



**AWA - AIR TO WATER**  
HOW IT WORKS

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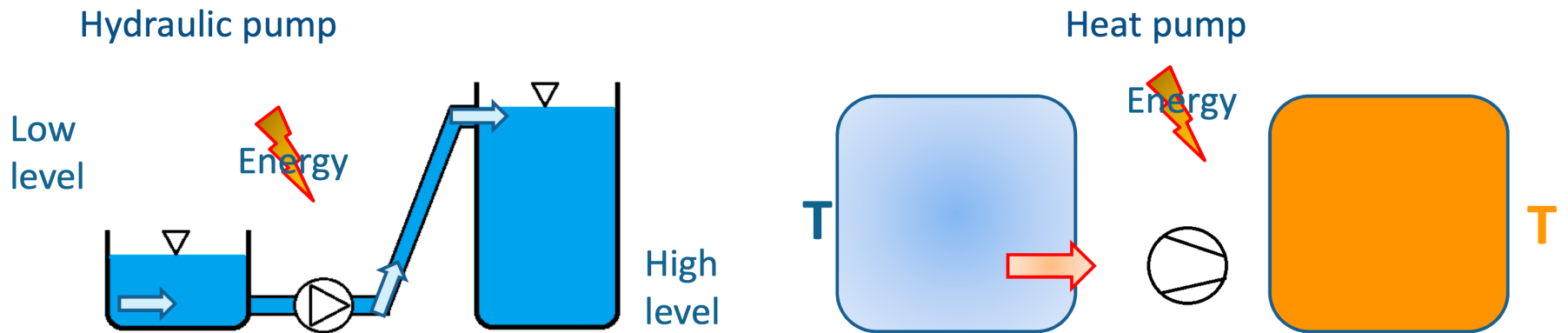
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## How we cool down the air?

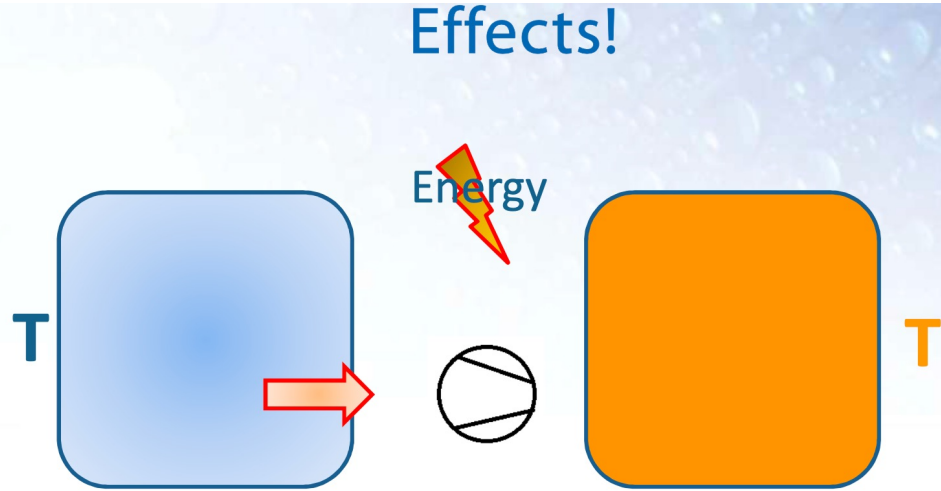
We cool down air by means of an application of the compressor reverse cycle, commonly known as “fridge cycle”. That cycle is often applied in well known equipments, as home fridge, air conditioning system, or heat pump. The principle is the very same and we can understand it better if we think to the hydraulic similitude shown below:





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**Cold  
contribution:  
dry fresh air!**



**Hot  
contribution:  
heating!**



**WATER!!!**



**AWA** MACHINE WAS  
DESIGNED AND DAILY  
DEVELOPED TO  
PURPOSELY USE AND  
INCREASE ALL THOSE  
EFFECTS

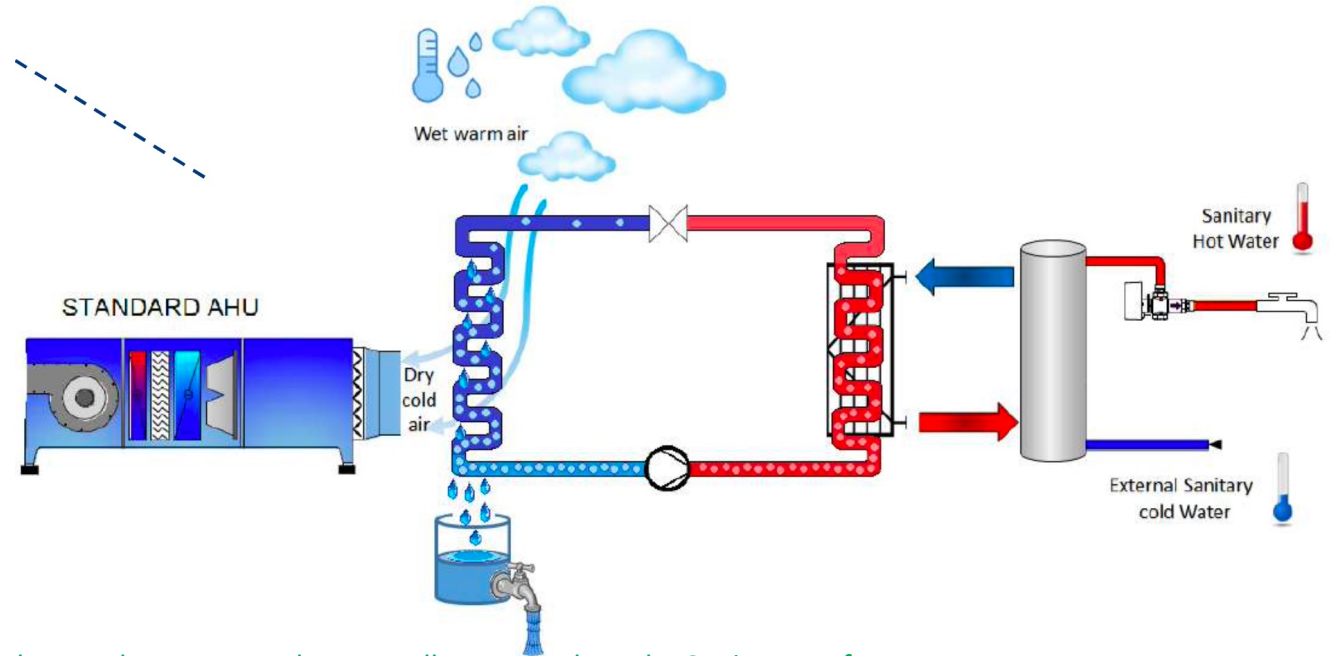


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Control System

## A Very Smart Reverse Cycle



The double-pass heat exchange technology and our patented system allow to produce the **35%** more of water than any existing AIR TO WATER production system and technology, with the same energy consumption.

At 30°C and 70% humidity, 1 m<sup>3</sup> of air contains 21.9 g of water vapour.

Traditional water production systems can condense approximately the 50% of the available water vapour.

Our patented technology allows to condense more than the **60%** of the vapour without increasing energy consumption.

A custom algorithm permits to manage water extraction and thermal contributes use.

Moreover it permits to optimize the energy for litre ratio



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## AWAS WATER TREATMENT SYSTEM

Mobile, Modular, Hybrid and integrated systems.

Integrated systems for commercial and residential buildings, capable of producing from 2.5 m<sup>3</sup> to 10 m<sup>3</sup> of water per day, as well as providing thermal energy for heating, conditioning and dehumidification purposes.

AWA's modular philosophy has been implemented perfectly in its water treatment system.

We propose 4 different water treatment system configurations, allowing to obtain many types of water.

Each system is designed so as to be easily adaptable for different needs.

Consequently, if the need for a certain type of water changes, the water treatment system can be easily modified even at a later stage.

We also supply the 'LONG LIFE STORAGE' optimized water collection and storage system.

This optional system has been designed and developed to maintain the quality of water production constantly, for example by means of a bioreactor that combines the bactericidal action of ultraviolet radiations with the antibacterial photocatalytic effect of titanium dioxide.

Filtering, sterilisation, mineralization, and real-time monitoring are key features of this technology, whose processes have been carefully studied to achieve high performance, easy and fast maintenance, and constant quality over time.



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## COSTS SAVINGS COMES DRINKING

In buildings you can find:

- Heating plant for domestic water (not so seldom electrical boilers)
- HAVC plants (often not integrated with heating plants)
- Bottled water or drinking water dispenser equipped with tanks

Each of the above voices means costs in terms of energy and/or money

AWA machines were designed in order to provide high quality water and, at the same time, with the same energy cost, an help for the HAVC plant and for the domestic water heating plant.

That means that AWA machines can be seen as an investment which gives a revenue in terms of costs saving

AWA provides different water qualities to perfectly fit different purposes:

- ❖ **BASIC** Purified water, suitable for: irrigation, washing, industrial purposes, zootechnical uses, etc
- ❖ **DRINKING** Perfectly Pure and Tasty drinking water for Superior Quality human consumption.  
The custom mineralization, **PREMIUM**, can provide special taste and water features
- ❖ **MINERAL FREE** Distilled water(2MΩ of resistivity) suitable for both industrial and special alimentary uses
- ❖ **MINERAL FREE PLUS** High profile and quality distilled water (over 15 MΩ of resistivity). The product is a very high quality tech water suitable for cosmetic, pharmaceutical, electronic industrial uses, H2 chain and for specific food&beverage productions



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## AWA DRINKING PREMIUM

Calcium, Na, K, Cl, Mg, Fe, Zn, Cu, Cr, I, Co, Mo and Se are essential for human health, as defined by the World Health Organization and the Food and Agriculture Organization (WHO/FAO). For these elements, water may provide up to 20% of the required total daily intake.

The micronutrients with the largest proportion of intake from drinking water are calcium and magnesium

In **AWA DRINKING PREMIUM** we can find all the substances and element of a typical best mineral water, such as magnesium, calcium, sodium, sulphates, carbonates, bicarbonates, chlorides and many other important elements in traces.

Chemical and Microbiological Laboratories, internationally acknowledged, guarantee the chemical and microbiological compliance with laws and rules of AWA DRINKING PREMIUM system, and above all, the respect of nutritional elements added.

Furthermore, for specific taste and beverage requests, it is also possible to change the mineralization doses to customize the taste. Moreover, probes verify, in real time, every part of the water treatment unit (in compliance with any ISO quality system and in accordance with HACCP\* rules) to ensure the maximum security and quality in bottling system too.

In AWA final tests, a huge number of parameters is taken into account as indicator of the water quality. In the following table the number of such parameters is reported.

All the above parameters are analysed in laboratories certified in compliance with ISO 17025

Indicators	Number of analysed parameters
Chemicals	44
Biological	10



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## AWA – WATER CHEMICAL AND BIOLOGICAL TESTS

After final tests, we also carried out other tests on site, considering many other parameters, in order to guarantee the conformity to local laws and to the final use of the system.

We already have certificates for the following countries:

- ✓ **Switzerland**
- ✓ **Italy**
- ✓ **UAE**
- ✓ **Mexico**
- ✓ **Perù**

It is important to highlight that European Country law limits, about water, are among the strictest in the world

## AWA – SUSTAINABILITY

- AWAs water generation systems do not use local water sources and does not affect them with pollution or brine.
- Environmental air humidity provides an almost unlimited source of clean drinking water which does not affect the global/local ecosystem.
- AWA water treatment units can provide a source of safe and healthy water which is one of the most important means to preserve health in a community
- AWA systems can be connected to solar cells, wind farms and any other renewable energy source to achieve zero carbon footprint.
- The use of only 30% of the thermal energy produced by an AWA 1000 reduces CO2 yearly emissions by over 280 tons.
- AWAs systems can provide a fresh & dry air flux and an heat source





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## **AWA – MAIN ADVANTAGES**

SEAS systems can operate anywhere

- No need for a “primary source of water” (sea, rivers, lakes, recycled water plants...) to be transformed into a drinking one.
- No need for infrastructures.
- No need for daily water transport.
- AWA Modula produces high quality and safety drinking water
- AWA Modula is user friendly
- AWA Modula is a full green machine which can reduce CO2 Emissions

AWA systems supply a large quantity of thermal energy (hot and cold air):

This is the Key and the opportunity for very significant “Energy/Cost savings”

## **SENSORS AND PROBES:**

AWA Remote Control Systems

AWA machines can be equipped with a sensor set devoted to monitor the whole system with satellite or GSM technology. It allows US and the customer:

- to monitor all the AWA working main parameters
- to monitor in real time chemical and physical parameters such as: pH, Conductibility, Temperature, Water Flow and, additionally, Redox and Turbidity;
- to control, on site and from remote, the whole machine work;
- to monitor in real time consumables life time;
- to register and store warnings and error data;



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## **AWA – TECHNOLOGY**

The AWA MODULA systems are built on standard industrial modular basis.

The AWA range is available in modular models, capable of producing 250, 500, 1000, 1500, 2500, 5000 or 10000 litres of water per day (at 30°C ,70% R.H.).

The AWA MODULA, in the HWAC configuration, produces also:

- Drinking Water
- Domestic Water heating (up to 50°C)
- Primary fresh air (24°C, 40% R.H.)
- Water cooling (7°C)

### AWA MODULA working range:

Standard configuration: 5°C, 90% R.H. / 50°C, 10% R.H.

DESERT configuration: -2°C ,90% R.H./ 50°C, 10% R.H.

### AWA 25 Performance

Power Supply: 220 V 50Hz 1Ph 16 A (3,0 kW)

Size (WxDxH): 2205x880x1870 mm

Available Heating thermal power (water): 11 kW 270 Litres/hour at 50°C

Available Cooling thermal power (Air): 1150 mc/h at 24°C 40% R.H.



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## AWA – TECHNOLOGY

### AWA 50 Performance

Power Supply: 380 V 50Hz 3Ph (6,0 kW)

Size (WxDxH): 2205x950x1870 mm

Available Heating thermal power (water): 22 kW 540 Litres/hour at 50°C •

Available Cooling thermal power (Air): 2300 mc/h at 24°C 40% R.H.

### AWA 100 Performance

Power Supply: 380 V 50Hz 3Ph (12,0 kW)

Size (WxDxH): 2205x1450x1870 mm

Available Heating thermal power (water): 44 kW 1080 Litres/hour at 50°C •

Available Cooling thermal power (Air): 4600 mc/h at 24°C 40% R.H.

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