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# **Crystalline Silicon Half-cell PV Modules Limited Warranty**

**(Fifteen-Year Limited Product Warranty)**

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## Preface

This document is formulated in accordance with Crystalline Silicon Half-cell PV module Limited Warranty, laws and regulations, industry standards, and the actual management of the company, which is applicable to Tongwei's conventional modules with quality grade A and does not apply to downgraded or scrapped conventional modules and aims to provide the limited quality warranty to end-users who purchase and install the crystalline silicon PV modules.

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# Crystalline Silicon Half-cell PV Modules Limited Warranty (Fifteen-year Limited Product Warranty)

## 01 Purpose

This Limited Warranty provides that Tongwei Solar (Hefei) Co., Ltd. (hereinafter referred to as "Tongwei") undertakes to provide the limited quality warranty (hereinafter referred to as the "Limited Warranty") described below to end-users (hereinafter referred to as the "Buyer") who purchase and install the crystalline silicon PV modules (hereinafter referred to as the "Modules") specified below for their own use.

## 02 Scope of Application

This Limited Warranty applies to Tongwei's conventional modules with quality grade A and does not apply to downgraded or scrapped conventional modules.

## 03 Warranty Commencement Date

The date of installation of the Tongwei modules or the ninetieth (calendar) day after the delivery of the Tongwei modules, whichever is earlier.

## 04 Fifteen-year Limited Product Warranty

**4.1** Tongwei guarantees that the modules will not malfunction or fail to operate due to defects in design, materials, workmanship or manufacture for a period of fifteen years from the commencement date of the warranty.

**4.2** Appearance defects (including, but not limited to, scuffs, scratches, stains, mechanical wear, rust, mold, etc.) or other changes of the modules that occur after delivery of the modules from Tongwei to Buyer are not defects under this Limited Warranty. Unless such defects or changes violate the provisions of Section 5 "Limited Power Output Warranty".

## 05 Limited Power Output Warranty

Tongwei also guarantees the loss of module power output for the corresponding period from the warranty commencement date, which is based on the minimum nominal power tolerance of the modules as specified on the module nameplate compared to the maximum peak output power of the actual module measured under standard test conditions (STC).

### 5.1 Half-cell single glass modules:

PERC Half-cell Monocrystalline Module: Tongwei guarantees the loss of module power output for 25 years from the commencement of the warranty period, i.e., based on the minimum nominal power tolerance of the modules as specified on the module nameplate compared to the maximum peak output power of the actual module measured under standard test conditions (STC). The power loss is within 2% in the first year of the warranty period, 0.55% per year from the second year to the 25th year of the warranty period, and no less than 84.8% in the last year of the 25-year warranty period.

TOPCon Half-cell Monocrystalline Module: Tongwei guarantees the loss of module power output for 30 years from the commencement of the warranty period, i.e., based on the minimum nominal power tolerance of the

modules as specified on the module nameplate compared to the maximum peak output power of the actual module measured under standard test conditions (STC). The power loss is within 1% in the first year of the warranty period, 0.4% per year from the second year to the 30th year of the warranty period, and no less than 87.4% in the last year of the 30-year warranty period.

## 5.2 Half-cell Double-glass modules:

PERC Half-cell Monocrystalline Module: Tongwei guarantees the power output loss of the modules for 30 years from the commencement of the warranty period, i.e., based on the minimum nominal power tolerance of the modules as specified on the module nameplate compared to the maximum peak output power of the actual modules measured under standard test conditions (STC). The power loss is within 2% in the first year of the warranty period, 0.45% per year from the second year to the 30th year of the warranty period, and no less than 84.95% in the last year of the 30-year warranty period.

TOPCon Half-cell Monocrystalline Module: Tongwei guarantees the power output loss of the modules for 30 years from the commencement of the warranty period, i.e., based on the minimum nominal power tolerance of the modules as specified on the module nameplate compared to the maximum peak output power of the actual modules measured under standard test conditions (STC). The power loss is within 1% for the first year of the warranty period, 0.4% for each year from the second year to the 30th year of the warranty period, and no less than 87.4% in the last year of the 30-year warranty period.

## 5.3 Peak power

The peak power is the maximum power of the module measured under standard test conditions. Standard test conditions are: spectrum AM1.5, light intensity 1000W/m<sup>2</sup>, temperature 25±2°C. The measurement is based on IEC61215 standard, and the test is measured at the terminal of the junction box. The calibration and testing standards of Tongwei modules are valid on the manufacturing date of the modules, and the calibration standards are consistent with the standards adopted by international agencies.

## **06** Repair, Replacement or Refund Relief

**6.1** If the module has serious appearance defects or power loss exceeding the guaranteed value under the limited product warranty or limited power output warranty, which is analyzed by Tongwei to be caused by Tongwei's modules, or is confirmed to be caused by Tongwei's modules by a well-known domestic or international third-party testing organization (selected by both Buyer and Tongwei) at Buyer's request, Tongwei will choose any of the following remedies at its sole discretion:

- a) Tongwei shall have the option to refund to the Buyer the net value of the defective module or the current market price of the module. The net value of a defective module is defined as a depreciation charge of 16% for the first year and 3.5% for each subsequent year on the basis of the price of the module purchased at that time, with the depreciation charge calculated from the commencement of the warranty.
- b) Free repair or free replacement of defective module and free shipping to the place of delivery at the time of original sale, with ownership of the replaced module and parts belonging to Tongwei.

**6.2** The above remedies are the sole and exclusive remedies available under the Tongwei Limited Warranty and Tongwei shall not be liable for any special damages, consequential damages, derivative damages, incidental damages (including loss of production, loss of profits, loss of goodwill, loss of business reputation or loss of delay), etc., and this exclusion shall apply regardless of whether the claim for damages is based on contract, warranty, negligent tort or strict liability.

**6.3** If Tongwei chooses to take the remedy of free repair or free replacement of defective module, it shall bear the costs related to insurance, transportation (except air transportation), customs clearance, etc. incurred in the process of returning the defective module to Tongwei and delivering the repaired or replaced module to Buyer.

Upon written consent of Tongwei, the Buyer may return the defective module to Tongwei, and if the Buyer has advanced the above costs to be borne by Tongwei, it will provide invoices to Tongwei for the relevant costs and Tongwei will reimburse the costs to Buyer; Tongwei will not accept any returned defective module without written consent of Tongwei. If, at the time of the claim, Tongwei has discontinued production of the module with the same specifications as the defective module, Tongwei may provide other models of the module that can meet Buyer's application of the module. All costs of module removal or installation shall be borne by the Buyer.

**6.4** When Tongwei repairs or replaces a defective module, the warranty period of the Limited Product Warranty and the Limited Power Output Warranty shall not be extended or renewed as a result, and the warranty period for the repaired or replaced module shall be the remaining warranty period of the module originally purchased by Buyer.

**6.5** Buyer shall have the right to make claims under the terms of the warranty. If multiple claims are made for one issue, Tongwei shall be deemed to have settled all applicable claims arising from this issue by indemnifying one item in accordance with the above provisions.

## **07 Exclusion and Limitation of Liability**

The above Limited Warranty does not apply to products with any of the following conditions:

- a) No payment was made to Tongwei for the goods;
- b) Modules with a quality grade other than A (e.g., grade S1, grade S2, scrap) are not covered by the limited warranty;
- c) Failure to comply with all the requirements of the Tongwei's installation manual;
- d) The model number, nameplate or barcode of the module has been altered, erased or rendered illegible (other than by any act or omission of Tongwei);
- e) The module installation location or working conditions are not within the scope of the Tongwei's installation manual and without the written consent of Tongwei, such as the module is installed on a mobile platform such as a vehicle or ship, or in an environment such as an ocean or desert;
- f) Defects in the building construction where the modules are placed;
- g) The module suffers from any of the following: intentional damage, unauthorized modification or connection, unauthorized opening, repair with unauthorized spare parts, accidents, chemical product effects and other acts beyond the reasonable control of Tongwei;
- h) When the applied voltage exceeds the maximum system voltage or surge;
- i) Use of modules, parallel imports in a manner that infringes on the intellectual property rights of Tongwei or any third party (e.g., invention patent rights, trademarks);
- j) Service technicians who are considered unqualified according to the relevant laws and regulations of the place of installation to provide service to the modules.

## **08 Claims Procedure, Notification Period and Performance of Warranty**

**8.1** The Buyer shall give written notice of any claim under this Limited Warranty to Tongwei or its authorized distributor and include a claim assertion, a description of the module defect, a picture of the module's bar code, a picture of the module nameplate, a copy of the commercial invoice, and the date of delivery of the module. The Tongwei Customer Service Center can be reached at:

Tongwei Solar(Hefei) Co., Ltd.

Address: No.888, Changning Avenue, High-tech District, Hefei City, Anhui Province, China

Postal code: 230088

Customer Service Number: 4000566888

After-sales E-mail: [twcustomerservice01@tongwei.com](mailto:twcustomerservice01@tongwei.com)

Web: [www.tw-solar.com](http://www.tw-solar.com)

**8.2** Any claim under this Limited Warranty must be made within 30 (calendar) days from the date of discovery of such breach.

**8.3** In the event of a dispute over the technical facts of a warranty claim, Buyer and Tongwei shall mutually confirm the selection of a nationally or internationally recognized third party testing organization to make the determination. The determination shall be final, conclusive and binding and may be enforced in any proceedings brought under this Limited Warranty. All costs incurred in the adjudication process shall be borne by the losing party, except as otherwise provided in the judgment.

**8.4** If it is determined that the defective Tongwei module is covered by this Limited Warranty, Tongwei shall compensate in accordance with the remedies in Article 6; if it is determined that the defective Tongwei module is not covered by this Limited Warranty, Tongwei shall not be liable for any compensation, including but not limited to the insurance, transportation, customs clearance and any other costs arising from the return of the defective module, and shall have no obligation to repair, replace or refund the defective module.

**8.5** For problems occurring during the warranty period that are not defective Tongwei modules or modules that are beyond the warranty period and need to be repaired or replaced, the Buyer can contact the Tongwei Customer Service Center to inquire about the cost of the modules and related repair services.

## **09** Transfer of Warranty Interests

This Limited Warranty applies to the original end-user and the warranty applies to subsequent owner when the product remains untouched at the original installation site and the owner holds legal proof of succession or transfer.

## **10** Severability of Terms

If any part of this Limited Warranty is held to be invalid, void or unenforceable, or its application to certain persons or circumstances is held to be invalid, void or unenforceable, such circumstances shall not affect the validity of the application of any other part of this Limited Warranty. The other parts of this Limited Warranty or this Limited Warranty shall be deemed to be independently valid.

## **11** Force Majeure

Tongwei shall not be liable to Buyer or any third party in any way for any failure to perform or delay in performance of Tongwei's obligations under this Limited Warranty due to force majeure such as fire, flood, blizzard, hurricane, lightning, change in public policy, terrorism, war, riot, strike, lack of proper or adequate labor, material or production capacity, technical or physical events, and any unforeseen events beyond Tongwei's control.



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