

# CERTIFICATE

**TÜV NORD CERT GmbH**  
herewith declares that

**Jolywood (Taizhou) Solar Technology Co., Ltd.**  
Kaiyang Rd. Jiangyan Economic Development Zone  
Taizhou City, Jiangsu Province, 225500  
P.R. China

is authorized to provide the product mentioned below with the mark as illustrated:

**Description of product (details see Annex 2):**

**Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**



Valid from: 2023-04-03  
Valid until: 2028-12-26

|                               |   |
|-------------------------------|---|
| Certification program:        | P12-VA-01 Rev. 17 09.20   |
| Certification fundamental(s): | IEC / EN 61215-1:2016;<br>IEC / EN 61215-1-1:2016;<br>IEC 61215-2:2016 / EN 61215-2:2017 + AC:2017 + AC:2018;<br>IEC 61730-1:2016 / EN IEC 61730-1:2018 + AC:2018;<br>IEC 61730-2:2016 / EN IEC 61730-2:2018 + AC:2018. |
| Registered No.:               | 44 780 20 406749 - 033R4A3M6  |
| Manufacturer:                 | see Annex 1   |
| Test Report No.:              | 492011210.010   |
| File No.:                     | PVP11099/22P-02   |

**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**



Essen, 2023-04-03

Please also pay attention to the information stated overleaf.

**Manufacturer:**

Manufacturer 1: **Jolywood (Taizhou) Solar Technology Co., Ltd.**  
Kaiyang Rd. Jiangyan Economic Development Zone  
Taizhou City, Jiangsu Province, 225500, P.R. China

Factory inspection report no.: 862010439.004

Manufacturer 2: **FENGYANG JOY ENERGY TECHNOLOGY CO., LTD**  
88 East Yongqing Road, Economic Development Zone,  
Fengyang County, 233100 Chuzhou City, Anhui Province,  
P.R. China

Factory inspection report no.: 862010737.001

**Remark:**

Factory inspection is mandatory to be performed annually. Please refer to factory inspection report for detailed information.

**Description of product(s):**

|                                    |   |
|------------------------------------|---|
| Module types:                      | <b>Double Glass PV Modules with 157.35mm to 158.75mm Mono n-type Bifacial Solar Cells:</b><br>72 cells: JW-D72N-xxx (xxx=365-410, in steps of 5)<br>60 cells: JW-D60N-xxx (xxx=305-340, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V   |
| Fuse rating:                       | 20A   |
| Electrical protection class:       | Class II  |
| Pollution degree:                  | 1   |
| Material group:                    | I   |
| Design load (positive / negative): | 1600Pa / 1600Pa or 3600Pa / 1600Pa, refer CDF for details   |
| Safety factors:                    | 1.5   |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details  |

|                                    |   |
|------------------------------------|---|
| Module types:                      | <b>Double Glass PV Modules with 158.75mm Half-cut Mono n-type Bifacial Solar Cells:</b><br>156 cells: JW-HD156N-xxx (xxx=425-455, in steps of 5)<br>144 cells: JW-HD144N-xxx (xxx=390-420, in steps of 5)<br>120 cells: JW-HD120N-xxx (xxx=325-350, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V   |
| Fuse rating:                       | 20A   |
| Electrical protection class:       | Class II  |
| Pollution degree:                  | 1   |
| Material group:                    | I   |
| Design load (positive / negative): | 1600Pa / 1600Pa or 3600Pa / 1600Pa, refer CDF for details   |
| Safety factors:                    | 1.5   |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details  |

Module types: **Double Glass PV Modules with 158.75mm Half-cut Mono p-type Bifacial Solar Cells:**

156 cells: JW-HD156P-xxx (xxx=425-450, in steps of 5)

144 cells: JW-HD144P-xxx (xxx=390-415, in steps of 5)

120 cells: JW-HD120P-xxx (xxx=325-345, in steps of 5)

Remark: xxx indicates output power from the front side only

Maximum system voltage: 1500V

Fuse rating: 20A

Electrical protection class: Class II

Pollution degree: 1

Material group: I

Design load (positive / negative): 1600Pa / 1600Pa or 3600Pa / 1600Pa, refer CDF for details

Safety factors: 1.5

Fire safety class: Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details

Module types: **Double Glass PV Modules with 166mm Half-cut Mono n-type Bifacial Solar Cells:**

144 cells: JW-HD144N-xxx (xxx=430-470, in steps of 5)

120 cells: JW-HD120N-xxx (xxx=360-390, in steps of 5)

Remark: xxx indicates output power from the front side only

Maximum system voltage: 1500V

Fuse rating: 30A

Electrical protection class: Class II

Pollution degree: 1

Material group: I

Design load (positive / negative): 1600Pa / 1600Pa or 3600Pa / 1600Pa, refer CDF for details

Safety factors: 1.5

Fire safety class: Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details

|                                    |   |
|------------------------------------|---|
| Module types:                      | <b>Double Glass PV Modules with 166mm Half-cut Mono p-type Bifacial Solar Cells:</b><br>144 cells: JW-HD144P-xxx (xxx=430-450, in steps of 5)<br>120 cells: JW-HD120P-xxx (xxx=360-375, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V   |
| Fuse rating:                       | 30A   |
| Electrical protection class:       | Class II  |
| Pollution degree:                  | 1   |
| Material group:                    | I   |
| Design load (positive / negative): | 1600Pa / 1600Pa or 3600Pa / 1600Pa, refer CDF for details   |
| Safety factors:                    | 1.5   |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details  |

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|------------------------------------|--|
| Module types:                      | <b>Double Glass PV Modules with 182mm Half-cut Mono n-type Bifacial Solar Cells:</b><br>156 cells: JW-HD156N-xxx (xxx=580-630, in steps of 5)<br>144 cells: JW-HD144N-xxx (xxx=525-585, in steps of 5)<br>120 cells: JW-HD120N-xxx (xxx=435-485, in steps of 5)<br>132 cells: JW-HD132N-xxx (xxx=485-535, in steps of 5)<br>108 cells: JW-HD108N-xxx (xxx=395-435, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V  |
| Fuse rating:                       | 30A  |
| Electrical protection class:       | Class II   |
| Pollution degree:                  | 1  |
| Material group:                    | I  |
| Design load (positive / negative): | 1600Pa / 1600Pa, 3600Pa / 1600Pa or 2400Pa/1600Pa, refer CDF for details   |
| Safety factors:                    | 1.5  |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details   |

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|------------------------------------|---|
| Module types:                      | <b>Double Glass PV Modules with 182mm Half-cut Mono p-type Bifacial Solar Cells:</b><br>144 cells: JW-HD144P-xxx (xxx=525-555, in steps of 5)<br>120 cells: JW-HD120P-xxx (xxx=435-460, in steps of 5)<br>132 cells: JW-HD132P-xxx (xxx=485-505, in steps of 5)<br>108 cells: JW-HD108P-xxx (xxx=395-415, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V   |
| Fuse rating:                       | 30A   |
| Electrical protection class:       | Class II  |
| Pollution degree:                  | 1   |
| Material group:                    | I   |
| Design load (positive / negative): | 1600Pa / 1600Pa, 3600Pa / 1600Pa or 2400Pa/1600Pa, refer CDF for details  |
| Safety factors:                    | 1.5   |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details  |
| Module types:                      | <b>Double Glass PV Modules with 210mm Half-cut Mono n-type Bifacial Solar Cells:</b><br>120 cells: JW-HD120N-xxx (xxx=580-620, in steps of 5)<br>132 cells: JW-HD132N-xxx (xxx=655-680, in steps of 5)<br>Remark: xxx indicates output power from the front side only   |
| Maximum system voltage:            | 1500V   |
| Fuse rating:                       | 30A   |
| Electrical protection class:       | Class II  |
| Pollution degree:                  | 1   |
| Material group:                    | I   |
| Design load (positive / negative): | 3600Pa / 1600Pa or 3600Pa/2400Pa, refer CDF for details   |
| Safety factors:                    | 1.5   |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details  |

|                                    |  |
|------------------------------------|--|
| Module types:                      | <b>Double Glass PV Modules with 210mm Half-cut Mono p-type Bifacial Solar Cells:</b><br>120 cells: JW-HD120P-xxx (xxx=580-610, in steps of 5)<br>Remark: xxx indicates output power from the front side only |
| Maximum system voltage:            | 1500V  |
| Fuse rating:                       | 30A  |
| Electrical protection class:       | Class II   |
| Pollution degree:                  | 1  |
| Material group:                    | I  |
| Design load (positive / negative): | 3600Pa / 1600Pa or 3600Pa/2400Pa, refer CDF for details  |
| Safety factors:                    | 1.5  |
| Fire safety class:                 | Class C or Class A according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018), refer CDF for details   |

Remark:

For detailed product information, please refer to CDF (Constructional Data Form) in Annex 1 of test report.

