DESIGN ASSESSMENT OF WIND TURBINE FOUNDATIONS

BUSINESS CHALLENGE

Foundation integrity is one of the most critical considerations in wind turbine design. Interaction between foundation and soil has important effects on the wind turbine behaviour. For the manufacturers of wind turbine foundations, the certification by an International Recognised Certification Body is a must and, depending on the country, it is a mandatory requirement.

BENEFITS FOR YOUR BUSINESS

Confidence in your design - Design Assessment certificate confirms that the wind turbine foundation is designed and documented in conformity with design assumptions, specific standards and other technical requirements, improving confidence of all stakeholders in the safety and stability of the foundation.

International recognition - Bureau Veritas Certification France is accredited for the certification of wind turbine foundations under COFRAC, N° 5-0051, for both IEC 61400 and GL guidelines certification schemes. This ensures that your certificate will be recognized by your clients and other certification bodies worldwide.

OUR APPROACH

Wind turbine foundation analyses are performed by expert engineers with a strong technical expertise in wind and geotechnics. For each certification project, Bureau Veritas Certification France sets a project organization with a multidisciplinary background: design review, independent analyses, material expertise and more.

Process: The certification process verifies all the foundation elements taking part in the structural design:
- Standards applied;
- Materials;
- Load calculations;
- Calculation notes:
  - Overall stability;
  - Soil bearing capacity;
  - Anchors resistance;
  - Rotational stiffness;
  - Punching; etc.

In addition, Bureau Veritas Certification France has developed an innovative tool to perform independent analyses on wind turbine foundations according to IEC 61400-1 and Eurocodes (EN 1992: Design of concrete structures, EN 1993: Design of steel structures, and EN 1997: Geotechnical design).
SKILLS AND TOOLS

We bring decades of experience to complete your structural wind turbine challenges. Our services are delivered by highly qualified and trained engineers performing calculations with the most appropriate and reliable software, such as LMS Samtech Samcef Wind Turbines, Abaqus, ANSYS and more.

A specific software to calculate wind turbine gravity-based foundations has been developed by Bureau Veritas Certification France engineers. Calculations are performed taking into account soil characteristics, wind loads, and all structural elements constituting wind turbine foundation. The engineering team can simulate all structural aspects of the foundation – conducting linear static analyses that reveal stresses and deformations, durability based on fatigue calculations and overall stability. The design complexity must be handled efficiently by advanced solver techniques that reliably capture structure behavior.

WHY CHOOSE BUREAU VERITAS

Reputation - Created in 1828, Bureau Veritas is a global leader in Testing, Inspection and Certification, delivering high quality services to help clients meet the growing challenges of quality, safety, environmental protection and social responsibility.

Knowledge and expertise - Certifications are performed by qualified experts with a strong experience in composite materials and rotor blade structures, operating under a controlled quality system. Bureau Veritas Certification France’s expertise is acknowledged by the COFRAC accreditation.

Global network - With more than 63,000 employees in 1,330 offices and laboratories covering 140 countries, Bureau Veritas is able to act quickly on its clients’ behalf anywhere in the world. Our inspectors will always be close to your factories, allowing for a greater reactivity and reduced transportation costs.

Customer focus - Bureau Veritas’ core values include integrity and ethics, impartial counsel and validation, customer focus and safety at work. As a trusted partner, Bureau Veritas offers innovative solutions that go beyond simple compliance with regulations and standards, reducing risk, improving performance and promoting sustainable development.

FOR FURTHER INFORMATION ON OUR RANGE OF SERVICES PLEASE CONTACT:

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FOR MORE INFORMATION

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