Skywater OASIS

Atmospheric Water Generator

Usable Water for Humans: A Scarce Resource

Earth: The Water Planet?

Global Water Distribution: Earth holds approximately 1.386 billion cubic kilometers of water, of which 97.5% is saltwater in oceans. Freshwater makes up only 2.5%.

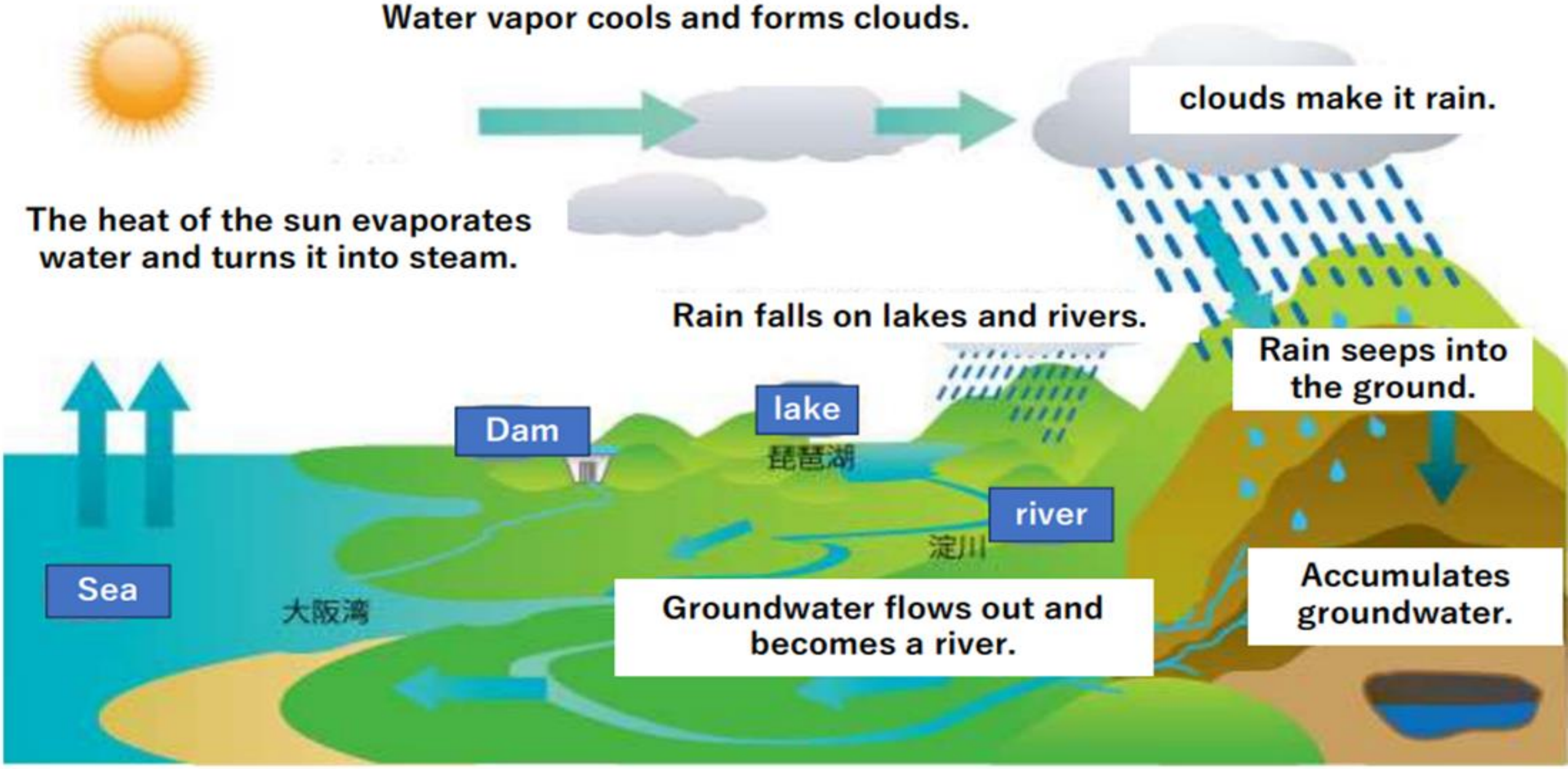
Usable Freshwater: Just 0.8% of freshwater is accessible for human use, as much of it is locked in glaciers, snowfields, and permafrost in the Arctic, Antarctic, and Siberia. A mere 0.01% of Earth's total water is surface water (rivers and lakes) that is economically viable for use.

Water Scarcity: Despite being a 'water planet', water scarcity affects significant portions of the global population. About 500 million people currently face acute water shortages, and an additional 1.5 billion suffer from water stress due to pollution and drought. In total, 2.1 billion people live in water-stressed conditions.

Future Challenges: The world population, expected to surpass 9 billion by 2050, exacerbates these challenges. Current predictions indicate up to 4 billion people could experience severe water shortages.

Awareness: How many are truly aware of the gravity of these issues?

Water travels (circulates) around the world



What is Atmospheric Water Generator?

Atmospheric Water Generators (AWG): Tapping Into Air for Water

- **Functionality**: Devices extract water from atmospheric vapor, ideal for high humidity areas.
- **Mechanism**: Converts vapor to liquid via cooling and condensation, primarily using refrigeration cycles.
- **Types of AWGs**:
  - **Standard**: Cools atmospheric air to condense water vapor into liquid.
  - **Advanced**: Uses dehumidifiers like zeolite to absorb and evaporate water vapor, then condense it at outside temperatures. Notable for low yield but high efficiency in cooler climates.
- **Applications**: Produces potable and domestic water, potentially crucial in water-scarce regions, disaster zones, or drought areas.
- **Technological Advancements**:
  - **Energy Efficiency**: Recent improvements through renewable energy integration, such as solar power.
  - **Off-Grid Solutions**: Enhancements in off-grid capabilities boost practicality and deployment flexibility.

The Principle of Atmospheric Water Generators

Understanding Condensation: The Science Behind Water Droplets on a Glass

Basic Observation: Pouring ice water into a glass cools the glass and nearby air, causing water droplets to form—not from leakage, but from condensation.

Moisture in Air: Air contains invisible water vapor; the amount depends on temperature.

Saturation Point: Defined as the maximum water vapor air can hold at a given temperature, measured in g/m3.

Dew Point Temperature: The critical temperature at which water vapor begins to condense into liquid.

Condensation Process:

- Air reaches 100% humidity at the dew point.
- Below this temperature, excess vapor condenses into droplets.
- This is the same process that causes windows to fog.

Diverse Applications of Atmospheric Water Generators

- **Agricultural Use**: For hydroponic cultivation and irrigation.
- **Livestock/Fisheries**: Used for drinking water for livestock, cleaning livestock barns, and land-based aquaculture.
- **Medical Use**: For dialysis equipment, drinking water in hospitals, and hygiene practices.
- **Remote Island Measures**: As a substitute in cases of groundwater depletion or water pipe failure.
- **Onboard Use**: For vessels.
- **Villas**: For locations where water drainage is not possible.
- **Production of Hydrogen Fuel**: Through the electrolysis of water.
- **Disaster Response**: For use in refuges, water tanker operations, and residential supplies.



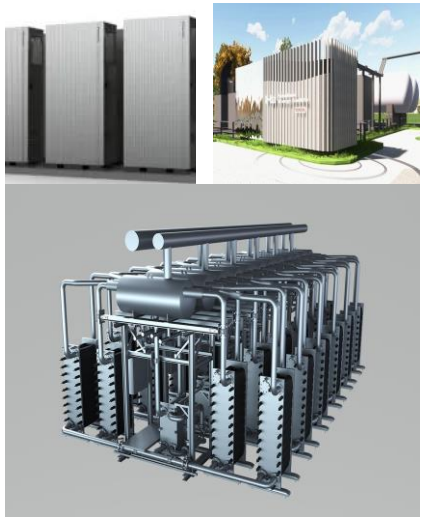
Diverse Applications of Atmospheric Water Generators

In addition to producing drinking water, AWGs are useful in a variety of future applications, including food production, aquaculture, energy, and disaster response.

Hydroponics

Land-based Aquaculture

Washing Process



Hydrogen Generator

Water Supply

Skywater
OASIS

Atmospheric Water Generation System

Exploring the Skywater OASIS: What Is It?

Founded in Florida, USA, in 2004, Island Sky has revolutionized access to clean water with Skywater, an advanced system that efficiently converts atmospheric water vapor into drinking water using patented technology. Skywater excels in diverse environments, using less energy than any comparable system worldwide. It is specifically designed to provide safe, secure drinking water in disaster-stricken, remote, drought-prone, or polluted areas.
Committed to solving the global water crisis, the Skywater system provides affordable, high-quality drinking water across the globe. We proudly supply our enhanced Skywater product, Skywater OASIS, manufactured in Japan, to meet global needs.

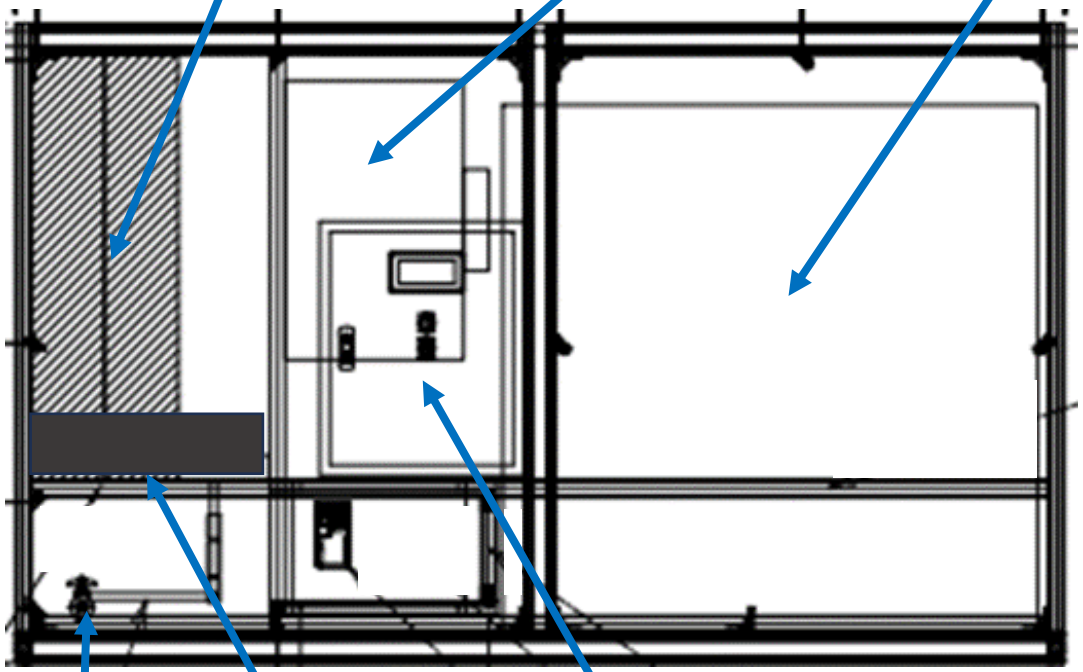
Skywater OASIS

Water production process

It instantly condenses water vapor in the atmosphere.

Dedicated fan that takes in air efficiently

Liquefies and cools refrigerant gas.



Side view

Drain pan

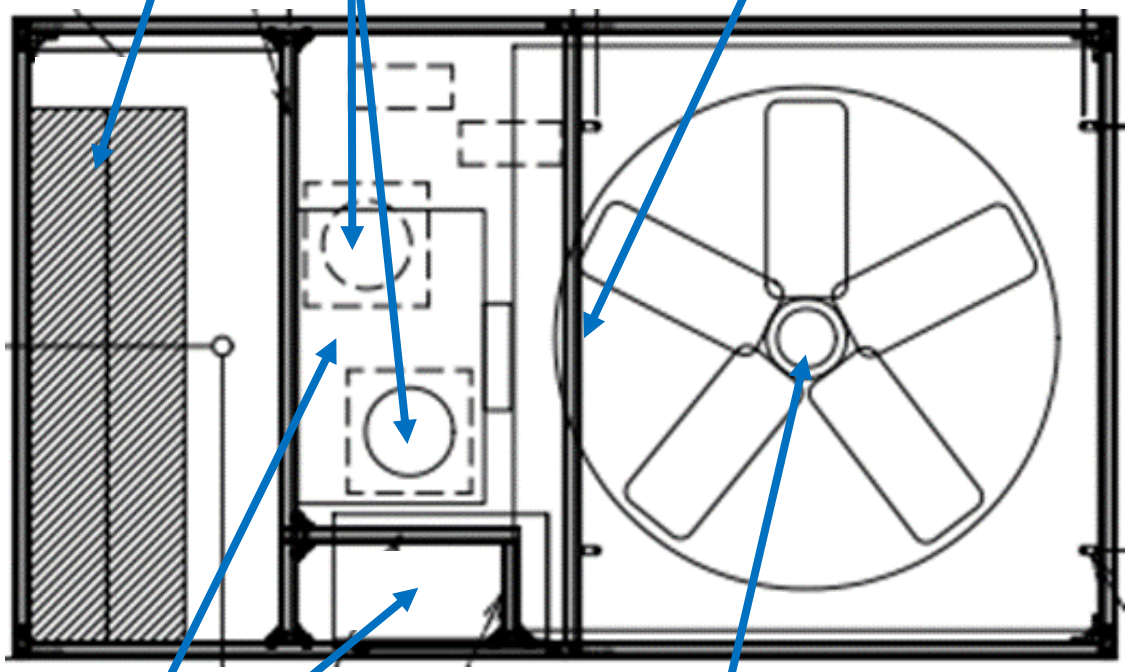
Faucet

Control box that monitors
temperature, humidity, and air volume

Evaporator

Compressor

Condenser



Top view

Control Box

Condenser Fan

Evaporator Fan

Skywater OASIS

Specification

Item		Set Type Name	SWJ-N360-1.1
Operating Temperature Range		℃[DB]	13 ～ 40
Operating Humidity Range		%RH	30以上
Water Production Capacity ※1		L/h	45
Electrical Characteristics ※2	Power Consumption	kW	6.7
	Operating Current	A	22
	Power Factor	%	89
Startup Current ※3		A	50
Power Supply		-	3 Phase 200V 50Hz ／ 60Hz
Compressor	Model Type		Fully enclosed scroll type ×2 units
	Motor Rating	kW	2.98×2
Air Blower	Model Type		Plug Fan／Propeller Fan
	Power Consumption	kW	0.63／0.33
	Standard Airflow	㎥/min	80
Refrigerant oil		L	Built-in compressor (no initial filling required)
Refrigerant	Sealed Volume	kg	R407C×8
	Refrigerant Control		Electronic Expansion Valve
Defrosting System			Off-cycle method
Air Filter			PP Honeycomb <water washable type>
Operating Noise ※4		dB(A)	60.0（55.0）
Safety Device			Thermal Overload Relay (Compressor, Blower) High-pressure Pressure Switch, Low-pressure Pressure Switch
Paint Color＜Munsell Color System＞			No paint, Panel: Stainless Steel
External Dimension ＜Height×Width×Depth＞ ※5		㎜	1,684×2,000×1,100
Product Weight		kg	700

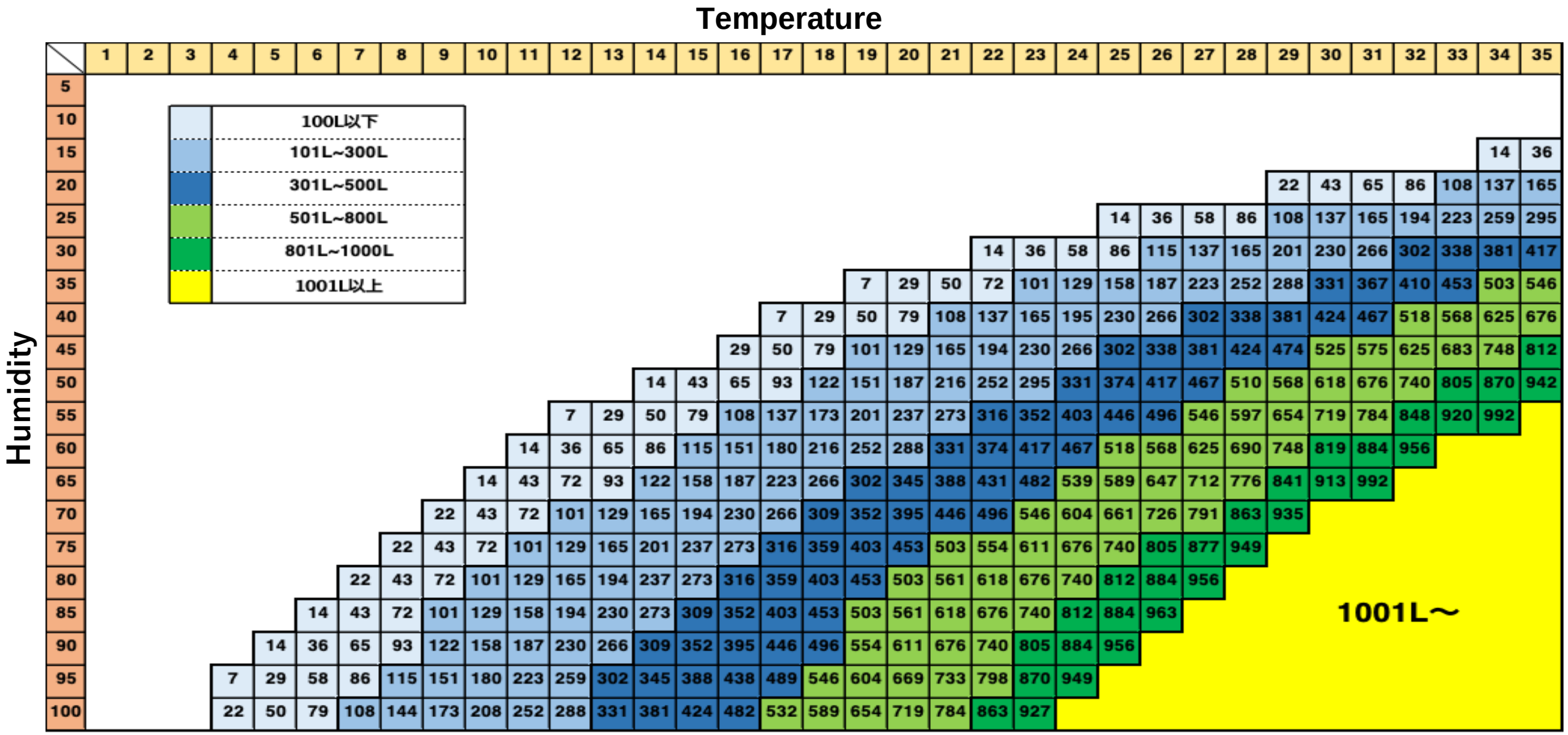
Made in Japan

※1. The water production capacity indicates the value when operated with an intake air dry-bulb temperature of 30℃ [DB] and a relative humidity of 80%.
※2. The electrical characteristics indicate the values when operated with an intake air dry-bulb temperature of 25℃ [DB].
※3 The starting current varies depending on the generator supply method.
※4. The operating noise indicates the values when measured with an intake air dry-bulb temperature of 25℃ [DB], a relative humidity of 80%, and an external static pressure of 0Pa. The values in parentheses in the table are for air delivery operation (compressor stop).
※5. The height indicates the measurement with casters. If there are no casters, the height will be 1,540mm

The above values are specified for use at 60Hz.
Specifications are subject to change without prior notice for improvement purposes.

Skywater OASIS

Water production amount



Humidity \ Temperature	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
5																																		14	36
10																													22	43	65	86	108	137	165
15																									14	36	58	86	108	137	165	194	223	259	295
20																						14	36	58	86	115	137	165	201	230	266	302	338	381	417
25																			7	29	50	72	101	129	158	187	223	252	288	331	367	410	453	503	546
30																	7	29	50	79	108	137	165	195	230	266	302	338	381	424	467	518	568	625	676
35																29	50	79	101	129	165	194	230	266	302	338	381	424	474	525	575	625	683	748	812
40														14	43	65	93	122	151	187	216	252	295	331	374	417	467	510	568	618	676	740	805	870	942
45												7	29	50	79	108	137	173	201	237	273	316	352	403	446	496	546	597	654	719	784	848	920	992	
50											14	36	65	86	115	151	180	216	252	288	331	374	417	467	518	568	625	690	748	819	884	956			
55										14	43	72	93	122	158	187	223	266	302	345	388	431	482	539	589	647	712	776	841	913	992				
60									22	43	72	101	129	165	194	230	266	309	352	395	446	496	546	604	661	726	791	863	935						
65								22	43	72	101	129	165	201	237	273	316	359	403	453	503	554	611	676	740	805	877	949							
70							22	43	72	101	129	165	194	237	273	316	359	403	453	503	561	618	676	740	812	884	956								
75						14	43	72	101	129	158	194	230	273	309	352	403	453	503	561	618	676	740	812	884	963									
80					14	36	65	93	122	158	187	230	266	309	352	395	446	496	554	611	676	740	805	884	956										
85				7	29	58	86	115	151	180	223	259	302	345	388	438	489	546	604	669	733	798	870	949											
90				22	50	79	108	144	173	208	252	288	331	381	424	482	532	589	654	719	784	863	927												
95																																			
100																																			

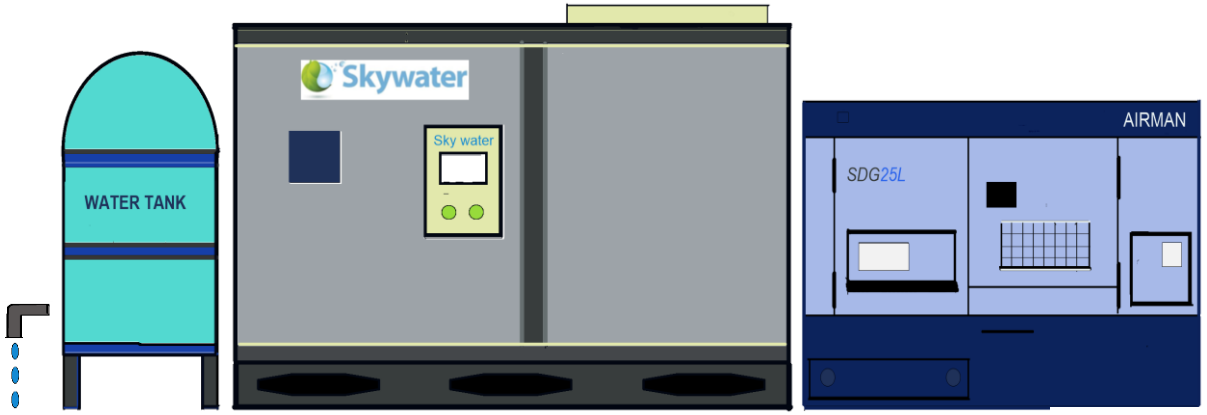
The amount of water produced may vary depending on the installation environment.

Units in the table are liters

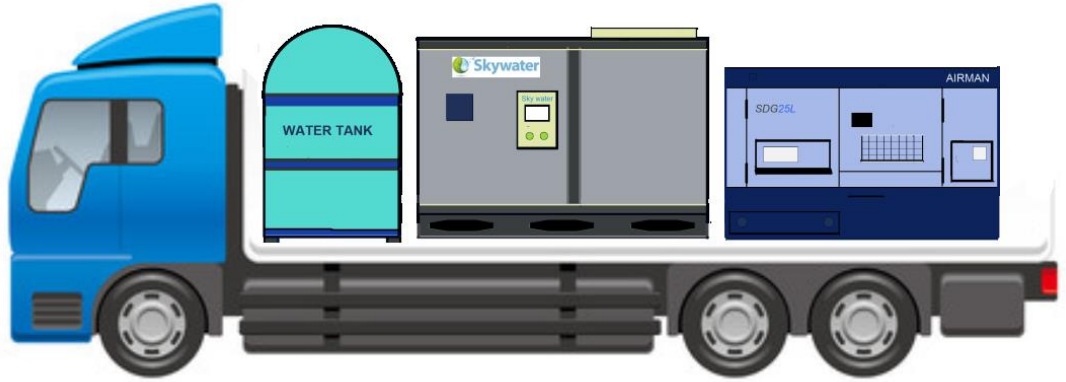
Skywater OASIS

Combining Skywater OASIS with AIRMAN: Water and Power Anywhere

The integration of Skywater OASIS and AIRMAN enables the generation of both water and electricity in locations lacking infrastructure. Designed for resilience, both products support the needs of many people in harsh environments. Consider this innovative solution for your essential utility requirements.



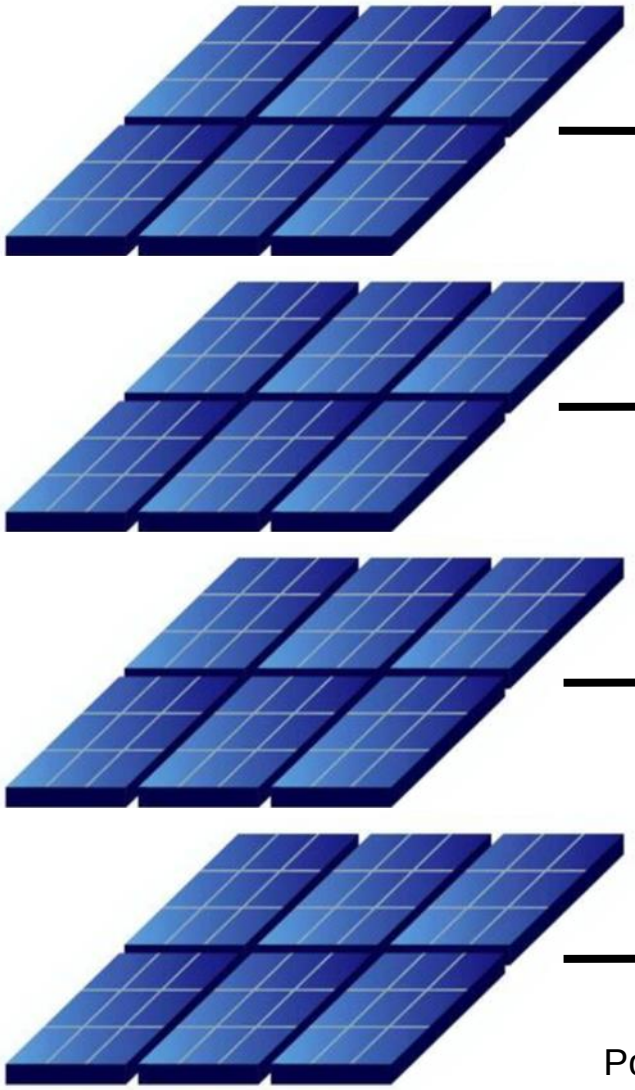
Stationary Type



Mobile Type

Skywater OASIS

Combination with solar power generation



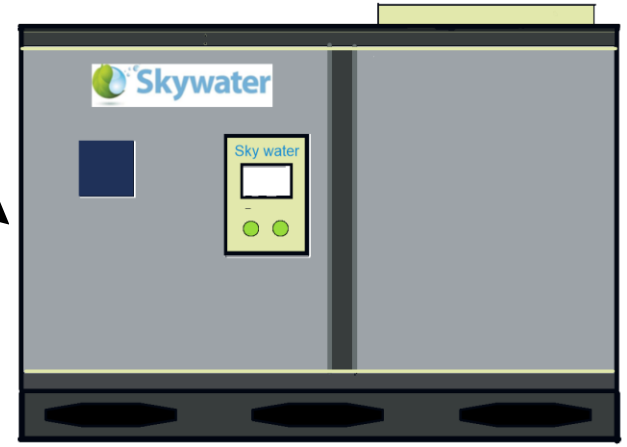
PV

Power Conditioning System

Battery Charge Discharge Controller

Lithium Ion Battery (80kwh)

Water Tank



Skywater OASIS

Skywater OASIS

Skywater Team Triumphs in 2018 XPRIZE Contest

The Skywater team clinched victory in the 2018 XPRIZE, a global competition designed to encourage technological advancements that benefit humanity. The XPRIZE Foundation, established by the renowned innovator Peter Diamandis, supports this competition. Based on the West Coast of the United States, the foundation is backed by numerous business leaders and entrepreneurs and serves as a nonprofit organization dedicated to empowering global innovators.

In Japan, prominent corporations, including ANA, sponsor these initiatives. The XPRIZE contest rewards teams with significant prize money, motivating them to address and potentially solve pressing global issues swiftly through innovative solutions.

XPRIZE RAINFOREST | alana

XPRIZE

Skywater OASIS

Skywater's Innovative Achievement in the 2016 XPRIZE Competition

In 2016, the XPRIZE Foundation launched a competition for innovators to create a device capable of producing at least 2,000 liters of fresh water per day from the atmosphere using only renewable energy. Out of hundreds of entries, the Skysource / Island Sky team won with their WEDEW (Wood to Energy Deployed Water) system, earning a $1.5 million prize. This unique device generates water by cooling warm air to condense moisture in a tank, using heat and moisture derived from the pyrolysis of biomass materials like withered wood chips and coconut shells. This process not only prevents the release of greenhouse gases from decomposing biomass but also reduces wildfire risks. The byproduct, bio-char, is repurposed as a rich organic soil conditioner.

The WEDEW system operates on renewable energy or battery power and is designed to produce clean water in water-scarce regions. Currently, all operational WEDEW systems are non-biomass-based.

The prize money from the XPRIZE competition is being used to collaborate with non-profit organizations to further develop and deploy the biomass-based system in areas plagued by water shortages.

Skywater OASIS

Skywater Japan LLC

Skywater Japan LLC.
Headquarters: 13-5 Kobashi-cho, Tennoji-ku, Osaka,
543-0028, Japan Kobashi T.S.C Building