



Your Testing, Certification & Calibration  
Partner for the  
**WIND TURBINE SUPPLY CHAIN**



# SERVICES FOR THE WIND ENERGY INDUSTRY

## STRUCTURES & COMPONENTS

We have large structural laboratories in Spain and Germany, where we test full-scale rotor blades (up to 40 m), blade tips and other components.

## MATERIALS

Global network of materials laboratories. End-to-end characterization of advanced materials. Expertise in building specialized fixtures for complex testing.

## CARBON FOOTPRINT

Independent verification of carbon footprint for organizations and product life cycle.

## GROUTS AND ANCHORS

Qualification of the high performance materials used to build the grout and the anchors in the foundation.

## ON SITE CALIBRATION

Network of calibration mobile units covering all Spain to optimize calibration times.

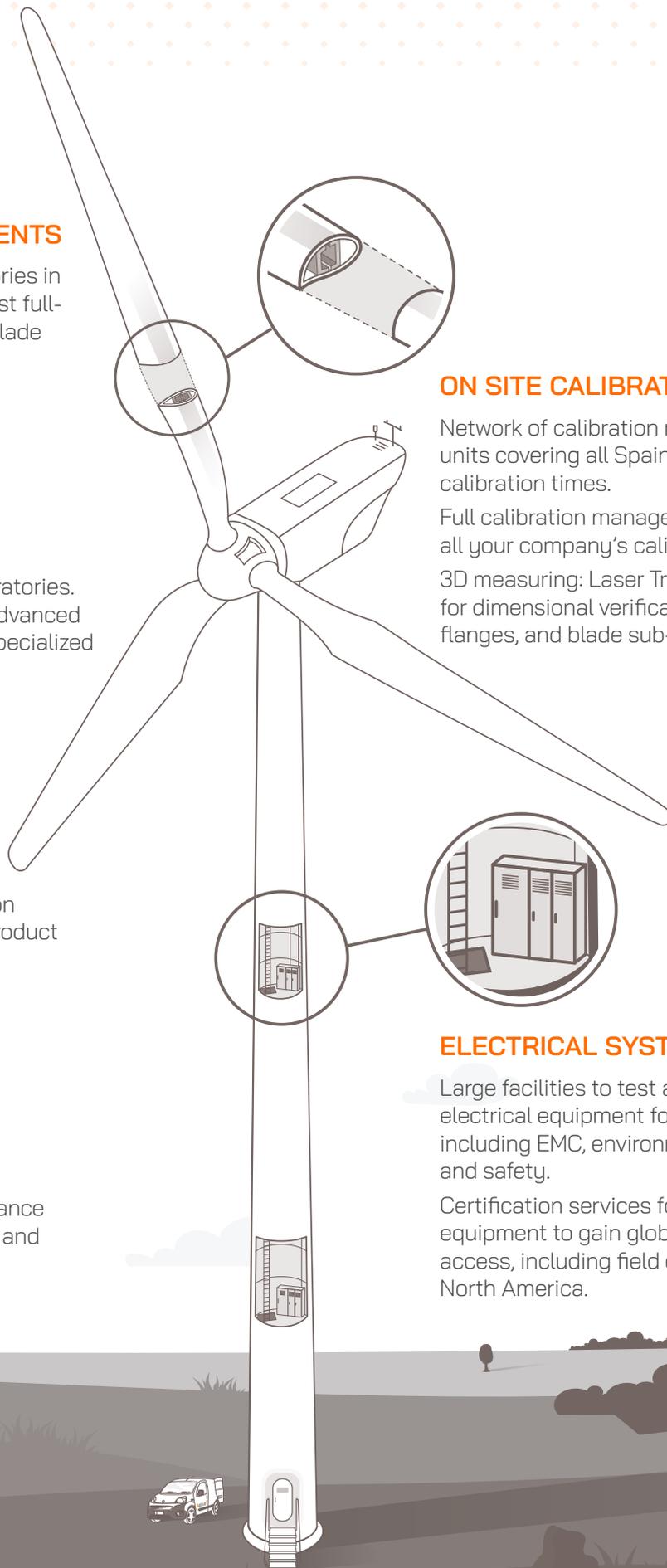
Full calibration management. We cover all your company's calibration needs.

3D measuring: Laser Tracker service for dimensional verification of molds, flanges, and blade sub-assemblies.

## ELECTRICAL SYSTEMS

Large facilities to test and validate electrical equipment for wind systems, including EMC, environmental, vibration and safety.

Certification services for electrical equipment to gain global market access, including field evaluations for North America.



## STRUCTURES AND MATERIALS

### Rotor Blade Testing:

- Full-scale fatigue testing of rotor blades up to 40 meters (IEC 61400-23). For larger blades, we perform blade tip testing.
- Quasi-static tests to measure load, deflection elongation and strain at discrete positions.

### Substructures & Components Testing

- Tests on blade connections, spar caps, blade segments to reduce development risks.
- Experience and comprehensive testing equipment for standardized tests and ad-hoc tests.

### Materials Testing

Characterization of plastics, composites, metals and fasteners, under temperature control and conditioning.

- Static, fatigue and creep tests.
- Physico-chemical and thermal tests.
- Metallography and damage analysis.
- Laminate manufacturing and sample machining.



## ELECTRICAL SYSTEMS

### Multi-technological Testing

Electronical systems are subject to environmental factors that might affect its performance, from EMC, to electrical endurance, vibration or climatic loads. Our labs can simulate all those factors for small and large electrical equipment.



### Certification & Market Access

Market access requirements for electrical systems vary in each country. Electrical Safety or Radio requirements might involve an independent certification body. Applus+ Laboratories provide market access services worldwide.



## EQUIPMENT CALIBRATION

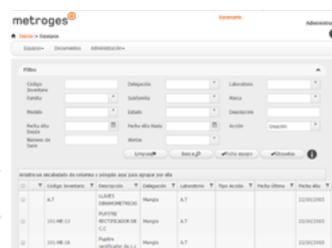
### On Site Calibration

The operation and maintenance of wind farms require large pools of measuring instruments that need to be calibrated periodically. Our mobile calibration units allow us to arrange visits to your site, saving time and instrument unavailability periods.



### Full Calibration Management

Managing the calibration of your instruments is a non-core activity that is usually best left in specialists' hands. Applus+ Laboratories manages in-house departments and provides software to enhance calibration management.



ID	Modelo	Marca	Unidad	Fecha de cal.
1	100-100-01	SIEMENS	Medida	01/01/2014
2	100-100-02	SIEMENS	Medida	01/01/2014
3	100-100-03	SIEMENS	Medida	01/01/2014
4	100-100-04	SIEMENS	Medida	01/01/2014

## ABOUT US

We're Applus+ Laboratories, a division of the Applus+ group that provides testing and certification to improve the competitiveness of our clients' products and encourage innovation.

Headquartered in Barcelona, Spain, our growing network of multidisciplinary laboratories worldwide play a key role in advancing the industries we serve, including aerospace, automotive, cyber, electrical and electronics, renewable energies, construction, railway, and medical devices.

Our facilities, expertise, and capabilities allow us to partner with renowned technological corporations worldwide, and we can't wait to partner up with you next to help you meet your market needs.



## GLOBAL NETWORK OF LABORATORIES



### CANADA

- Toronto

### USA

- Ithaca
- Detroit

### Spain

- Barcelona (HQ)
- Madrid
- Pamplona
- Albacete

### UK

- Silverstone

### France

- Lyon
- Bordeaux

### Germany

- Bremen
- Dresden

### China

- Shanghai

## CONTACT US

[info@appluslaboratories.com](mailto:info@appluslaboratories.com) | [www.appluslaboratories.com](http://www.appluslaboratories.com)

Follow us on **in**

