than competing desalination technologies.

## END<sup>®</sup> SYSTEM OPERATION

END<sup>®</sup> systems incorporate highly advanced membrane spacers and electrode and membrane chemistry. These advanced materials allow for direct electrochemical separation of salts and water while significantly reducing energy and improving recovery performance.



- 1) Contaminated water enters the END<sup>®</sup> electro-desalination cell.
- 2) Ions travel towards the electrodes.
- 3) Semi-permeable membranes separate the water streams.
- 4) Highly concentrated brine = low volume waste
- 5) With ions removed, the result is fresh product water.

## END<sup>®</sup> PROCESS SYSTEM

The modular design and advanced controls of END<sup>®</sup> systems make them an efficient and cost-effective choice for a wide range of municipal, industrial, and mobile water treatment applications. Depending on client needs, most systems are provided as a complete treatment process including feed pumping, brine and product tanks, chemical cleaning equipment, a full complement of process instrumentation, and fully integrated PLC based controls.

## END<sup>®</sup> ADVANTAGES

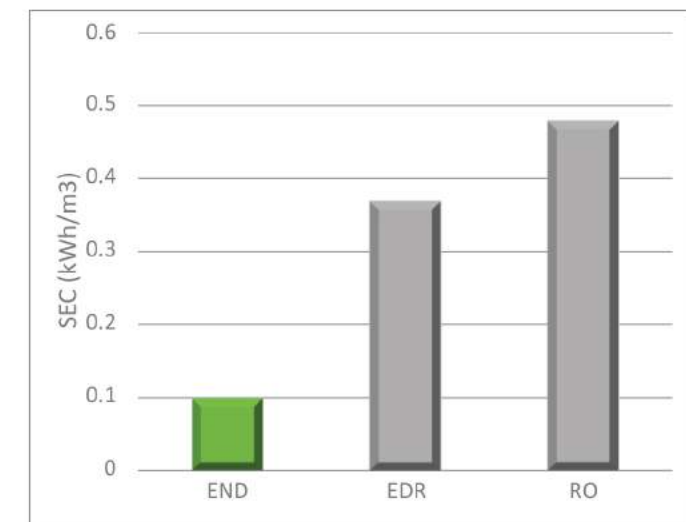
- **Low Pressure**  
60-90% lower than typical RO based desalination.
- **Automatic Cleaning**  
Reverses polarity to reduce scaling and improve efficiency.
- **Quiet Operation**  
Virtually silent.
- **Reliable Performance**  
Full remote monitoring and operation.
- **Adjustable Power**  
Customized to produce constant finished water quality.



Electrochemical separation of dissolved salts is far more efficient than competing pressure driven processes. Diffusion of salts occurs across each layer in the membrane stack based on the electric potential applied to the process. Salts pass through the membrane and into the brine stream where they can be highly concentrated and still remain in solution. The END<sup>®</sup> result is very high recovery of up to 98% in some applications.

## MINIMUM ENERGY

The advanced electrodes, spacers, membranes, and controls of the END<sup>®</sup> process result in significantly lower energy versus traditional desalination technologies. Fully optimized END<sup>®</sup> systems are capable of delivering up to 50% energy savings at recoveries as high as 98%.



## LOW MAINTENANCE

END<sup>®</sup> systems offer significant advantages versus traditional RO desalination systems. Because the END<sup>®</sup> process incorporates its own self-cleaning routine and equipment, END<sup>®</sup> systems require very little regular or long-term maintenance. Beyond lowering energy use, the low operating pressure of the END<sup>®</sup> process reduces mechanical stress on system components, leading to longer system life. Overall, these advantages offer significant capital and long-term operating cost advantages at each facility.