

# A full innovated technology



## The water from all around you, from the air

The WMS1000 wind turbine does not pump water from a surface or underground source, to later distribute. Its innovative technology collects water from the air all around us. This is achieved thanks to a large humidity condenser with an equivalent heat exchanger of one meter wide and five kilometers long. The WMS1000 Wind Turbine is capable of producing one thousand liters of safe drinking water per day.

The humidity condenser is equipped with a revolutionary food safe stainless steel quality alloy, specially adapted to the production of drinking water. It can sustain the process of creating water for decades, without risk of corrosion.



## A world unique electricity regulation system

The WMS1000 Wind Turbine features a 30kW direct drive generator that does not require a gearbox significantly reducing the maintenance requirements. Furthermore the fluctuating wind or solar energy can be stabilized by Eole Water's world exclusive electricity regulation technology in order to distribute the electrical energy.

It allows regulation of the power generated and creates the opportunity to set up a local decentralized multi-source electrical network utilizing wind, solar or any other power supply. This is an intelligent off-grid management system for individuals and strategic buildings, particularly suited to areas with no access to mains electricity.



## High performance hydraulic tilted mast

The new WMS1000 Wind Turbine has been designed to provide new opportunities for drinking water infrastructures in remote areas, especially for those most submitted to strong winds. Our engineers have undertaken much thought and research to propose innovative and reliable systems, able to protect the wind turbine at all times while ensuring a constant supply of water or electricity to the user.

The WMS1000 Wind Turbine integrates three levels of wind protection that withstand winds of up to 180 km/h:

- 1 • A centrifugal pitch control to regulate the rotor speed,
- 2 • A mechanical and electrical rotor braking system to prevent damage from overspeed,
- 3 • A tilting mast that integrates double-acting telescopic cylinders with thrust capacity of 115 Tonnes for each cylinder. In case of hurricanes, the WMS1000 Wind Turbine can be tilted to be secured.



## A reduced maintenance for remote areas

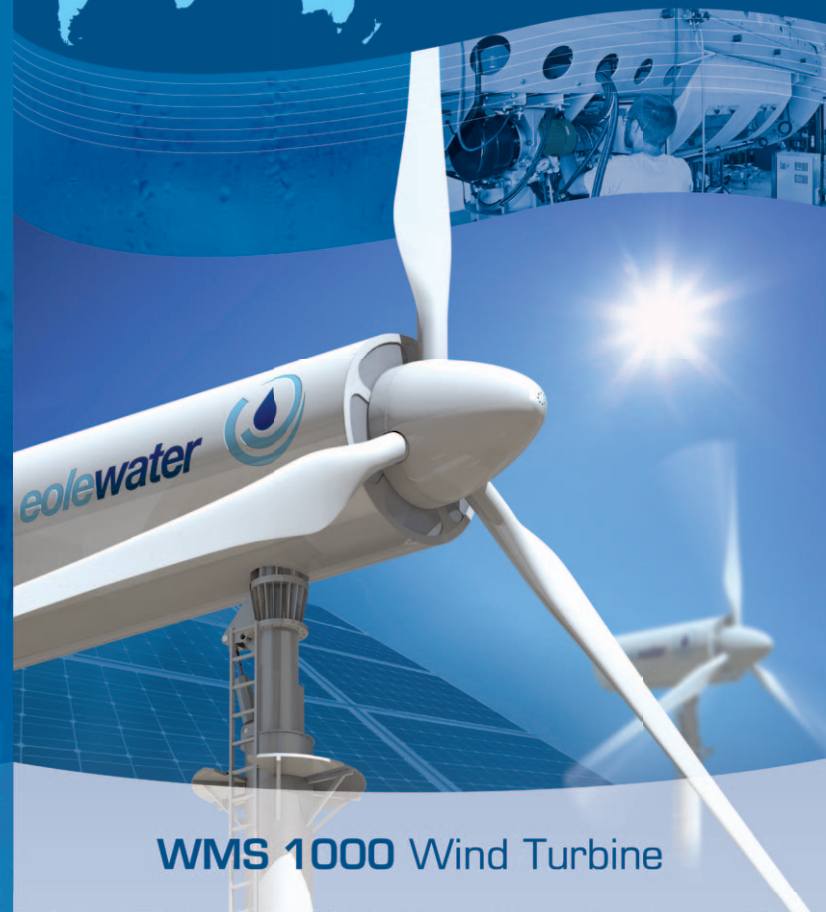
Remote areas are often subject to various environmental, technical or human constraints which hinder good maintenance on existing infrastructures. Thanks to various innovative devices, listed below, the WMS1000 Wind Turbine is designed to operate with a full level of autonomy which requires no major human intervention:

- 1 • A hydraulic tilted mast in order to avoid the mobilization of heavy lifting equipment for each intervention,
- 2 • Quality tested components designed to withstand the most extreme climates,
- 3 • A remote monitoring system that gives our teams the opportunity to detect any dysfunction or warning on any component of the WMS1000 Wind Turbine, anywhere in the world,
- 4 • A self-cleaning heat exchanger system reducing the frequency of human intervention.



**eolewater**

Z.A. Les Bastides Blanches  
04220 - Sainte Tulle - France  
Tel: +33 (0) 492 721 164  
[www.eolewater.com](http://www.eolewater.com)



**WMS 1000 Wind Turbine**

[www.eolewater.com](http://www.eolewater.com)

## WMS1000 Wind Turbine

### Operation process

Energy production



Ambient air suction



Humid air condensation



Water production

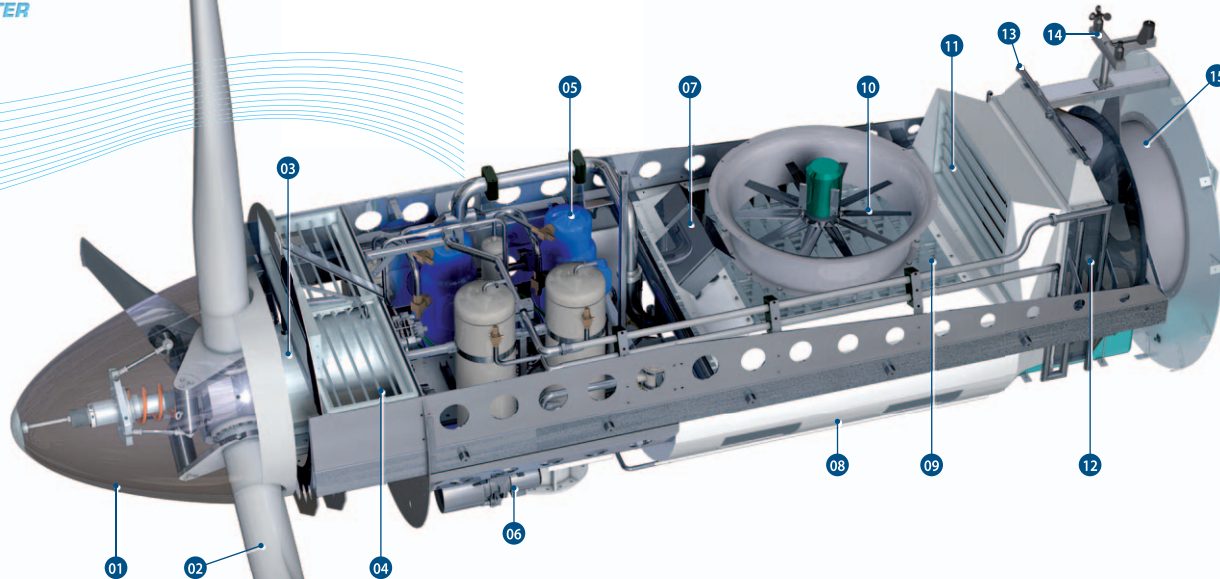


Water purification



Pure drinking water distribution

## WMS1000 Wind Turbine Components



- 01 • Rotor Hub
- 02 • Blades
- 03 • Direct drive generator
- 04 • Sandstorms shutters
- 05 • Cooling compressors
- 06 • Hydraulic unit
- 07 • Electrical box
- 08 • Water collector
- 09 • Humidity condenser
- 10 • Humidity condenser air blower
- 11 • Airflow regulator
- 12 • Heat exchanger
- 13 • Heat exchanger self-cleaning system
- 14 • Wind speed and direction sensor
- 15 • Heat exchanger air extractor

## WMS1000 Wind Turbine Benefits

### Be self-sufficient



Eole Water's systems have been designed to produce water with no external source of energy. No other power but wind is needed to make the turbines operational. They are suited to be installed quickly in isolated scarce water supply areas with no external electric power needed.

### Be eco-friendly



Eole Water proposes an innovative technology in line with the requirements of sustainable development. Wind power is the only source of energy needed to operate our water production turbines with zero CO2 emission, no underground tapping and the lowest possible impact on the environment.

### Sustainable water



Unlike wells or boreholes, water will always exist in the air. The constraint was to design a reliable technology able to create and collect this available water. After more than ten years of research, the WMS1000 wind turbine now enables people in remote areas to access to a sustainable drinking water.

## WMS1000 Wind Turbine Technical Specifications

### GENERAL

Type	Horizontal axis, upwind, 3 blades
Rated power	30 kW
Hub height	24 m
Nominal wind speed	10 m/s
Minimal wind speed	7 m/s for water production
Maximum wind speed	50 m/s

### ROTOR

Diameter	13 m
Nominal rotation speed	100 RPM
Blade material	Fibreglass and epoxy resin
Regulation	Pitch centrifugal control
Brakes	Hydraulic disc brake
Generator	Permanent Magnet - direct drive 400 VAC

### YAW CONTROL SYSTEM

Type	Active
Driving motor	Asynchronous motor
Brakes	Disc brake
Slewing ring	4 contact points balls

### CONTROL & MONITORING

Monitoring	Programmable Logic Controller
Communication	GSM data transmission and broadband
Human/Machine interface	Touchscreen - data archiving

### Water production in various conditions

Zones	Conditions	WMS1000	WMS1000 + solar PV
Tempered zone	25°C - 60% HR	1000 l/day	1500 l/day
Costal zone	30°C - 70% HR	1200 l/day	1800 l/day
Arid mountain zone	25°C - 40% HR	750 l/day	1150 l/day
Desert zone	35°C - 30% HR	350 l/day	550 l/day

### Water maker system description

Compressor unit	2 x 15 kW SCROLL
Refrigerant gas	R410A (CFC FREE)
Air flow generator	2 x 15000 m <sup>3</sup> /h
Humidity condenser	Food safe stainless steel
Heat exchanger	Anti corrosion treated aluminium and cooper
Regulation	Programmable Logic Controller Electronically driven expansion
Water treatment	Filtration 10 µ Carbon block filtration 1 µ Ultra filtration 0.005 µ Ultraviolet treatment Mineralization cartridge

## Hybrid power controller

