

- Founded in 2014
- Headquartered in Newport Beach, California
- All products are proudly designed and manufactured in the USA
- Revolutionizes desalination and water treatment.
- Several International patents pending



The revolutionary AWT system uses an Advanced Vortex Reactor to desalinate, remove contaminants, separate solids and destroy all biological contaminants. This approach is at least ten times more energy efficient and ten times lower cost than RO desalination. Reliability is unmatched since minimal filters are used in the preliminary system. The 500,000 GPD System uses only 1200 kWh per 24- hour period. While conventional desalination produces 50% - 60% waste discharge, the AWT system produces less than 3%, which can then be separated and utilized for various commercial products such as specific elements, fertilizers and building materials. This means that in addition to providing a cost-effective global desalination solution, the AWT system can also retrofit existing desalination, municipal and sewage treatment facilities, effectively removing the inherent pollution of conventional water treatment, regardless of process.



## AWT Reaction Process



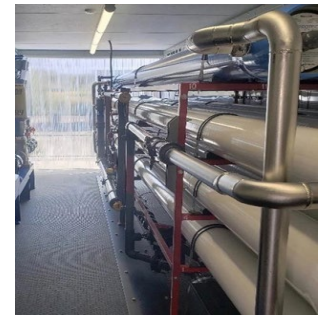
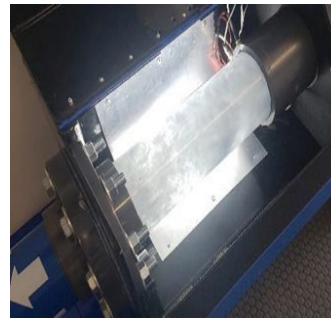
**Intake**

Water is pumped into the Unit at high pressure. Multiple units can be used in parallel to meet flow rate requirements.



**Reactor Zone**

Within the Reactor, the process stream undergoes HDC, changing the structural and charge characteristics of the particulates and removes organic and inorganic contaminants



**Final Processing**

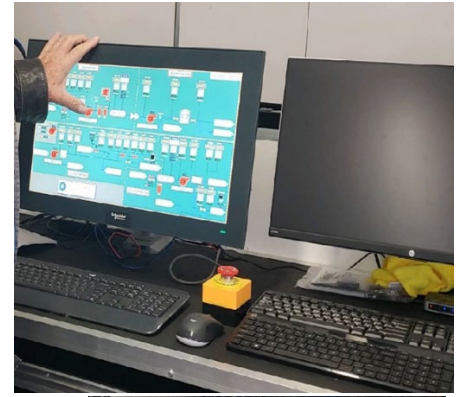
Depending on the application, the water stream can also be used in tandem with filtration separation and reverse osmosis

A secondary hydrodynamic cavitation process can be applied to achieve zero water discharge.

# Real-Time Efficient Operations

## Technical Concept of Operations (CONOPS)

- The AWT system is designed for manned, remotely monitored, and/or autonomous operations
- At the heart of the purification flow is the monitoring and control system that manages the subsystems
- Pre-set, optimized system settings (flow rate, pressure, valves, injections, etc.) are centrally initiated and operated according to the inflow water qualities and desired outflow purity **based on local conditions**



<i>Desired Outflow Inflow Quality</i>	<b>Remediation</b>	<b>Removal</b>	<b>Purification</b>
Heavy Metals	Control Settings 1	Control Settings 2	Control Settings 3
Hardness	Control Settings 4	Control Settings 5	Control Settings 6
Chemicals	Control Settings 7	Control Settings 8	Control Settings 9
Biologics	Control Settings 10	Control Settings 11	Control Settings 12
Combinations	Control Settings 13	Control Settings 14	Control Settings 15



## Overview of Hydrodynamic Cavitation

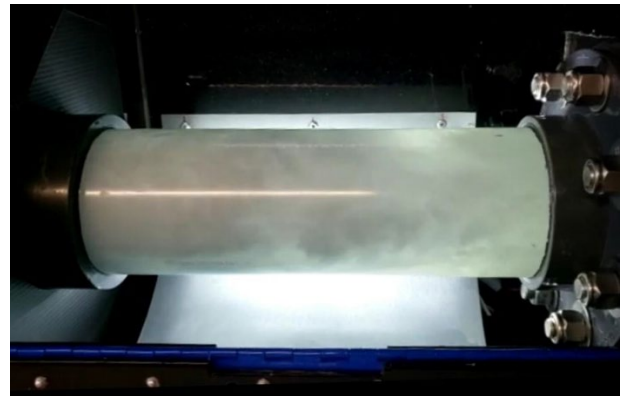
Cavitation involves the formation and collapse of vapor cavities in a liquid. The collapse or implosion of these cavities creates localized zones of high temperature and pressure. Hydrodynamic cavitation occurs when liquid flow conditions create pressure variations. In aqueous streams, hydrodynamic cavitation results in formation of hydroxyl radicals, as well as transformations to dissolved salts and suspended minerals.

### Physical Processes

Pathogen cell disruption  
 Mineral and salt transformations  
 Emulsification  
 Atomization  
 Generation of nano particles

### Chemical Processes

Increased transport coefficients  
 Increased interfacial area  
 Oxidation  
 Crystallization  
 Generation of extreme temperature and pressure



“Over the last 20 years, the Western Municipal Water District in CA has tested numerous treatment technologies exploring ways to reduce cost and improve water quality. The AWT Reactor which was tested at the Arlington De-salter facility is extraordinary both in its efficacy and performance.”

Ray Marshall, Chief Plant Operator

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