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Main principle	Humidification and de-humidification	Filtration process
Process	High temperature humidifcation and de-humidification process with energy recovery and UV disinfection powered by sun	High pressure microfiltration process with intensive chemical treatment
Raw water quality/ mixture	Not important **Why**: The evaporation process only takes H_2O out of the raw water. Therefore, you don't have to know the exact mixture of the raw water	Need to know for further treatment (pre- and post-treatment)
Pre-treatment process	Not necessary **Why**: The evaporation process only takes H_2O out of the raw water and because the SWCs don't filtrate	**Chlorination,** filtration, coagulation, activated carbon adsorption, ultra-filtration, antiscalant dosing, acidification and oxidant scavenger dosing
Process treatment/ management	Not necessary **Why**: The high temperatures of the evaporation process prevent all kinds of fouling	Reverse Osmosis membranes must be periodically rinsed and chemically cleaned, when stopped or when performances decrease by 10 - 15% (post service rinse and chemical cleaning) to avoid: • Metal oxide fouling • Colloidal fouling • Polymerized silica • Biological fouling • Organic fouling • Chlorine damages • Abrasion damages • Leaks at connectors and adapters • Glue line leaks to permeate back pressure
Post-treatment	Not necessary **Why**: The evaporation process only takes H_2O out of the raw water, so only H_2O condenses at the heat exchanger unit. Further treatment is not necessary	Sodium chloride and boron can be reduced by adding a second pass reverse osmosis, with either brackish water membranes or sea water membranes.
Output	H_2O	H_2O [1] [1] Continuous controlling necessary

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Reject	90 liters with 3.88 % salt out of 100 liters raw water (sea water 3.5 % salt on average)	• 5 liters with 70 % salt out of 100 liters raw water (sea water 3.5 % salt on average) • Disposal problem of highly concentrated reject
Power Source	Off-grid sun powered (no inverters, no 7 x 24 availability necessary)	• Sun powered (inverters, power management, batteries for 7 x 24 availability necessary) • Combustion engine (fuel, lubricant, spare parts, maintenance, 7 x 24 availability necessary) • Power grid (7 x 24 availability necessary)
Emissions and noise	No emissions, no noise emission	• Only if sun powered no emissions and no noise • If powered by combustion engine, emissions and noise emissions according to engine specs • If powered by power grid, emissions according to power plant specs
Spare parts and maintenance	• No moving parts, except feeding pump (feeding by hand is also possible) • No corrosion because of application of plastics ((expandend) polypropylene)	• High pressure pump (approx. 80 bar) • Corrosion because of high pressure metal applications
Dependencies, requirements, and technical demands	No dependencies except auxiliary forces as personal staff	• Skilled personal staff [2] • Energy supplier/dealer • Chemical retailers/dealers • Power supply techniques • [2] Know-how of chemical treatment, know-how of reverse osmosis techniques, know -how of electrical and/or combustion engine maintenance is recommended/ needed