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Testing and Certification Regulations

Revision 00 / 03-2026

General Conditions and Procedural Directive
for the Certification of Rotor Blades for Wind Turbines

according to ICRE OD-501 and IECRE OD-501-1

of the
Certification Body for Wind Turbines
of TÜV Rheinland Industrie Service GmbH

Table of Contents

0. Preliminary Remarks

These testing and certification regulations are applicable to the Certification Body for Wind Turbines of TÜV Rheinland Industrie Service GmbH and specify the testing and certification regulations for the component certification of rotor blades in accordance with IECRE OD-501 and OD-501-1.

Remark: Other certification schemes, such as type certification, project certification, or prototype certification, are not covered by this document.

The Certification Body for Wind Turbines (referred to hereinafter as Certification Body) offers the following services to interested manufacturers or operators of wind turbines (referred to hereinafter as applicant):

- Performance of conformity testing, conformity assessments and certification of rotor blade components

The certification procedure is based on one or more of the below mentioned schemes resp. standards:

- IECRE OD-501: Type and Component Certification Scheme (wind turbines)
- IECRE OD-501-1: Conformity assessment and certification of Blade by RECB
- IEC 61400-1 – Wind energy generation systems – Part 1: Design requirements
- IEC 61400-5 – Wind energy generation systems – Part 5: Wind turbine blades
- IEC 61400-23 – Wind turbines – Part 23: Full-scale structural testing of rotor blades
- IEC 61400-24 – Wind energy generation systems – Part 24: Lightning protection

Through the certification procedure it is confirmed that the product inspected was designed in accordance with specified design assumptions as well as with certain technical specifications and requirements, and that it has been manufactured, constructed, tested and documented in accordance with these design specifications.

With this certificate the applicant can provide evidence of and prove to his customers that his product complies with all stipulated requirements.

The Certification Body works as an independent third party, is approved by IECRE for the certification of rotor blade components.

Remark: The Certification Body Wind Turbines is accredited in the wind sector by the Deutschen Akkreditierungsstelle GmbH (*national accreditation body for the Federal Republic of Germany* – DAkkS) on the basis of the standard ISO / IEC 17065 under the number “ZE-11052-02”.

1. Scope

These testing and certification regulations govern the implementation of the testing and certification procedure for component certification of rotor blades in accordance with IECRE OD-501 and OD-501-1. Other certification schemes do not fall within the scope of this document.

It covers the implementation of the testing and certification procedure as well as the duties and responsibilities of the certification body and the rights, duties, and tasks of the applicant.

The corresponding specifications follow the requirements of ISO / IEC 17065 and the standards mentioned in clause 0 (Preliminary Remarks).

The Certification Body assesses and confirms that a specific type of rotor blade component complies with the stipulated requirements of the IECRE system and the applicable standards in the IEC 61400 series, as well as additional assumptions and requirements stated in the design basis.

The certification process for rotor blade components includes the following mandatory modules:

- Design Basis Evaluation: The Certification Body evaluates the design basis, which identifies all requirements, assumptions, and methodologies essential for the design and design documentation of the rotor blade component. This includes compliance with the applicable standards in the IEC 61400 series, such as IEC 61400-1, IEC 61400-23, and IEC 61400-24, as well as OD-501 and OD-501-1.

- Design Evaluation: The Certification Body examines whether the rotor blade component is designed and documented in conformity with the design assumptions, specific standards, and other technical requirements. This includes verification of material properties, blade structure, aerodynamic and mechanical characteristics, blade modelling, and strength calculations, as well as compliance with lightning protection requirements according to IEC 61400-24.

- Type Testing: Full-scale structural testing of rotor blades is required to verify the blade's structural design and assess the suitability of manufacturing processes. Fatigue and static tests are mandatory and must comply with IEC 61400-23. Lightning protection testing must comply with IEC 61400-24. Test blades must be representative of the blade design under evaluation, and any significant design changes require new testing.

- Manufacturing Evaluation: The Certification Body evaluates the manufacturing processes to ensure that the rotor blade components are manufactured in conformity with the verified design documentation. This includes the assessment of critical manufacturing processes, quality control procedures, and workshop inspections.

- Final Evaluation: The Certification Body verifies the consistency between all certification modules to ensure they can be combined into a Component Certificate. This includes a review of all evaluation reports, conformity statements, and final product documentation.

The Certification Body confirms that the rotor blade component has been designed, documented, tested, and manufactured in conformity with the requirements of the IECRE system and the applicable standards. The certification process ensures that the rotor blade component is suitable for installation, operation, and maintenance in accordance with the design documentation.

The Component Certificate for rotor blade components is valid for a period of five years, provided that the conditions for maintaining the certificate, such as annual reporting and periodic surveillance, are

fulfilled. The certificate may be renewed following a new assessment, taking into account any technological developments, new standards, or knowledge acquired since the previous certification.

This Testing and Certification Regulation does not cover the certification of other wind turbine components, such as gearboxes, generators, or towers, nor does it cover type certification, project certification, or prototype certification. It is exclusively intended for the certification of rotor blade components in accordance with IECRE OD-501 and OD-501-1.

2. Testing and certification procedure

2.1 Application

The interested applicant submits an informal application to the Certification Body for the rotor blade component certification procedure in accordance with IECRE OD-501 and OD-501-1.

The following data and information must be included in this application:

- Name of the applicant and contact person
- Description of the rotor blade to be certified, including type and specifications
- Scope and extent of certification, including the certification modules to be applied (e.g., design basis evaluation, design evaluation, type testing, manufacturing evaluation, final evaluation)
- Applicable standards and technical regulations according to which conformity is to be assessed (e.g., IEC 61400-1, IEC 61400-5, IEC 61400-23, IEC 61400-24, and other relevant IEC standards)

2.2 Offer and commissioning

The Certification Body will prepare an offer that outlines the individual services, conditions, and prices in accordance with the scope of certification applied for and based on the Certification Body's pricing and calculation policies.

The applicant must formally accept the offer in writing to commission the certification services.

Any changes or amendments to the offer or commissioning must be made in writing. Any further questions or open issues must be clarified between the Certification Body and the applicant. Any differences in opinion between the Certification Body and the applicant must be resolved before the certification process begins.

2.3 Documents to be submitted

The applicant is required to provide the Certification Body with specific documentation for the individual certification modules, which will be assessed by the Certification Body's experts. The required documentation typically includes:

- Design basis documentation
- Material properties, including material test reports
- Blade specifications (e.g., mass and stiffness distribution, natural frequencies, blade root geometry, blade mass, and center of gravity)
- Load reports
- Verification reports
- Finite Element (FE) model
- Blade drawings
- Blade section geometry
- Aerodynamic data (e.g., calculated or measured lift, drag, and moment characteristics)
- Lightning protection system documentation in accordance with IEC 61400-24
- Manufacturing description and specifications
- Preliminary blade transportation, installation, and operation and maintenance (O&M) manuals
- Quality management (QM) certificates for the design process

A detailed list of the required documentation is provided in IECRE OD-501.

2.4 Performance of conformity assessments

The certification process for rotor blades is structured into mandatory modules, which are further divided into individual elements.

The Certification Body commissions authorized experts to perform the required testing and conformity assessments for these modules and elements.

The conformity assessment includes the evaluation of the submitted documentation, as well as tests and inspections conducted on-site, during manufacturing, or on the test rig. The individual test steps are defined in process instructions and checklists.

The results of the tests and evaluations, including any detected non-conformities, are summarized in corresponding reports and certifications, such as:

- Evaluation reports for the individual elements
- Conformity statements for each module
- Final evaluation report for all modules

These reports are then sent to the applicant.

If any non-conformities with the product requirements are identified, the applicant must address and correct them within a reasonable timeframe. Documented verification of the corrective actions must be submitted to the Certification Body's experts, and additional re-audits may be required.

2.5 Issuance of certificate

The Certification Body assesses the evaluation reports and results.

If the assessment is positive, the corresponding Component Certificate for Rotor Blades is issued and sent to the applicant.

A certificate typically includes the following information:

- Name of the applicant
- Designation of the certified rotor blade
- Underlying specifications and technical regulations
- Scope and extent of certification, including the certification modules applied
- Date of issue and period of validity
- Specified characteristics and parameters of the rotor blade

In addition to the certificate, the Certification Body may also issue a certification symbol (e.g., logo) for use by the applicant.

2.6 Validity and surveillance

The certificate is valid only as long as the conditions on which the certification is based remain unchanged.

The applicant is obliged to inform the Certification Body immediately of all changes or modifications to the certified product.

If necessary, the Certification Body will arrange for re-audits to renew, maintain, expand, or extend the certification.

2.6.1 Component certification

The period of validity for a **Component Certificate for Rotor Blades** is **five years**.

To maintain the validity of the certificate, the following surveillance steps must be undertaken by the Certification Body:

Annual Report:
The applicant must prepare an annual report for the certified rotor blade and submit it to the Certification Body for review. The report must include:

- Information on the production and installation of certified rotor blades
- Details of any abnormal operating experiences or failures known to the certificate holder
- Information on any minor modifications made to the rotor blade design or manufacturing process

The template provided in IECRE OD-501 may be used for this purpose.

Modifications:
The applicant must report any major modifications to the certified rotor blade to the Certification Body without delay. This includes providing updated design documentation, procedures, specifications, or processes. Examples of major modifications include:

- Significant changes to the blade design
- New or modified materials used in critical load-bearing parts
- Changes to the blade profile or geometry
- Modifications to the lightning protection system

If the applicant intends to maintain or extend the validity of the certificate, updated documentation reflecting these modifications must be submitted for assessment by the Certification Body. Upon successful completion of the assessment, an updated certificate will be issued, and the previous certificate will be withdrawn and declared invalid.

Periodic Surveillance:
The Certification Body shall perform periodic surveillance to verify that rotor blades produced continue to conform to the certified design. The surveillance period shall not exceed **2.5 years**. Surveillance may include inspections of recently manufactured blades, on-site inspections, or inspections at the manufacturing facility.

If the applicant does not operate a quality management system certified in accordance with ISO 9001, the Certification Body shall verify at least once a year that the manufactured rotor blades remain in compliance with the certified design.

Failure to meet the requirements for annual reporting or periodic surveillance may result in the suspension or withdrawal of the Component Certificate.

3. Obligations and responsibility of the Certification Body

3.1 Assurance

The Certification Body affirms that it offers its services for rotor blade component certification under the IECRE system to all interested applicants under the same, suitable conditions. These services are performed in a neutral, objective, and non-discriminatory manner.

The Certification Body ensures that fundamental principles such as impartiality, independence, competence, responsibility, openness, transparency, and confidentiality are strictly adhered to. The Certification Body operates free from any undue pressure, external influences, or conflicts of interest.

Authorized inspectors and experts engaged in the certification process are independent and free from any involvement in the design, manufacturing, sale, installation, operation, or maintenance of the rotor blade components being certified.

3.2 Experts

The Certification Body primarily employs internal experts for the certification process. These experts are qualified and competent to act as auditors, inspectors, and certifiers. All certification decisions are made exclusively by internal experts.

Certain activities, such as specific inspections or tests, may be performed by external experts who are contractually bound to the Certification Body through an assignment agreement or declaration of commitment. These external experts are required to meet the same qualifications and competence standards as internal experts. However, external experts are limited to performing testing and inspection activities and are not authorized to make certification decisions.

If the Certification Body intends to involve external experts in the certification process, the applicant's prior agreement must be obtained.

3.3 Subcontractors

Certain testing activities may be performed by subcontracted external entities. These subcontractors are required to be qualified and competent to perform the assigned tasks. However, subcontractors are not involved in evaluation activities or certification decisions.

If the Certification Body intends to engage subcontractors for specific tasks within the certification process, the applicant's prior agreement must be obtained.

3.4 Confidentiality

The Certification Body is obligated to treat all information provided by the applicant regarding the rotor blade component as strictly confidential. Any information obtained during the certification process will not be disclosed to third parties without the express written consent of the applicant.

This confidentiality obligation applies to all employees of the Certification Body, as well as to associated entities such as external experts, committee members, and subcontractors.

If disclosure of information to third parties is required by law, the Certification Body will inform the applicant in advance about the nature and extent of the information to be disclosed.

The applicant may release the Certification Body from its confidentiality obligations for specific reasons, provided this is done in writing.

3.5 List of certified products

The Certification Body maintains a list of all valid rotor blade component certifications, including the name of the applicant, the certified product, the underlying regulations, and the scope of certification.

This list is available to interested parties upon request.

3.6 Change in the requirements for certification

If the certification requirements change (e.g., due to revisions of the underlying standards or regulations), the Certification Body will inform the applicant in a timely manner about the changes and any necessary adjustments or modifications required.

The Certification Body will evaluate any modifications to the certified rotor blade component that are necessary to comply with the updated certification requirements within a specified timeframe.

3.7 Suspension, withdrawal of certification

The Certification Body reserves the right to suspend, limit, or withdraw a certification if any of the following conditions occur:

- Non-conformities with the certification requirements are identified after the certificate has been issued.
- The applicant fails to implement corrective actions for identified non-conformities within the stipulated timeframe.
- The applicant refuses or obstructs inspections or audits required to maintain certification.
- The certificate or certification symbol is used in a misleading or unauthorized manner.
- The applicant fails to pay outstanding fees to the Certification Body despite written reminders.

A certificate automatically expires if:

- The validity period stated on the certificate has elapsed without renewal.
- The applicant voluntarily relinquishes the certificate.
- The applicant's company is declared bankrupt.
- The conditions on which the certification was based have fundamentally changed.

Before suspending, limiting, or withdrawing a certificate, the Certification Body will provide the applicant with an opportunity to present their views, unless the urgency of the situation requires immediate action.

If a certificate is withdrawn, the Certification Body may demand the return of the certificate and reserves the right to publish the withdrawal.

The Certification Body is entitled to inform relevant bodies, such as accreditation authorities or regulatory agencies, about the issuance, suspension, or withdrawal of certificates.

The Certification Body is not liable for any disadvantages or damages incurred by the applicant as a result of the suspension, limitation, or withdrawal of a certificate.

If any infringement of the testing and certification regulations is detected, in particular unlawful utilisation of the certificate, then the Certification Body can demand that the applicant carry out corresponding corrective action.

3.8 Handling complaints, objections and disputes

The Certification Body follows the complaints and appeals procedure established by TÜV Rheinland. Details of this process are available at: https://www.tuv.com/world/en/complaint-process.html

3.9 Liability of the Certification Body

The Certification Body is liable to the applicant or third parties only to the extent prescribed by applicable law in cases of willful misconduct or gross negligence. Any further claims are excluded.

The Certification Body is not liable for any disadvantages or damages incurred by the applicant if a certificate cannot be issued due to negative evaluation results.

4. Rights and obligations of the applicant

4.1 Assurance

The applicant must ensure and confirm that all requirements on which the certification is based have been implemented and will continue to be complied with in the future. The applicant is responsible for maintaining the conformity of the certified rotor blade components with the applicable standards, technical requirements, and design documentation throughout the validity period of the certificate.

4.2 Access to applicant's premises

The applicant shall grant the Certification Body's experts access to all relevant areas, facilities, and products for the purpose of performing the required testing and conformity assessments. This includes, but is not limited to:

- Documentation, records, and data related to the rotor blade component certification.
- Access to production sites, testing facilities, and storage areas.
- Access to personnel involved in the design, manufacturing, and quality control processes.

The applicant must also allow auditors from accreditation bodies (e.g., during witness audits) to access their premises, data, and information as required.

4.3 Information about changes

The applicant is obligated to inform the Certification Body immediately of any changes or modifications to the certified rotor blade component, the organization, or the procedures and processes that may affect the validity of the certification. This includes, but is not limited to:

- Design modifications, including material changes, structural changes, or changes to critical components.
- Changes in manufacturing processes or facilities.
- Changes in quality management systems or procedures.

The applicant must provide updated documentation and evidence of compliance for any changes that may impact the safety, structural integrity, or conformity of the certified rotor blade component.

4.4 Utilization of certificates

When the rotor blade component meets the specified requirements, a certificate is issued via the IECRE website, adhering to the certificate templates provided by the IECRE system.

During the validity period of the certificate, the applicant is entitled to:

- Advertise the certification in printed or digital materials (e.g., brochures, leaflets, websites, or business documents).
- Present the certificate in its complete and unaltered form for promotional or marketing purposes.

The applicant must not use the certificate in a misleading or deceptive manner and must ensure that it is only used within the defined scope of certification. The certificate and certification symbol must not be used in any way that could harm the reputation or credibility of the Certification Body or the IECRE system.

The applicant is only permitted to distribute or publish test reports and certificates in their entirety and without modifications. Any publication of excerpts or partial content requires prior written approval from the Certification Body.

In the event of suspension or withdrawal of the certification, the applicant must immediately discontinue all advertising or promotional activities that reference the certification. Furthermore, upon withdrawal of the certification, the applicant is required to return all certification documents to the Certification Body upon request.

4.5 Objections and complaints

The applicant must record and archive all complaints, objections, and incidents related to the certified rotor blade component. Upon request, the applicant must provide the Certification Body with access to these records and information about the measures taken to address and resolve such complaints or incidents.

4.6 Liability of the applicant

The performance of testing and certification by the Certification Body does not exempt the applicant from their statutory product liability. The applicant remains fully responsible for ensuring the safety, quality, and compliance of the certified rotor blade component throughout its lifecycle.

5. Effective date and amendments

5.1 Effective Date

These Testing and Certification Regulations come into effect on 09.03.2026. They apply to all certificates issued during their period of validity. Any certification processes initiated after this date will be subject to the provisions outlined in this document.

5.2 Amendments

Future changes or amendments to these Testing and Certification Regulations may impact existing certifications. In such cases, the Certification Body will notify the certificate holders in writing about the changes, including the necessary adjustments or modifications required to maintain compliance with the updated regulations.

The Certification Body will provide a reasonable timeframe for the applicant to implement the required changes. If the applicant fails to comply with the updated requirements within the stipulated timeframe, the Certification Body reserves the right to suspend, limit, or withdraw the certification in accordance with the provisions outlined in Section 3.7.

5.3 Transition period

In the event of amendments to these regulations, a transition period may be granted to allow certificate holders to adapt to the new requirements. The duration of the transition period will be determined by the Certification Body based on the scope and complexity of the changes. During this period, the certificate holder must demonstrate compliance with the updated requirements to maintain the validity of their certification.

5.4 Notification of amendments

The Certification Body will ensure that all amendments to these regulations are communicated to certificate holders in a timely and transparent manner. Notifications will include:

- A summary of the changes made to the regulations.
- The effective date of the amendments.
- The actions required by the certificate holder to comply with the updated regulations.
- The deadline for implementing the required changes.

5.5 Applicability of amendments

Amendments to these regulations will apply to all certifications issued after the effective date of the amendments. For certifications issued prior to the effective date, the Certification Body will assess the impact of the amendments on the existing certifications and inform the certificate holders accordingly.

5.6 Certification body’s responsibility

The Certification Body is responsible for ensuring that all certification activities are conducted in accordance with the most recent version of these Testing and Certification Regulations. The Certification Body will also ensure that its personnel and external experts are informed and trained in any amendments to these regulations.

5.7 Applicant's responsibility

The applicant is responsible for ensuring compliance with the latest version of these Testing and Certification Regulations. The applicant must implement any necessary changes to their certified products, processes, or documentation to maintain compliance with the updated requirements.