



Partial Desalination

There are many applications where conductivity, or **total dissolved solids (TDS)**, need to be partially reduced to meet a process target or comply with a discharge permit requirement. A common application is the removal of TDS from feed water to a cooling tower to reduce water/chemical usage and increase tower cycles.

Challenge

Cooling tower cycles, and consequently water usage, are limited by the quality of the feed water. In many cases, the feed water to the tower contains so much hardness, alkalinity, and other salts that it must be made from corrosion resistant materials such as stainless. Evapco Inc., a global leader in cooling applications, is an exclusive global distributor for the Atlantis RDI for use in treating feed water for cooling towers and other heat transfer applications.

Solution

By reducing the salinity of the feed water to the cooling tower with the Atlantis RDI by approximately 50%, the cycles of the tower can double. Doubling the cycles will reduce chemical usage by as much as 50% and overall water usage by 20 - 30%.

Core Applications

- High hardness feed water
- High alkalinity feed water
- High chloride content
- Government incentives to reduce water usage
- Recycling/reuse of other waste water

Benefits

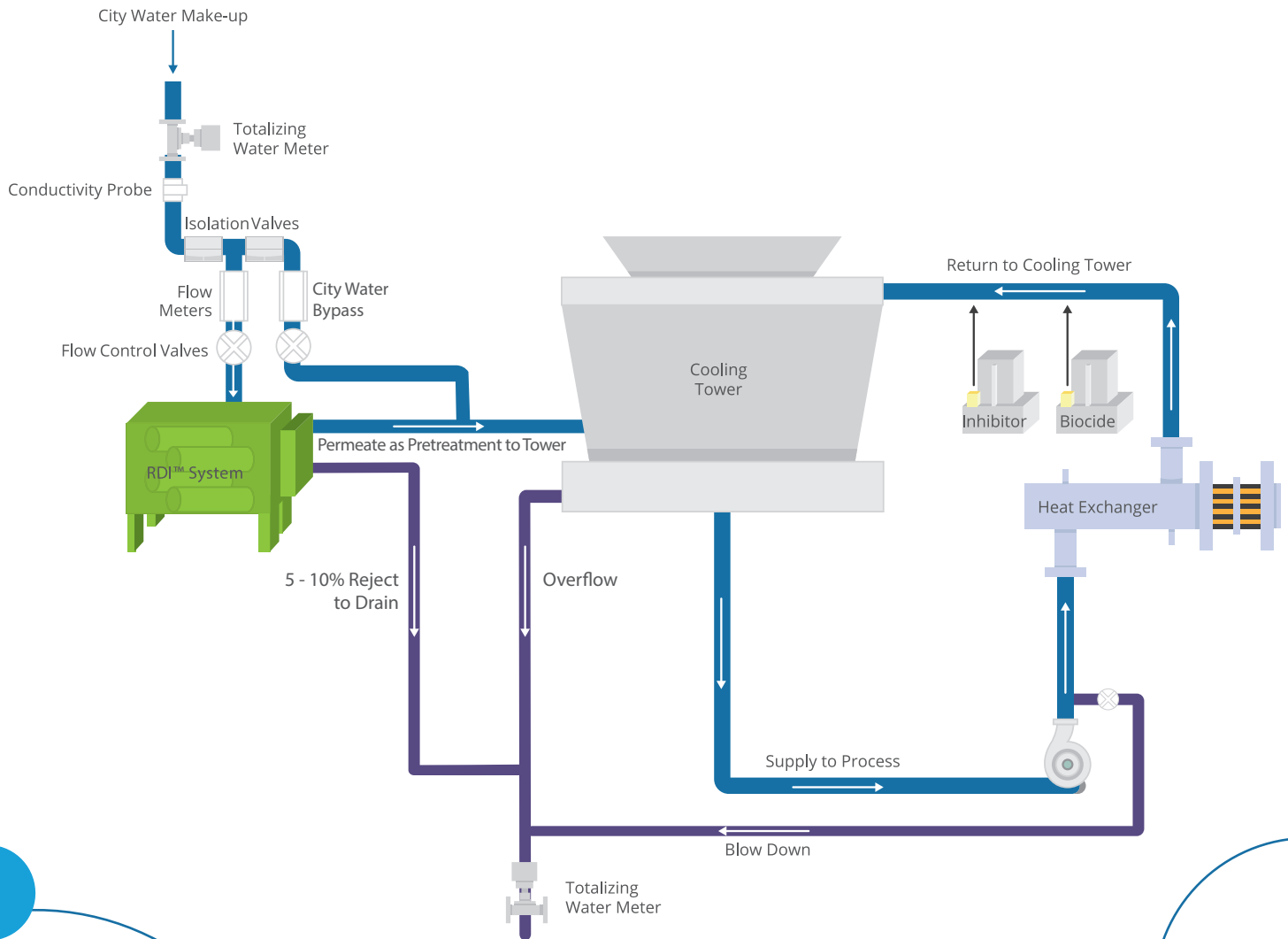
- Reduced water usage of cooling tower
- Reduced chemical usage of cooling tower
- LEED credit for water use reduction
- Low cost of ownership
- Low maintenance
- High clean water recovery

The RDI™ Technology

Radial deionization – RDI™ – is an improved and patented form of capacitive deionization (CDI) developed over the last 8 years by Atlantis Technologies. With the Atlantis RDI system, water is passed between two oppositely charged supercapacitors which remove the salt. Once full, the capacitor polarity is switched and a low-volume, high-concentration brine is produced.

This desalination process is done at lower cost of ownership and higher clean water recovery than other CDI and reverse osmosis systems. Cylinders and system can be placed in parallel to increase volume or in series to process high salinity water. The system can also partially desalinate water (TDS shaving), further improving economics for applications such as cooling towers, waste discharge, etc.

Process Flow



Atlantis Technologies

Cost-effective Wastewater Desalination

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