

LABORATORY APPROVAL

Certificate No.:
LA-DNV-SE-0436-12658-0

Issued:
2026-06-30

Valid until:
2029-06-30

Issued for:

Testing of Materials for Wind Turbines, Fibre Reinforced Plastics

Issued to:

Applus (Changzhou) Quality Inspection Co., Ltd.

No.7, Xinyong Road, Wujin District, Changzhou City, Jiangsu Province, China.

According to:

DNV-SE-0436:2022-09 Shop approval in renewable energy

Applying:

DNV-SE-0441:2021-10 Type and component certification of wind turbines

Based on the document:

CR-LA-DNV-SE-0436-12658-0

Certification Report, dated 2026-06-30

This laboratory approval is valid for the test methods listed in Annex 1.

Changes in the relevant processes (testing and quality) or in responsible personnel as named in this certificate are to be approved by DNV. See Annex 1 for listing of personnel.

Hellerup, 2026-06-30

For DNV Renewables Certification



Harrison, Christopher

Service Line Leader for Component Certification



By DAkkS according to DIN EN IEC/ISO 17065 accredited Certification Body for products. The accreditation is valid for the fields of certification listed in the certificate.

Shanghai, 2026-06-30

For DNV Renewables Certification



Hou, Xue

Project Manager

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Personnel

Heads of Laboratory	Mr. Xu, Jingwei
The authorized signatory who will sign the test reports:	Mr. Xu, Jingwei
	Mr. Xu, Li

List of approved test methods

Test method	Test
ISO 13003	Fibre-reinforced plastics — Determination of fatigue properties under cyclic loading conditions (Tension-Tension $R=0.1$, Tension-Compression $R=-1$, Compression-Compression $R=10$. The specimen geometry mentioned in the SOP “A+C-WI-T09, A/2, dated 2026-06-10” refers to ISO 527-5, GB/T35465.3 and GB/T35465.4)
ISO 14125	Fibre-reinforced plastic composites — Determination of flexural properties
ISO 14126	Fiber-reinforced Plastic composites — Determination of compressive properties in the in-plane direction Note: Tests conducted using the standard fixtures “ISO 14126: 2023, Figure D.5 — ASTM D6641 — Combined loading fixture” as referenced in SOP “A+C-WI-T05, A/2, dated 2026-06-10” are approved under this Laboratory Approval.
ISO 14130	Fibre-reinforced plastic composites — Determination of apparent interlaminar shear strength by short-beam method
ISO 15024	Fibre-reinforced plastic composites — Determination of mode I interlaminar fracture toughness, GIC, for unidirectionally reinforced materials
ISO 291	Plastics — Standard atmospheres for conditioning and testing
ISO 527-1	Plastics — Determination of tensile properties — Part 1: General principles
ISO 527-4	Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites
ISO 527-5	Plastics — Determination of tensile properties — Part 5: Test conditions for unidirectional fibre-reinforced plastic composites
ASTM D2344	Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
ASTM D3171	Standard Test Methods for Constituent Content of Composite Materials
ASTM D5528	Standard Test Method for Mode I Interlaminar Fracture Toughness of Unidirectional Fiber-Reinforced Polymer Matrix Composites
ASTM D6272	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials by Four-Point Bending
ASTM D7078	Standard Test Method for Shear Properties of Composite Materials by V-Notched Rail Shear Method
ISO 11357-1	Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles
ISO 11357-2	Plastics — Differential scanning calorimetry (DSC) — Part 2: Determination of glass transition temperature and glass transition step height

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ISO 1172

Textile-glass-reinforced plastics — Prepregs, moulding compounds and laminates — Determination of the textile-glass and mineral-filler content — Calcination methods

ISO 1183-1

Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method

Limitations:

- Test procedures and equipment deviating from the approved work instructions as documented in the Certification Report fall outside the scope of this Laboratory Approval.