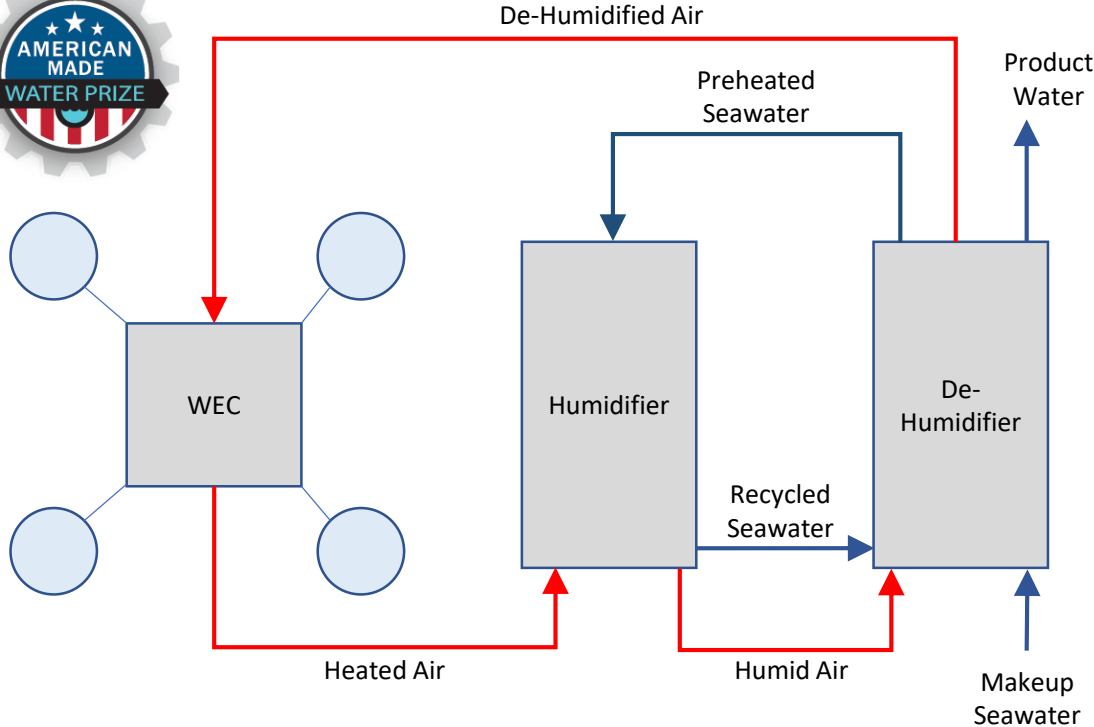


A Wave Powered Desalination System that Mimics Nature's Water Cycle



1. Air is compressed and heated by pneumatic cylinders on a central WEC platform, powered by multiple buoys attached to adjustable lever arms
2. Air is humidified via interfacial contact with preheated seawater, gaining heat
3. Humid air is routed to the dehumidifier where water vapor is condensed, preheating seawater in exchange
4. Condensate is collected and makeup seawater added
5. De-humidified air is returned to WEC
6. Seawater flow-loop is powered by one of the WEC buoys and a hydraulic cylinder
7. Concentrated brine is occasionally removed from the humidifier as needed to ensure efficient humidification

* Not to Scale – Humidifier and De-humidifier to be Located on WEC Platform

Advantages:

1. Simple and robust
2. High output-to-footprint
3. No energy conversion losses
4. High energy efficiency
5. Process tolerance of variable input power
6. Ease of assembly and transport
7. Few moving parts
8. Adaptable to variable wave environments
9. Low maintenance requirements
10. No need for electricity
11. Inexpensive materials
12. Scalable
13. Ultra Pure Output

Challenges:

1. Optimal power absorption across spectrum
2. Buoy / cylinder / platform integration
3. Platform stability / mooring
4. Dehumidification efficiency
5. Survivability
6. Reliability
7. Heat losses to the environment
8. Concentrated brine disposal
9. Assembly and installation

Highlights:

1. 200 gallons per day ultra pure water production
2. 24 W-hr/gallon efficiency
3. Pre-packaged in 45" X 48" X 42" shipping container
4. Modular assembly and installation in <48 hours
5. Product can be stored in floating bladders or pumped to shore using wave power

<https://vimeo.com/359338933>