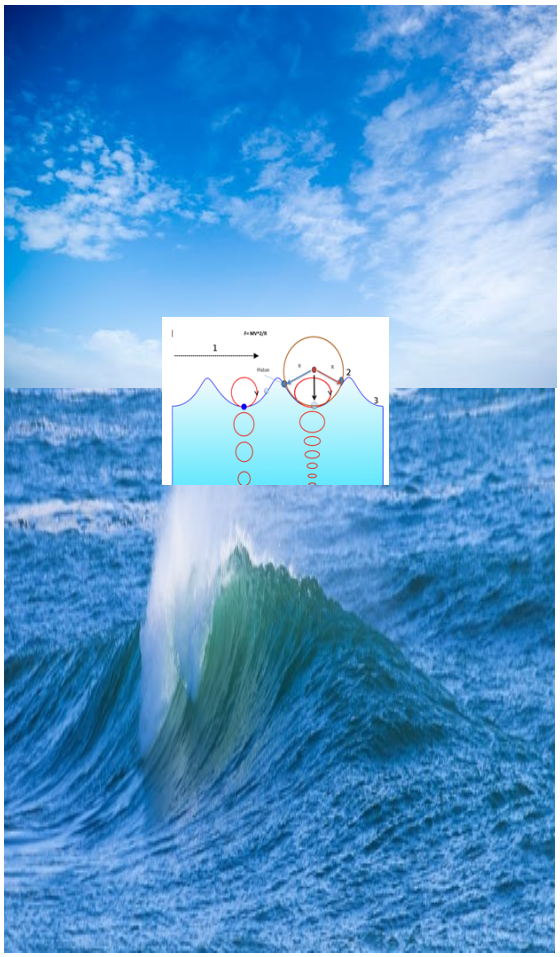
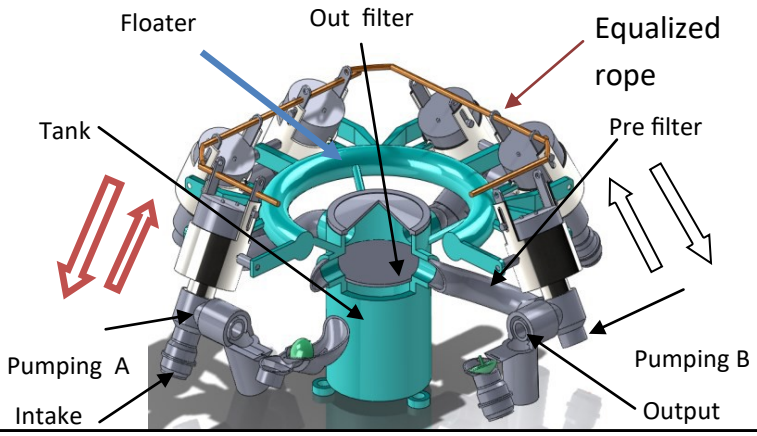
Renewably –Powered Desalination /Purification station

The ultimate solution for world water shortage crisis

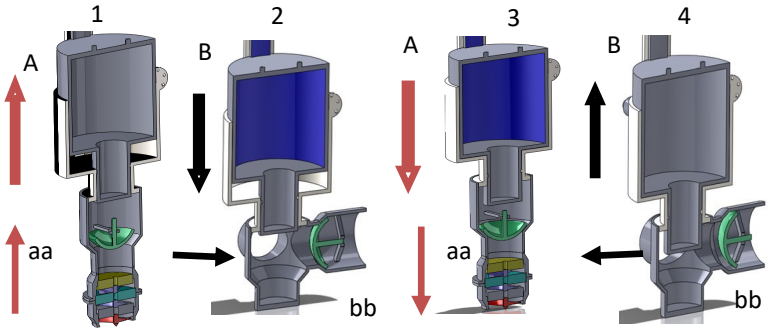
The US Patent No US 11685679B2 describes a 100% renewably-powered desalination/water purification stations for universal applications. The station is disruptive, scalable, amphibious, and deportable to seawater, brackish, or spill oil sites for simple wave-powered and autonomous operations . The station has a mooring assembly with pumping-purification-delivery subsystems powered by wave and solar energies. The pumping subsystems have the simplest, most efficient wave push/pull pump mechanisms powered by amplified wave centrifugal forces. The mechanical purifications have turbine filters, reverse-osmosis filters, forward-osmosis filters and relief valves to backwash buildups or release water through collecting spill oil. The solar thermal purifications are provided with distilling processes under vacuum conditions. The delivery subsystems with wave turbines and solar panels generating electricity, propellering and transferring the stations for delivering fresh waters to destinations under GPS guide with the lowest LCOW.



Mechanism of wave energy conversion



Wave pumping; Four step process



1. Piston A moves up to suck in water with open Check valve aa **2.** Piston B moves down to pump fileted water out with open check valve bb , **3 .** Piston A moves down to push water through filters with closed Check valve aa , **4 .** Piston B moves up to suck in water through filter with closed check valve bb

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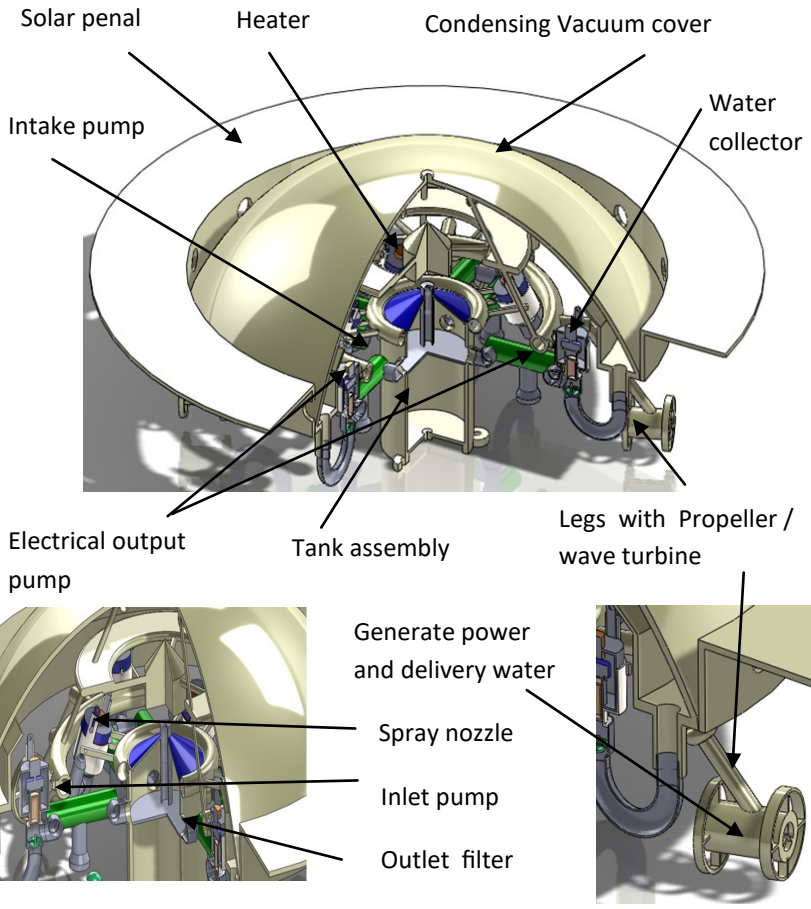
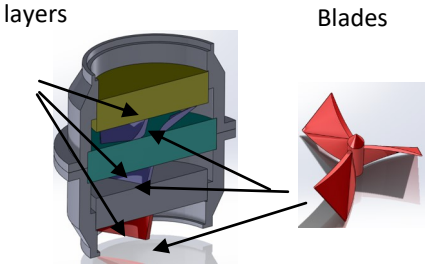
Mechanism of Solar /wave energy conversion

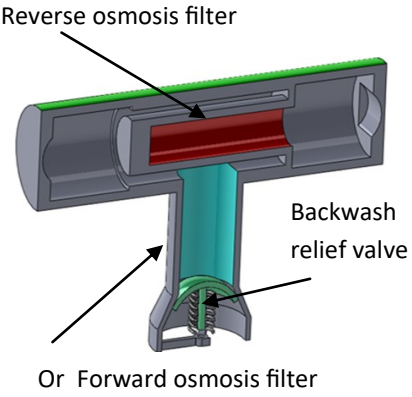


Mechanism of filtering

1. Intake Filter with layers and blades



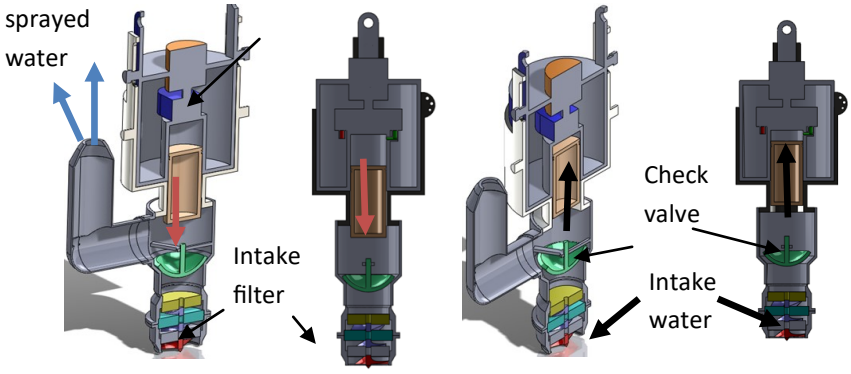
2. In -process Filters between pumping A and pumping B



Electrical intake Pump

1. Piston moves down to spray saline water out with closed check valve from spray nozzle

2. Piston moves up to suck saline water in through intake filter with open check valve



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