



Certificate No.

IECRE.WE.CC.18.0001-R0

IECRE - IEC System for Certification
to Standards Relating to Equipment
for Use in Renewable Energy
Applications

COMPONENT CERTIFICATE

Wind Turbine

This certificate is issued to

Sinoma Wind Power Blade Co. Ltd.
C-9th Floor, Tower B Zone 6, Northern Territory
Zhongguancun Dongsheng Technology Park, No 66
Xixiaokou St, Haidian District
Beijing
100192 China

for the component

Rotor Blade 59.5D

wind turbine class (class, standard, year)

unspecific, IEC 61400-1:2005 and Amendment 1, 2010-10

This certificate is transferred from IEC 61400-22 to IECRE (according to WE-OMC/316/DV and WE-OMC/321/RV) and attests compliance with IEC 61400 Series as specified in subsequent pages. It is based on the following reference documents:

Design basis evaluation conformity statement
Dated

included in Design Evaluation Conformity Statement

Design evaluation conformity statement
Dated

TÜV NORD Reg. No. 44 220 17986382-CD-IEC, Rev. 1
2017-12-27

Type test conformity statement
Dated

TÜV NORD Reg. No. 44 220 17986382-CT-IEC, Rev. 0
2017-09-01

Manufacturing conformity statement
Dated

TÜV NORD Reg. No. 44 220 17986382-CM-IEC, Rev. 1
2017-12-27

Final evaluation report
Dated

TÜV NORD Report No. 8114 986 382-20, Rev.1
2017-12-27

The conformity evaluation was carried out in accordance with the rules and procedures of the IECRE System
www.iecre.org

The component specification begins on page 2 of this certificate.

Changes in the system design or the manufacturer's quality system are to be approved by the Certification Body of TÜV NORD CERT GmbH. Without approval, the certificate loses its validity.

This certificate is valid until:
2022-09-01

Approved for issue on behalf of the IECRE
Certification Body:

Christian Hering
Specialist Manager Wind Energy
Essen 2018-10-17



TÜV NORD CERT GmbH
Langemarckstraße 20
45141 Essen

Machine parameters :

Design life time: 20 y

Other environmental conditions (where taken into account):

Normal and extreme temperature ranges: -30°C - +50°C
Lightning protection system (standard and protection class): IEC 61400-24:2010
IEC 62305 series
LP I

Interfaces:

Design loads for the component: 59.5D-SJZH-A, Rev. A
Interface assumptions, conditions and requirements: Blade bolt assessment based on generic pitch bearing
Other interface conditions: See below

**If not otherwise stated, the certificate holder is the manufacturer.

Blade:

Type: The rotor blade consists of E-glass fibre reinforced epoxy material in a sandwich construction with balsa and PVC core for the shell and the two shear webs.
Material:
Blade length: 59.5 m
Specification: 59.5D-YPGF-C, Rev. D
Main Drawing: T-2.2-59.5D-YP.WMPC-1, Rev. A
First natural frequency: Flap: 0.55 Hz
Edge: 0.89 Hz
Mass: 12484.7 kg (exclusive bolts)
Blade root moment: 221603.7 kgm
Blade root connection: 92 bushings M36

Manuals:

Operation & maintenance manual, Transport manual, Installation & commissioning manual: SINOMA59.5D-2.2MW Wind Power Blade Manual, Rev. A