

Technical Description of the Air Water Machine

Description of the Process:

The air water machine is water-generating system that extracts water from the atmosphere.

The machine is built in a *cabinet* defined by several walls, one of which contains an *entrance port*.

An *electrostatic filter* is located at the *entrance port* to remove contaminants that may exist in the air.

A *fan* is located adjacent to the *electrostatic filter* to draw air through the *entrance port*.

The machine consists of a *compressor* that contains a *refrigerant*. The *compressor* compresses the *refrigerant* which is then transferred to a *condenser*.

The *condenser* receives the *refrigerant* and distributes it through its coils. The coils within the *condenser* are cooled by the *refrigerant* and these (coils) in turn cool and condense the air around them.

The machine contains a *collection tray* to receive the condensed water dripping from the walls of the *condenser*. Water collected in the *collection tray* is channeled into the *main tank*.

The *main tank* has an *ultraviolet lamp* to kill bacteria in the water contained therein. The water contained in the *main tank* is pumped into the *chiller*.

The *chiller* cools the water contained therein at temperatures between 2 and 4 degrees Celsius. The water cooled in the *chiller* is pumped back into the *main tank*.

The water contained in the *main tank* is kept at low temperatures to ensure its purity and good taste. When the water temperature in the *main tank* rises above 10 degrees Celsius, it is pumped back into the *chiller* to be cooled again. This cycle is repeated on a permanent basis in order to maintain constant water flow and low temperatures.

The water contained in the *main tank* is dispensed for consumption through a *tap* installed at the side of the cabinet.

Pressing the *tap* triggers the *pump* that drives water from the *main tank* to the *filter system*.

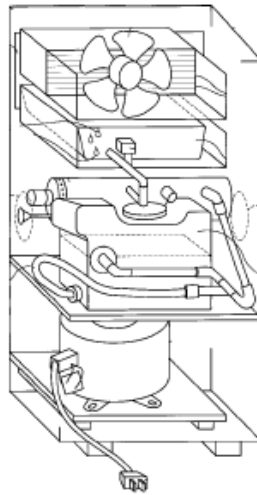
The *filter system* consists of a *charcoal filter* and a *mineral filter* to remove microorganisms that may exist in the condensed water and to add minerals to it. Filtered and mineralized water then flows into the *ultraviolet light chamber*.

The *ultraviolet light chamber* ensures the removal of any existing bacteria in the water. Finally, the purified water flows from the *ultraviolet light chamber* to the dispenser *tap* for consumption.

System Components:

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|-------------------------|---------------------------|
| 1. Cabinet | 10. Water Collection Tray |
| 2. Air Entrance Port | 11. Water Pump |
| 3. Fan | 12. Charcoal Filter |
| 4. Air Exit Port | 13. Mineral Filter |
| 5. Electrostatic Filter | 14. Ultraviolet Lamp |
| 6. Compressor | 15. Ultraviolet Chamber |
| 7. Refrigerant | 16. Main Tank |
| 8. Condenser | 17. Tap |
| 9. Chiller | 18. Power Source |

Illustration of the Machine:



Process Flow:

