

**WIND+**

WE MAKE USABLE  
THE WIND'S POWER



**Bornay** 



# Bornay

A new line of wind turbines is born: Wind+  
We have evolved toward wind turbines that are more compatible, easier to install and with better performance.

The most notable innovation is that they have a single alternator and a single regulator for all power ratings. The new alternator provides the equipment with better efficiency. And the new regulator has a very interesting additional improvement that limits the output power in accordance with the battery voltage.

We are looking at a new stage in Bornay wind turbines.

INNOVATION + WIND =

WIND+



# General Direction

“Innovation is, for me, a synonym of progress. I feel very satisfied to have initiated the development of this company”

Juan Bornay

Juan de Dios  
Bornay Martínez

Juan  
Bornay Rico



From its birth Bornay has been evolving and working for the creation of a more sustainable world. Every day we do our bit so that the world will embrace us, and the coming generations.

Bornay's trajectory has always been marked by change, progress and sustainability.

Sustainability forms part of our genetic profile. We use renewable energy in manufacturing and we perform an important labor in promoting public awareness of how to be more responsible in our consumption of energy.

Family and work have always been linked in our life. For this reason, people are very important to us and we make sure that our company is a pleasant place for our workers; a place where happiness is not at odds with productivity.

In our present process of expansion to other countries, we want to continue to maintaining this family flavor that brings us close to every person who works with us in this construction of a better world.



# Management, Quality and Communication

Quality is a transversal characteristic in Bornay. We take great care in all our processes, both in management and in production.

We give exquisite attention to quality because it involves high levels of responsibility toward our clients and the clients of our clients, the final users of our wind turbines.

We are proud of the confidence accorded to us, which is the result of the warranty of reliability, efficiency and durability that our clients find in our products and our company.

We handle each order as if it were unique and every difficulty as if we were dealing with someone close to us. And this very special attention to every detail is accepted by our clients with satisfaction.

Our communication is transparent in all its dimensions. Internally, we see to it that everyone knows the constant evolution of the firm. We collaborate with our clients in order to offer them the best solutions. Our web speaks of us and of how much we like to work with our clients. And anyone at all can come to us with the assurance that he will be appropriately attended to.

“Every obstacle is a challenge that leads us to excellence. Therefore, our Quality means reliability, efficiency and durability”

José Luis  
Marcos Navarro

María José  
Esteve Martínez

Carolina  
Hernández González

Raquel  
Bornay Martínez



"Bornay's fluid communication generates confidence and security in our brand name"

## Commercial

Isa  
Merlos Bernabèu

Jorge  
Valdés Lledó

Quico  
Sempere Jaén

Inés  
Molina Martínez

Juan de Dios  
Bornay Martínez

Our clients are one of our fundamental pillars. They value our honesty, our transparency, our collaboration and the continuity that we have offered them over the years.

They feel they are part of our family because they really are. We always provide them with the best solutions for the circumstances that come up in their daily activity. We facilitate their work with their own clients, providing applications and tools that have a high functional value. And they appreciate how much it matters to us that their clients should be satisfied with their work.

In Bornay they not only find a product, but also permanent advice and support, both in the design of their projects and in their implantation, installation and starting up.

Promptness of reply is a characteristic of Bornay that our clients value especially. For us it is a requirement that improves our evolution as a company, because excellence in attention to the client is a clear priority.



As our “boys” say, innovation and development are part of the company’s DNA.

The electronic part and the mechanical part fuse together in our R+D+i department in order to provide integral solutions to the development of our products.

Technology, as a motor of progress, has been providing the company with greater efficiency over the years. Constant evolution permits us to be a referent in innovation, quality and service.

We only conceive of progress as innovating continuously, improving our products and giving our clients all the technical support they need.

We collaborate with universities in the development of projects what allows us to keep growing and evolving. And we feel that with our work in innovation we are helping many people who do not have access to conventional energy by providing it for them. Energy that contributes to keeping the world cleaner.

R + D + i

“Bornay is a company that believes in a green future for the planet”

David  
Rico Iváñez

Vicente  
Martínez Santamaría





“In our daily work at Bornay we can see the change in the consumption of energy toward a cleaner energy”

# Electronics



Antonio Sánchez Pérez

Vicente Martínez Santamaría

Juan José Gómez Reyes

Juan Bornay Rico

The production team is excellent when it comes to facing new challenges. We are extraordinarily pleased that you are joining us in this daily adventure in keeping our planet a cleaner and better world.

All of our electronics is a fundamental part of our wind turbines. It is developed integrally at Bornay to be able to offer integral solutions for the equipment we manufacture.

Our own manufacture of the machine's electronics allows us, furthermore, to offer our clients better maintenance, even at a distance.

Manufacture at Bornay is very methodical, and with it we provide alternative energies that are necessary for the sustainability of the planet and for life in many countries, in areas with no access to conventional energy.

Our products are helping a severely damaged planet.

# Mechanics

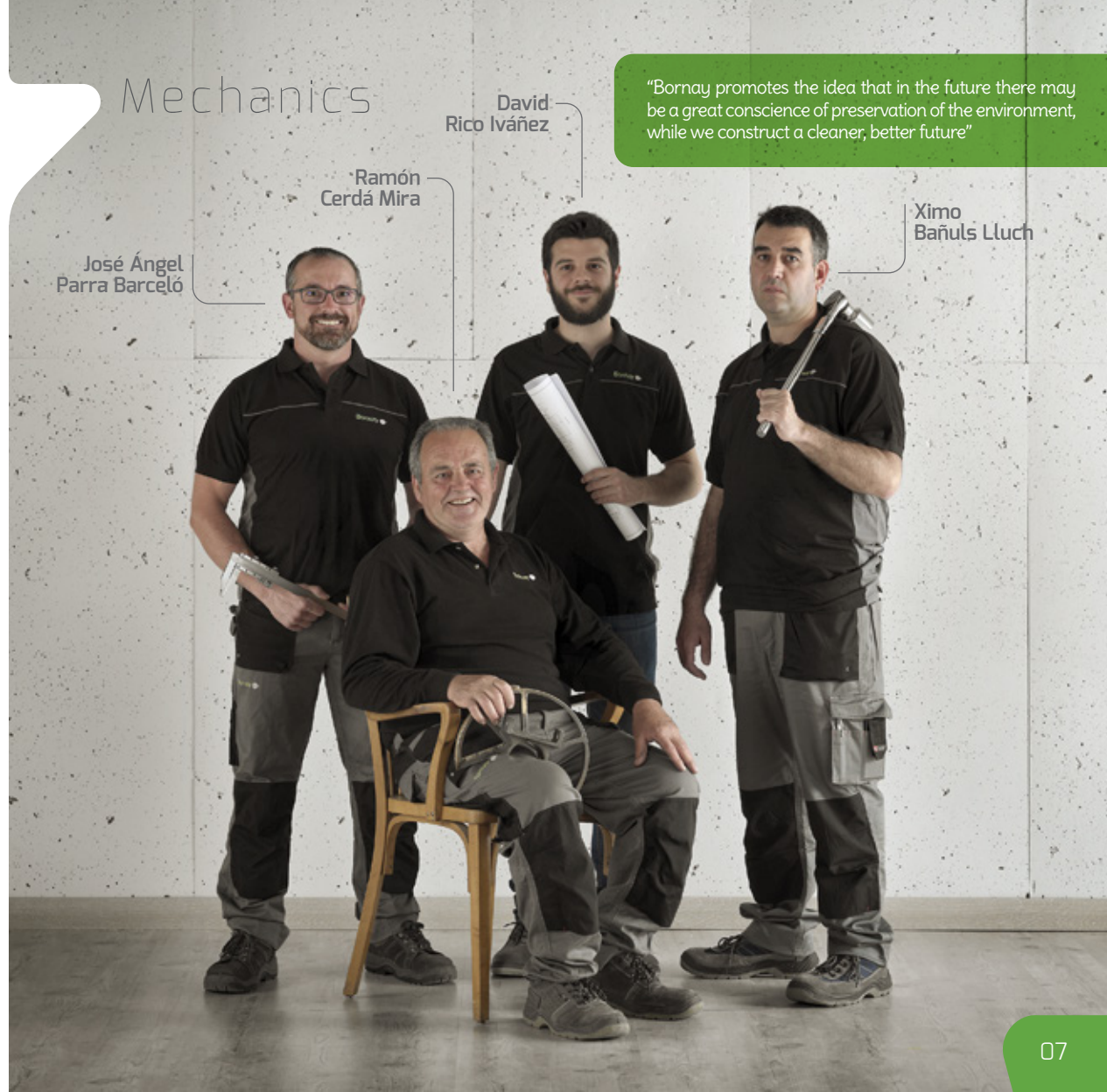
Sustainability and ecological conscience are profoundly linked to our production area.

We manufacture in a bioclimatic building with renewable energy, creating products that also contribute to the sustainability of the planet. An ecological conscience that allows us to manufacture wind turbines that are very efficient.

Handcrafting forms a part of production at Bornay, which allows us to obtain greater quality in our machines.

The whole mechanics team collaborates cohesively to be able to produce wind turbines that, once installed, provide great efficiency during the entire life of the machine.

Pampering the productive processes results in better functioning of our equipment and greater durability of the machine installed.



José Ángel  
Parra Barceló

Ramón  
Cerdá Mira

David  
Rico Iváñez

Ximo  
Bañuls Lluch

"Bornay promotes the idea that in the future there may be a great conscience of preservation of the environment, while we construct a cleaner, better future"



“Bornay, 40 years working to be a referent in environmental sustainability”

## Composites

Rosa  
Guill Payá

Juan  
Bornay-Rico

Raül  
Verdú Carbonell

Ángel  
García Morales



All the exterior pieces of our installations are carefully produced in our composites area.

We have molds designed by us, for all the elements (blades, cone, housing), made of fiberglass, carbon and resin, for our wind turbines. This allows us to produce the composites internally, as well as to submit the process to our strict quality controls.

The propellers are another very important part of our wind turbines, and during their in-house manufacture, in all phases, we exercise an exhaustive quality control so that in the installation the propellers function with total security.

We are proud of the methodical and professional work of our collaborators in the production area, who have been a part of this family for many years now.

Line and unified processes result in one of the machines of greatest durability on the market.



# Logistics

All our production begins and ends in the logistics area.

The reception and storage of prime materials is a basic action in the proper functioning of the production plant.

We have a broad stock of our products, which are perfectly organized and classified, so that the client may receive his order in the least time possible.

The communication between our CRM and the zone of outgoing orders provides agility when it comes to preparing the material requested by our clients.

Packing is the final action in the preparation of the products before being collected by the transportation agency to be delivered directly to the locations where they will be installed for our clients.

Our warehouse and the dispatch of our orders constitute a fundamental part in the whole process of making our planet a more sustainable and healthy place.

“Every detail is important at Bornay because taken together, the details create the style of our firm”

Juan  
Merlos Bernabeu

Ximo  
Bañuls Lluch



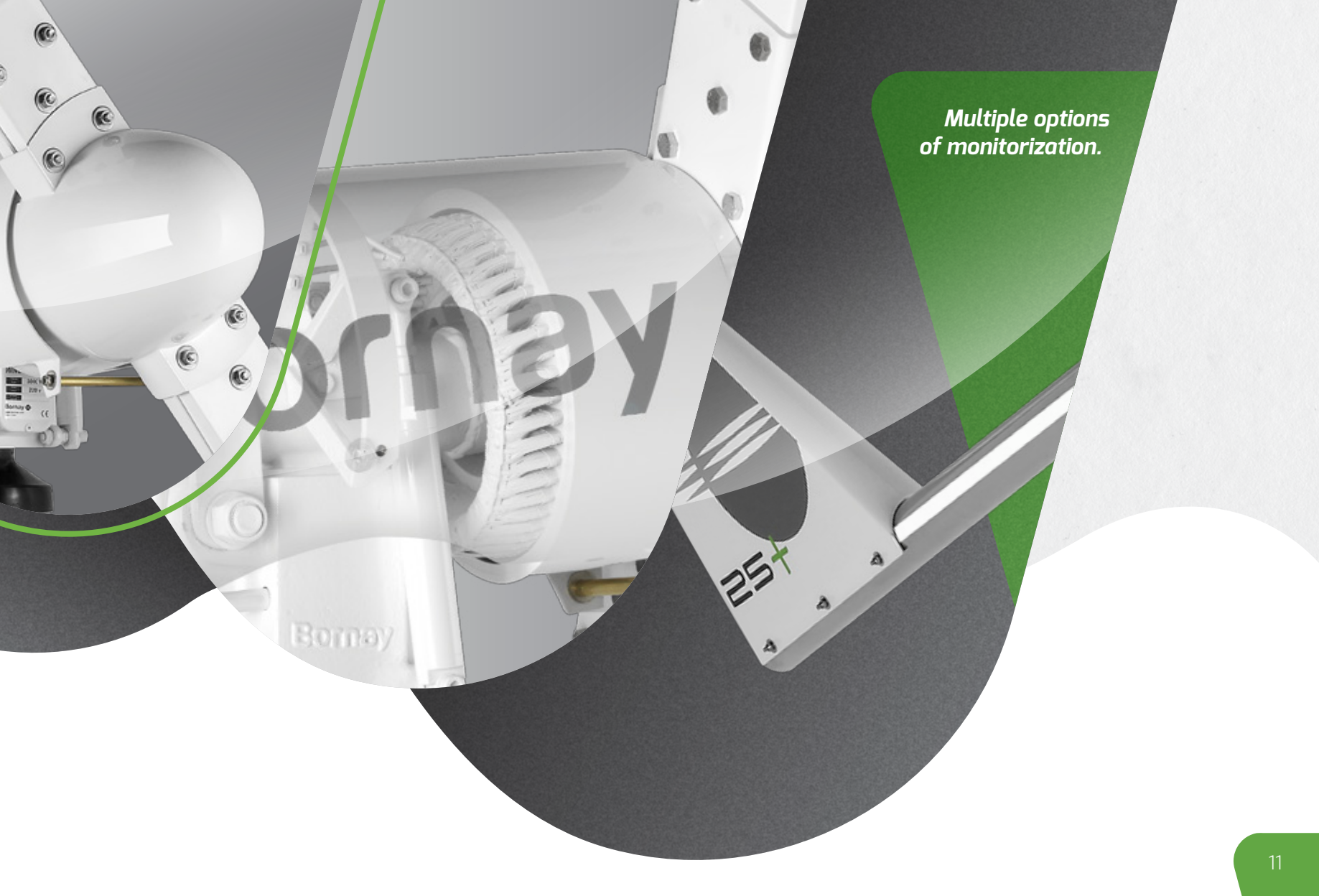


**WIND+**

**Total control of the  
wind turbine's RPM.  
Maximum Power point  
tracker controller  
obtained thanks  
to MPPT.**

With the new Wind+ system, you have total control of the wind turbine revolutions, a control that guarantees perfect functioning of the system. Furthermore, the new model is able to optimize to the maximum the power extracted from the machine, since it supervises all the parameters in order to obtain the point of maximum power at all times.





*Multiple options  
of monitorization.*



Number of blades	2
Diameter	2,86 m
Material	Fiberglass / carbon
Direction of rotation	Counterclockwise
Control system	1) Electronic regulator 2) Passive because of tilt

### Electrical specifications

Alternator	Three phases permanent magnet
Magnets	Neodymium
Nominal power	1500 W
Nominal voltage	220 Vac
RPM	@ 600
Controllars	Regulator MPPT Wind+ Multivoltage: 12, 24, 48 Vdc Intensity: Max. 125 Amp Type of battery: Flooded, AGM, Gel Lithium Interface Wind+ Direct water pumping AC or DC Telecom Grid connection

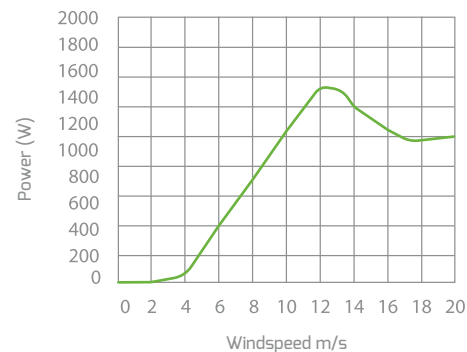
### Windspeed

Operating range	2 -30 m/s
For turn on	3 m/s
For nominal power	12 m/s
For automatic braking	14 m/s
Survival	60 m/s

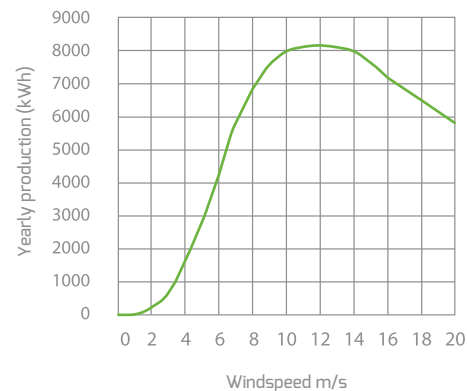
### Physical characteristics

Wind turbine weight	41 kg
Regulator weight	30 kg
Packing Dimensions - weight	50 x 77 x 57 cm - 68 Kg 153 x 27 x 7 cm - 7 Kg
Total	0,22 m <sup>3</sup> - 65 Kg
Warranty	3 years

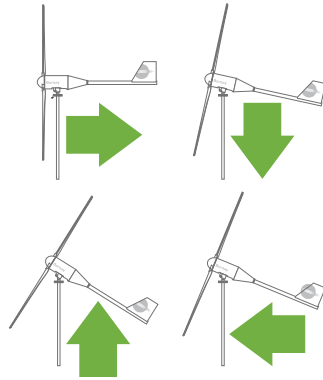
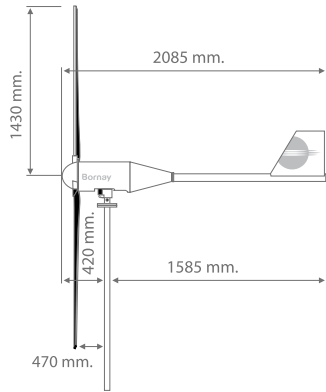
### Performance



### Energy



## Dimensions





# 25.2+

Number of blades	2
Diameter	4 m
Material	Fiberglass / carbon
Direction of rotation	Counterclockwise
Control system	1) Electronic regulator 2) Passive because of tilt

## Electrical specifications

Alternator	Three phases permanent magnet
Magnets	Neodymium
Nominal power	3000 W
Nominal voltage	220 Vac
RPM	@ 400
Controllars	Regulator MPPT Wind+ Multivoltage: 12, 24, 48 Vdc Intensity: Max. 125 Amp Type of battery: Flooded, AGM, Gel Lithium Interface Wind+ Direct water pumping AC or DC Telecom Grid connection

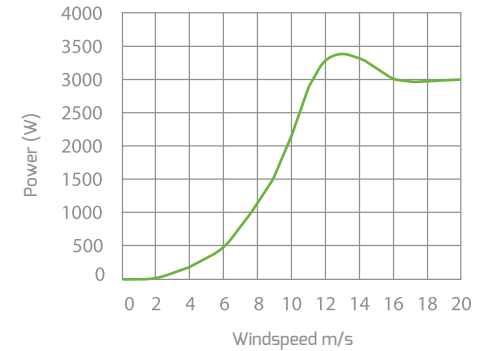
## Wind speed

Operating range	2 -30 m/s
For turn on	3 m/s
For nominal power	12 m/s
For automatic braking	14 m/s
Survival	60 m/s

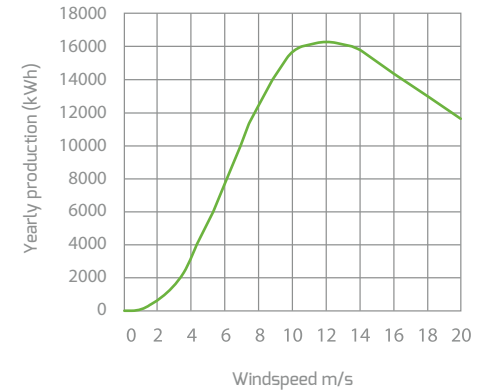
## Physical characteristics

Wind turbine weight	93 kg
Regulator weight	30 kg
Packing Dimensions - weight	120 x 80 x 80 cm - 150 Kg 220 x 40 x 15 cm - 19 Kg
Total	0,90 m <sup>3</sup> - 169 Kg
Warranty	3 years

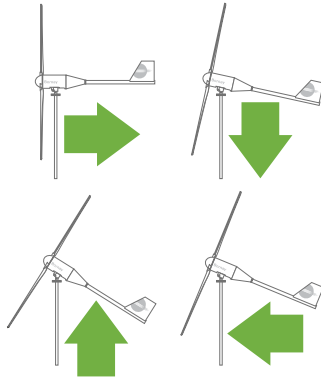
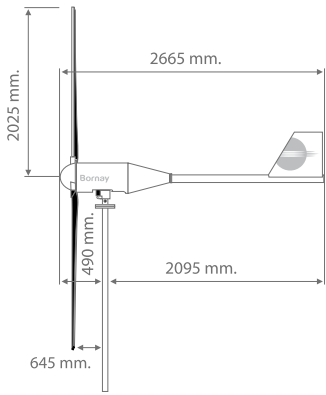
## Performance



## Energy



Dimensions





# 25.3+

Number of blades	3
Diameter	4 m
Material	Fiberglass / carbon
Direction of rotation	Counterclockwise
Control system	1) Electronic regulator 2) Passive because of tilt

## Electrical specifications

Alternator	Three phases permanent magnet
Magnets	Neodymium
Nominal power	5000 W
Nominal voltage	220 Vac
RPM	@ 400
Controllars	Regulator MPPT Wind+ Multivoltage: 12, 24, 48 Vdc Intensity: Max. 125 Amp Type of battery: Flooded, AGM, Gel Lithium Interface Wind+ Direct water pumping AC or DC Telecom Grid connection

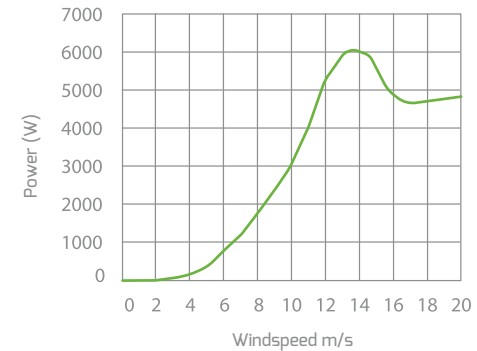
## Wind speed

Operating range	2 -30 m/s
For turn on	3 m/s
For nominal power	12 m/s
For automatic braking	14 m/s
Survival	60 m/s

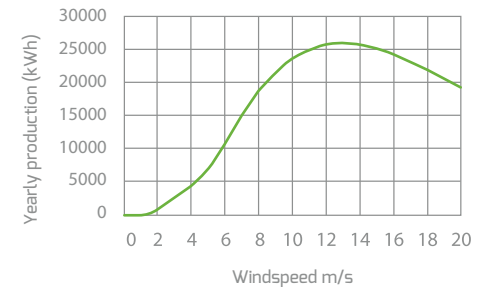
## Physical characteristics

Wind turbine weight	107 kg
Regulator weight	30 kg
Packing Dimensions - weight	120 x 80 x 80 cm - 160 Kg 260 x 40 x 15 cm - 22 Kg
Total	0,91 m <sup>3</sup> - 182 Kg
Warranty	3 years

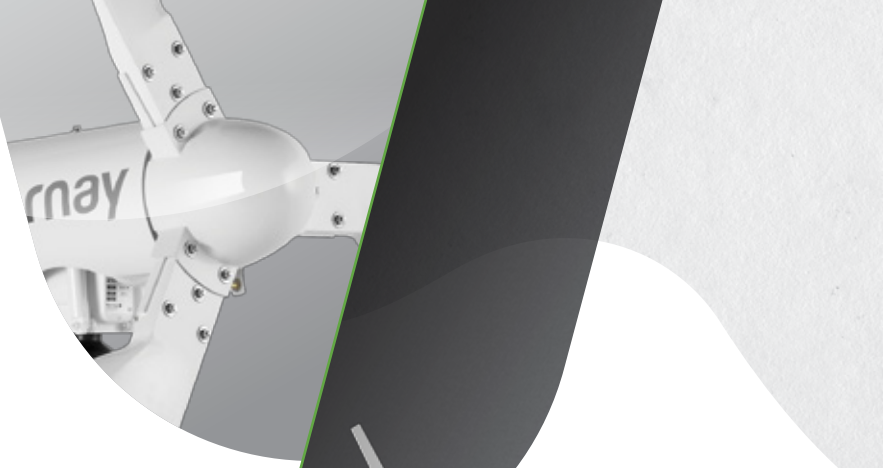
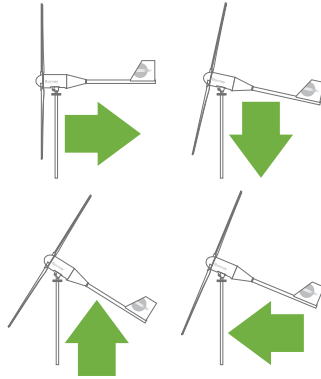
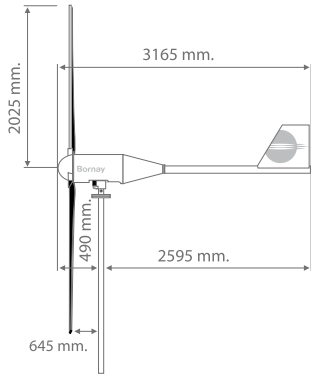
## Performance



## Energy



# Dimensions





# TYPES OF APPLICATIONS

The following list of typical installations facilitates the understanding of the elements that are required for an installation based on whether it is a single individual installation, a water pumping installation or a telecommunications installation.



Off-Grid application



Water pumping



Telecomunnicacions



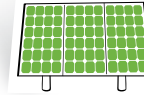
Grid connection

# OFF-GRID APPLICATION



## 1. WIND TURBINE

Generates electricity using wind power, both during the day and at night. Its power should be in accordance with the consumption needs of the installation.



## 2. SOLAR PANELS

Generate electricity by means of solar radiation, so that their operation is limited to the hours of sunshine. In combination with the wind turbine they guarantee a stable production of electricity throughout the year. The number of panels and their power depend on the demand for energy required.



## 3. REGULATOR

controls the wind turbine's power generation, the solar panels and the condition of the battery. It avoids overload and discharge of the batteries.



## 4. BATTERY

Stores the energy produced by the wind turbine and the solar panels, supplying it later for consumption. The minimum autonomy recommended is three days.



## 5. INVERTER

Transforms the electricity stored in the form of direct current into electricity apt for domestic use: alternating current at 220V. It can include a battery recharger if there is an external source of AC, such as a generator set.



# Off-grid installation example

CONSUMPTIONS	QUANTITY	POWER	HOURS	DAILY CONSUMPTION
Lightning	8	13	2	208 Wh
Lightning	5	10	5	250 Wh
TV	1	250	4	1000 Wh
Video	1	150	1	150 Wh
Computer	1	180	4	720 Wh
Refrigerator	1	180	12	2160 Wh
Washer	1	750	1	750 Wh
Small consumptions	1	500	2	1000 Wh

**CONSUMPTIONS 6238 Wh**

BATTERIES	
Battery voltage	24 volts
Days of autonomy	3 days
Battery capacity	1160 Ah - C100

INVERTER			
Input voltage	24 volts	Charger	Yes
Output voltage	220 volts	Three-phase	No
Frequency	50 Hz	Sine wave	Pure
Maximum power	2164 W pico	Inverter	2500 W

PRODUCTION*	QUANTITY	POWER	ISOLATION	DAILY PRODUCTION
Solar panels	7	190	3	3990 Wh

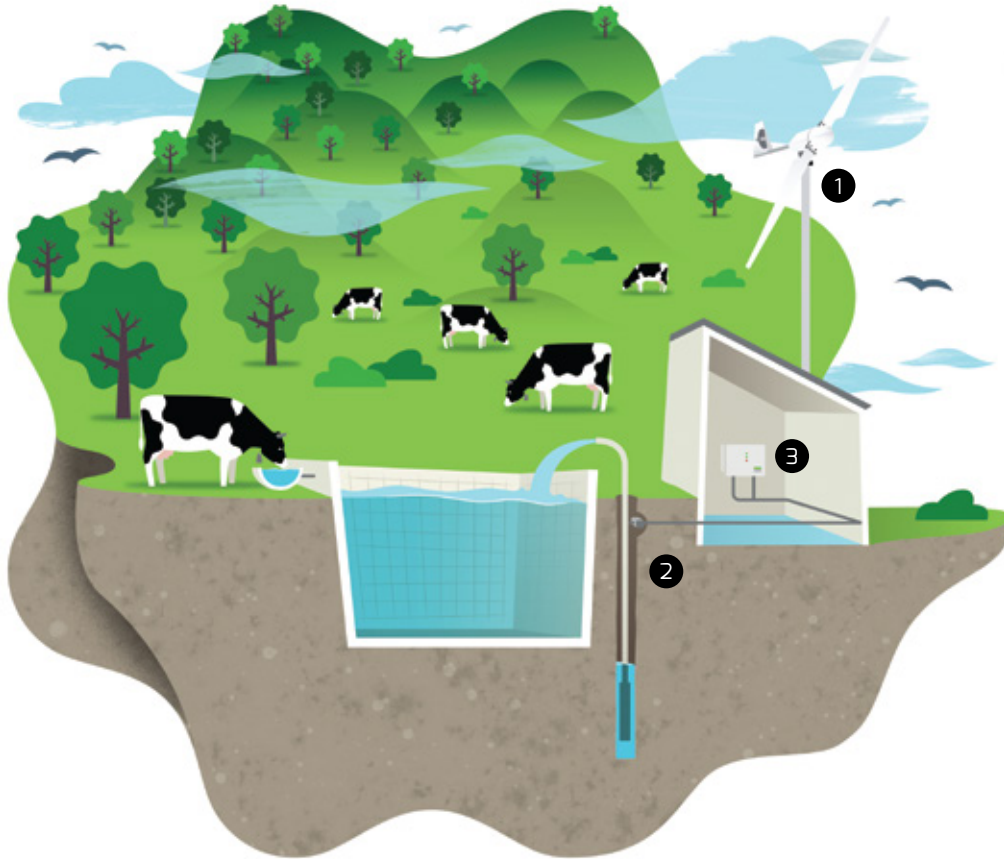
	WINDSPEED	QUANTITY	DAILY PRODUCTION
Bornay Wind 13+	3,5 m/s	1	2780 Wh

\*Installation data based on the province of Alicante and average powers.

**PRODUCTION 6770 Wh**

To calculate the requirements of your installation, visit **Bplanner** in [www.bornay.com](http://www.bornay.com)

# WATER PUMPING



## 1. WIND TURBINE

Generates electricity using wind power, both during the day and at night. Its power should be in accordance with the consumption needs of the installation.



## 2. WATER PUMP

Submersible water pump that can be fed both in direct current and in alternating current, directly from the wind turbine and via the interface, without need of drives or other external elements.



## 3. INTERFACE

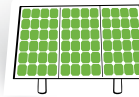
Equipment that is in charge of the safe control of the wind turbine, as well as managing the energy production. It has an emergency stop, a monitoring system and the possibility of communication.

# TELECOMMUNICATIONS



## 1. WIND TURBINE

Generates electricity using wind power, both during the day and at night. Its power should be in accordance with the consumption needs of the installation.



## 2. SOLAR PANELS

Generate electricity by means of solar radiation, so that their operation is limited to the hours of sunshine. In combination with the wind turbine they guarantee a stable production of electricity throughout the year. The number of panels and their power depend on the demand for energy required.



## 3. RACK

Equipment that is in charge of the safe control of the wind turbine, as well as managing the energy production. It has an emergency stop, a monitoring system and the possibility of communication.

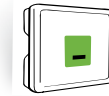


# GRID CONNECTION



## 1. WIND TURBINE

Generates electricity using wind power, both during the day and at night. Its power should be in accordance with the consumption needs of the installation.



## 2. INVERTER

Synchronizes the power that is generated by the wind turbine and managed from the interface with the electric network, and produces the feeding into the network. It has all the security functions and the possibility of communication with the interface.



The information included in this catalog is subject to change without notice.

**Bornay** 

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