

Atmospheric Water Recovery Technology with Solid Desiccation.

Environmentally friendly Atmospheric Water Generator with the use of a solid desiccant. The method is based on adsorption and desorption of water vapors from any vapor-gas mixtures with their subsequent condensation. The simplicity of the design insures high efficiency of the method with relatively low installation and operating costs.

The increasing scarcity of clean drinking water is one of the greatest challenges presently facing mankind. There are known methods of extracting distilled water from ambient air, but they either require a substantial installation cost, high operating cost or an existing source of water. Our design provides a possibility of fresh water extraction at a relatively low capital investment with low energy consumption and minimum maintenance. Our patented process uses electrical energy only to operate fans and electronics; the rest of the required energy is thermal which can be obtained from various free or inexpensive sources such as waste heat, solar radiation, gas, etc. Our technology can be scaled to produce substantial amounts of clean drinking water at a price of low as 10 euros per 1 m³.

Comparative analysis between Vitality Vector water recovery technology and cooling condensation.

Vitality Vector Water Recovery (solid desiccation) (REVISED)

Model ZELEMENTS	Water production rate, Liters per day 30C, 70%RH	Dimensions L*W*H, Meters	Weight, Kg	Maximum air flow rate, m3h	Energy input		Estimated cost of unit, USD	Energy consumption Watt per liter	Maintenance	Environmental Impact
					Thermal	Electric				
					kcal/hr	kWh				
VV150 *	150	1.8 x 1.2 x 2.0	480	2.400	7.500	0,4	9.000	64	Minimal	Neutral, No impact
VV600 *	650	4.2 x 1.8 x 2.0	2000	11.000	35.000	1.7	29.000	63	Minimal	Neutral, No impact
VV1200 *	1.200	20' container	5000	20.000	65.000	3.3	49.000	66	Minimal	Neutral, No impact

* Sources of energy are natural gas (or waste heat) & electricity.

AWG by EcoloBlue and Air2Water (cooling condensation)

Model	Water production rate, Liters per day 30C, 70%RH	Dimensions L*W*H, Meters	Weight, Kg	Maximum air flow rate, m3h	Energy input		Estimated cost of unit, USD	Energy consumption Watt per liter	Maintenance	Environmental Impact
					Thermal	Electric				
					kcal/hr	kWh				
Ecolo Blue100*	120	0.85 x 0.55 x 1.5	150	N/A	-	2,1	7.350	420	High	Harmful refrigeration agent
A2WT- HCU2410 ***	594	2.85 x 1.68 x 1.45	1.588	3.398	-	11	30.000	328	High	Harmful refrigeration agent
A2WT- HCUb4020 ***	1.260	3.23 x 1.68 x 1.83	1.928	6.796	-	25	45.000	410	High	Harmful refrigeration agent

** Source of energy is electricity.

This fresh water extraction method has no negative impact on the environment because it imitates the natural water exchange process between the air and the surface, preserving the balance of water mass movement. The process does not use harmful chemical agents (e.g. R12, R22, etc.) or generate environmentally dangerous waste.