

TOPCon Photovoltaic Module Product Warranty

This Photovoltaic Module Product Warranty (this “Warranty”) shall be effective only with respect to photovoltaic modules (the “Product”) produced/manufactured and supplied by Hansol Technics Co., Ltd. (“Hansol”)

1. Product Warranty

Hansol shall warrant the quality of the Product to the purchaser of the Product (the “Purchaser”) for a period of 12 years from the date the Product is delivered to the Purchaser (the “Delivery Date”).

This Warranty shall apply only when the Product, installed and used in accordance with the installation guidelines provided by Hansol (the “Installation Guideline”) and the operating conditions described therein, does not properly perform or does not conform to the stated specifications due to a defect in the material used or a defect which occurred during the manufacturing process.

Once the Product is found to be defective, Hansol shall at its sole discretion determine whether to replace or repair the Product, or compensate for the Product in accordance with the terms of Section 6 (Warranty Coverage).

The Product Warranty does not refer to any Output Warranty. Please refer to Section 2 below on the Output Warranty.

2. Output Warranty

Hansol shall warrant the output of the Product to the Purchaser for a period of 30 years from the Delivery Date, and shall repair or replace the Product, or compensate for the Product if the Product fails to achieve the warranted output levels as measured under the STC.

The details of the Output Warranty are set forth in Section 6 (Warranty Coverage).

- 1) Until the first year of the Delivery Date: 98.5% of the output value stated on the module label
- 2) Until the 30th year from the Delivery Date from first year of the Delivery Date: 88.9% of the output value stated on the module label

(Unit : %)

Year	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Output	98.5	98.2	97.8	97.5	97.2	96.9	96.5	96.2	95.9	95.5
Year	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th
Output	95.2	94.9	94.5	94.2	93.9	93.6	93.2	92.9	92.6	92.2
Year	21th	22th	23th	24th	25th	26th	27th	28th	29th	30th
Output	91.9	91.6	91.2	90.9	90.6	90.3	89.9	89.6	89.3	88.9

※ STC: Standard Test Conditions: IEC 61215 Test standards under conditions of 1,000W/m². AM 1.5, 25°C

※ Measurement tolerance range of ± 3% is applied under the measurement conditions (IEC 61215).

3. Exceptions to Application of Warranties

- 1) The above warranties shall not apply after the warranty period of the Product has been expired. Any repair or replacement of the Product shall not be deemed as extension of the warranty period of the Product.
- 2) Any defect or malfunction attributable to any of the followings shall not be covered by this Warranty regardless of whether the warranty period is continuing to be valid or has expired:
 - (a) defect or malfunction caused by installation of the Product not in accordance with the Product Manual, the Installation Guidelines, and the label on the Product;
 - (b) defect or malfunction caused by any other wrong installation or wiring;
 - (c) defect or malfunction caused by installation or use of the Product for purpose other than photovoltaic power generation;
 - (d) defect or malfunction caused by inappropriate maintenance, management or operation practices;
 - (e) defect or malfunction caused by transfer from the initial installation position and reinstallation;
 - (f) defect or malfunction caused by any repair work without consulting with Hansol;
 - (g) defect or malfunction caused by improper handling in transportation and storage;
 - (h) defect or malfunction caused by surge voltage or power outage;
 - (i) defect or malfunction caused by external events such as fire, explosion or riot
 - (j) defect or malfunction caused by force majeure events such as earthquake, typhoon, tornado, volcanic eruption, flood, tsunami, lightning and heavy snow;

- (k) defect or malfunction caused by being installed in a special setting (accelerated conditions such as a laboratory, areas affected by salt or heavy salt damage)
- (l) defect or malfunction caused by other external factors and elements (installation in shaded areas, acid rain, dust (unremovable such as cement particles), salt damage, salinity, chemicals, fungi, etc.)
- (m) defect or malfunction caused by connection with a module manufactured by another manufacturer
- (n) alteration, deletion, removal, forgery of the label of the Product, in which case the Product is excluded from warranty (the original label of the Product must be kept for authentication purpose)
- (o) spots or scratches, or any noise, vibration, rust, discoloration, or mold caused by natural weathering that does not affect the output of the Product;
- (p) damages caused by theft by a third party, or by impact or chemical substances;
- (q) hot spots caused by shading or other external factors (animal feces, shadow, pollution, etc.) are excluded from Warranty; or
- (r) any occurrence of a PID due to the installation conditions, including GND problem not attributable to the Product, is excluded from Warranty.

3) Hansol guarantees that appearance defects specified in Appendix 2 do not effect the product and output warranty

4. Claim for Warranty Service

- 1) A claim for warranty service shall be filed within 14 days after the discovery of a defect or malfunction, as applicable.
- 2) A claim for warranty service shall be filed by the Purchaser who purchased the Product directly from Hansol or an authorized agent of Hansol.
- 3) A claim for warranty service shall be in the warranty service application form distributed by Hansol, and shall include the model name of the Product, description of the relevant defect or malfunction, and the serial number on the label attached on the rear side of the Product, and shall be submitted by email or post.

5. Conditions for Warranty

- 1) In order to receive the warranty service hereunder, the Purchaser shall prove that the Purchaser has purchased the Product from Hansol or an authorized agent of Hansol, and the Purchaser shall become the warranty claim at once the proof of purchase is completed.
- 2) The warranty claimant shall provide a reasonable opportunity to Hansol or an authorized agent of Hansol to inspect the Product.
- 3) The Product shall not fall under any exceptions to the Warranty under Section 3 above. A claim for warranty service shall be void if it fails to meet any of the above conditions.

6. Limitation on Warranty Coverage and Liability

1) Product Guarantee

A Product found to be defective for reasons attributable to Hansol shall be repaired or replaced with the same Product in accordance with the type of defect, and if the relevant module has been discontinued, the defect Product may be replaced with a similar module (in terms of the size, color, shape, etc.). If there is no similar module or replacement is otherwise difficult at the time of the warranty service, Hansol shall compensate for the loss of output (an amount calculated by multiplying the electricity sale rate by the amount of output lost), provided that the purchase price of the Product shall be depreciated at the rate of 3.33% per annum from the Delivery Date to the date of defect.

2) Transportation and Repair Costs

Hansol shall be responsible for the costs of the transportation and repair necessary for the replacement of the defective Product.

3) Replacement, disposal, return, reinstallation costs

The Purchaser shall be responsible for the costs and expenses necessary for the replacement, disposal, return or reinstallation of the defective Product (including electricity output loss)

4) Support

The Purchaser shall be obligated to ensure that the relevant power plant facility cooperates in connection with the replacement of the defective Product.

5) Others

Hansol shall not be liable for any personal injury or property damage caused by or in connection with the installation or use, or defect or malfunction of the Product, and shall not be liable for any accident, or indirect or special risks. The total warranty amount shall not exceed the total purchase price of the Product in any circumstances.

7. Dispute Resolution

If Hansol and the Purchaser do not agree on any issue related to the product warranty and output warranty hereunder, they shall accept the test results given by the following third-party certified testing organizations.

- 1) Disputes in Korea – Korea Testing Certification
- 2) Disputes outside Korea – Fraunhofer ISE (located in Freiburg, Germany)

All costs incurred in connection with a dispute shall be borne by the Purchaser if the claims of the Purchaser are proved as groundless or invalid.

8. Effective Date

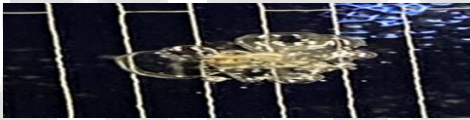
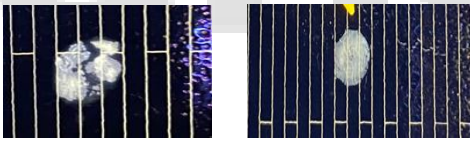




This Warranty shall enter into force on December, 2023.

Appendix 1. Compensation Table

(Unit : %)

Year	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Compensation Rate	96.66	93.33	90.00	86.67	83.34	80.01	76.68	73.35	70.02	66.69
Year	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th
Compensation Rate	63.36	60.03	56.70	53.37	50.04	46.71	43.38	40.05	36.72	33.39
Year	21th	22th	23th	24th	25th	26th	27th	28th	29th	30th
Compensation Rate	30.06	26.73	23.40	20.07	16.74	13.41	10.08	6.75	3.42	0

Appendix 2. Visual Defect Cases

No.	Item	Appearance	Note
1	Foreign objects		Length ≤ 10mm foreign objects and stains will not effect to module output and durability.
2	Stain		
3	Wrinkle		Wrinkles which can be occurred during manufacturing, will not effect to module output and durability.
4	White EVA Shading		Lower than 2mm cell shading due to white EVA shading can be occurred during manufacturing. However, this minor shading will not effect to module output.
5	Scratches		Minor scratches on glass surface will not effect to module output.
6	Cell color difference		Only this visual differences will not effect to module output and durability.

- 1) Hansol guarantees minor visual defects will not effect to product characteristics, durability and power performance.
- 2) Minor visual defects not specified in Appendix 1. will deal with general industry standards.

Hansol Technics Co., Ltd.

