


A large array of solar panels is shown in a field, tilted towards the sun. The sky is filled with colorful clouds, and the sun is low on the horizon, creating a warm, golden glow. The panels are dark with white grid lines.

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**SOLAR POWER PLANTS  
BY  
GAUTAM SOLAR**

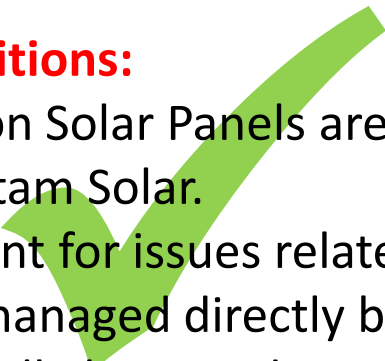
## Other EPC Providers

### Terms and Conditions:

- 
- All warranties are extended directly by the OEMs.
  - Claims fulfillment will be managed directly by the OEMs.
  - EPC's role is limited to coordinating between the OEM and the client.

## EPC by Gautam Solar

### Terms and Conditions:

- 
- All warranties on Solar Panels are extended directly by Gautam Solar.
  - Claims fulfillment for issues related to Solar Panels will be managed directly by Gautam Solar.
  - Gautam Solar will also coordinate between the OEMs of other components and the client.

## Why Gautam Solar is ideal for large power plants?

- Gautam Solar is both a Solar Panel Manufacturer & EPC company.
- Warranty on both Power Plant & Solar PV Panels by Gautam Solar itself.
- Zero hassle of dealing with different Solar PV Manufacturer & EPC company.
- Well established financially strong company with 1000+ manpower & 4 factories providing EPC services & warranties.

## What makes Gautam Solar the ideal partner for Solar Power Plants?

### **TECHNICALLY ADVANCED SOLAR PANELS**

- High-efficiency Solar Panels
- A+ grade raw materials
- Fully Automated Manufacturing Setup
- Latest Technology

### **PROVEN TRACK RECORD WITH FOCUS ON QUALITY**

- Quality Testing
- Patents and IPs
- Global Certification
- Case Studies

### **FINANCIALLY SECURE COMPANY WITH STRONG LEADERSHIP**

- Top 10 Indian Solar Manufacturer
- Strong Top Management
- Future Expansion Roadmap
- 27+ Years Expertise
- Financial Strength



**TECHNICALLY ADVANCED  
SOLAR PANELS**





# Fully Automated Manufacturing Setup

**GAUTAM**  
SOLAR

**ADVANTAGES** of using Top-Notch Machines:

- ✓ Precision and Accuracy in Engineering
- ✓ Minimized Errors and Defects
- ✓ Increased Production Yield





# Robotic Layup

**GAUTAM**  
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Using **ROBOTIC LAYUP** instead of conventional Gantry Layup in production:

- ✓ **Enhances Production Yield**
- ✓ **Ensures Precise String Positioning on EVA Sheet**
- ✓ **Solves String Misalignment**
- ✓ **Boosts overall panel performance and durability**

- Robotic Layup requires higher investment
- Adoption of latest technology provides a competitive edge and positions Gautam Solar as an industry leader





## Fully Automatic High-Speed MBB Stringer

Using “MERCEDES OF SOLAR STRINGERS” to ensure:

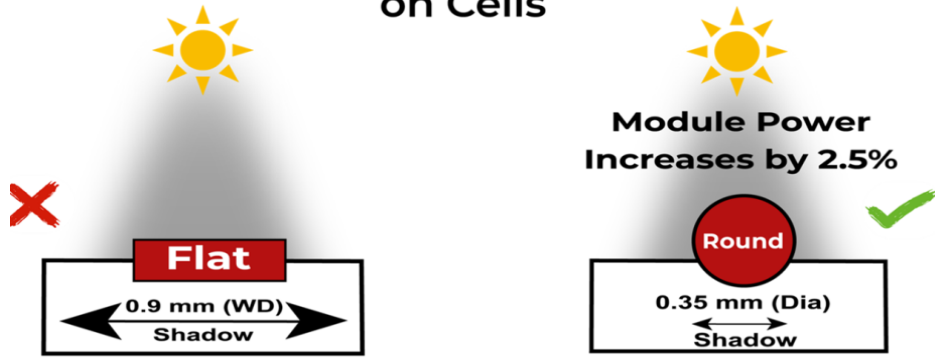
- ✓ Lower Electrical Losses due to MBB Design
- ✓ Higher Accuracy with CCD Positioning
- ✓ Reduced Errors due to Non-contact Infrared Soldering

- Require more investment than conventional stringers
- Provides long term benefits like enhanced durability
- Ensures customer satisfaction



# Going from Flat to Round Ribbon

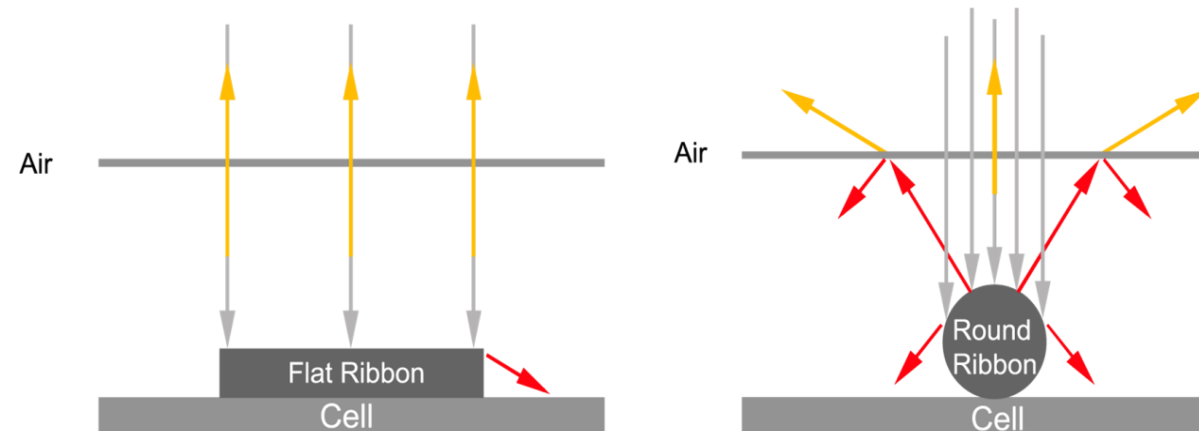
Using Round Ribbon for  
Lower Shading  
on Cells



Gautam Solar's panels utilize round ribbon instead of flat ribbon in Multi-Busbar (MBB) layout:

- Round Ribbon occupy less surface area of the solar cell compared to Flat Ribbon.
- **Lower Shading Losses by 75%** and **Increasing Module Power Output by 2.5%**.

- Round ribbon also provide **Higher Light Utilization** as more light gets trapped inside the glass.
- Nearly **70% of Light striking the surface of Round Ribbon is converted into electricity** due to multiple reflections.
- Only **5-10% light falling on Flat Ribbon is converted** into electricity as most of the light is reflected outside.



**Round Ribbon technology only works on MBB Cell Soldering Stringers, which Requires Higher Investment than conventional stringers.**

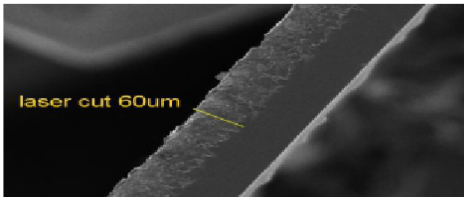


# Non-Destructive Cutting (NDC) vs. Conventional Cutting

## Non Destructive Cell Cutting for Zero Micro-cracks



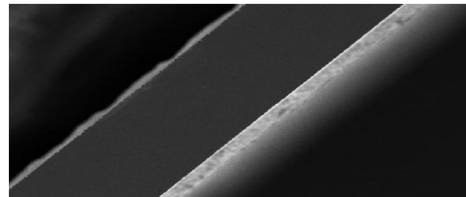
### Manual Laser Cutting



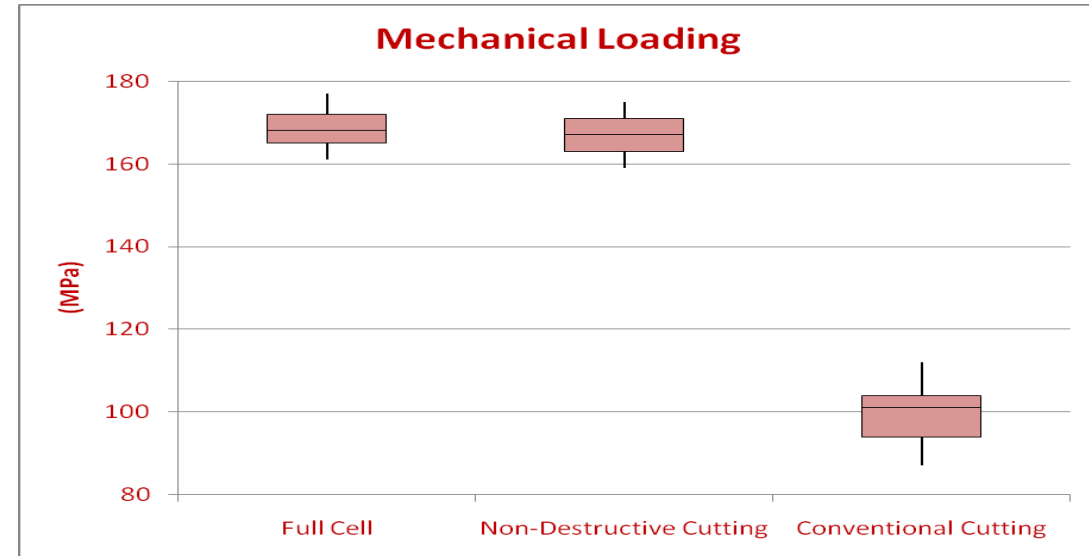
More than 1500 °C  
High Temperature



### Non-Destructive Cutting (NDC) 30% More Mechanical Strength



Less than 130 °C  
Low Temperature



Gautam Solar's panels utilize half-cut cells formed by NDC process:

## Non-Destructive Cutting (NDC)

- Cells split by Low Temperature Laser (<130°C) using controlled thermal stress
- Negligible chances of Micro-cracks
- High Mechanical Strength (similar to full cell)
- No Heat Affected Zone formation
- Requires High Investment for Specialized Machine

## Conventional Cutting

- Cells split by High Temperature Laser (>1500°C) with mechanical separation
- Higher chances of Micro-cracks
- Low Mechanical Strength (≈ half of full cell)
- Formation of Heat Affected Zone (80-150 μm)
- Requires Low Investment

# Solar Panel Curing Line/Room

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SOLAR

Gautam Solar utilizes an **Advanced, Fast Curing Technique** with benefits:


- ✓ **Enhanced Longevity and Performance of Panels**
- ✓ **Automatic Loading and Unloading**
- ✓ **Energy Efficient and Eco-friendly**

- Some manufacturers don't employ dedicated curing room
- Caused by capital/space constraints
- Detrimental to quality of panels



# Automatic Sorting for Module ( $I_{mp}$ ) Binning

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- 
- ✓ Sort modules according to test results
  - ✓ Easy Handling of modules
  - ✓ Automatic and Precise arrangement of modules
  - ✓  $I_{mp}$  Binning reduces String mismatch losses

# A+ Grade Raw Material



Material	Property
Solar Cells	LID-Resistant
Glass	Tempered Glass with Anti-reflective (AR) Coating
EVA	UV-Resistant, PID Free
Backsheet	Moisture-resistant, high transmittance
Junction Box	IP68 rated Split Junction Box
Frame	Made of Anodized Aluminium

**Ensures high efficiency, reliable power generation and long-term durability**



# Solar Panels Product Range



Panels	Mono PERC Bifacial (Glass to Backsheet)	Mono PERC Monofacial	N-type TOPCon
<b>Wattage</b>	540 Wp – 560 Wp	540 Wp – 560 Wp	580 Wp – 590 Wp
<b>Max. Efficiency</b>	21.68%	21.68%	22.84%
<b>Year 1 Degradation</b>	2%	2%	1%
<b>Subsequent Degradation</b>	0.55%	0.55%	0.40%
<b>Product Warranty</b>	10 Years	10 Years	10 Years
<b>Performance Warranty</b>	25 Years	25 Years	30 Years
<b>Extra Power from Rear</b>	10%-30% (Depends upon weather and installation)	-	10%-30% for Bifacial (Depends upon weather and installation)

**PROVEN TRACK RECORD  
WITH A FOCUS ON  
QUALITY**





# Quality Testing

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- **30+ Internal Quality Tests** including Visual inspection, Performance testing etc.
- Tested and Certified by **Independent Testing Laboratories** according to industry standards

**“Quality is at the heart of everything we do at Gautam Solar”**

# Internal Tests



## VISUAL INSPECTION

For quick quality check using a 90° Rotation and Strong Vacuum system for holding the panels.



## HIPOT TESTING

For Isolation Testing of Solar Panels at high voltage to ensure electrical safety.



## EL TESTING

100% Pre- and Post-Lamination Electroluminescence testing for detecting defects like micro-cracks, hot spots, etc.



# External Tests



## THERMAL CYCLE TEST

Thermal cycling between  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  over 200 testing cycles as per IEC/UL Standards to ensure resilience against thermal fatigue.



## HAIL TEST

Tested against 25mm hailstone at speed of 84 km/h for resiliency against high-velocity impacts, suitable for regions with inclement weather.

## SALT MIST CORROSION TEST

For ensuring resistance against corrosive effect of salt present in air, especially required for panels in coastal regions and offshore installations.



## External Tests

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### **DYNAMIC MECHANICAL LOAD TEST**

Tested to withstand dynamic loads of  $\pm 5000$  Pa over 200 cycles, to simulate the impact winds have on the mechanical properties of panels.

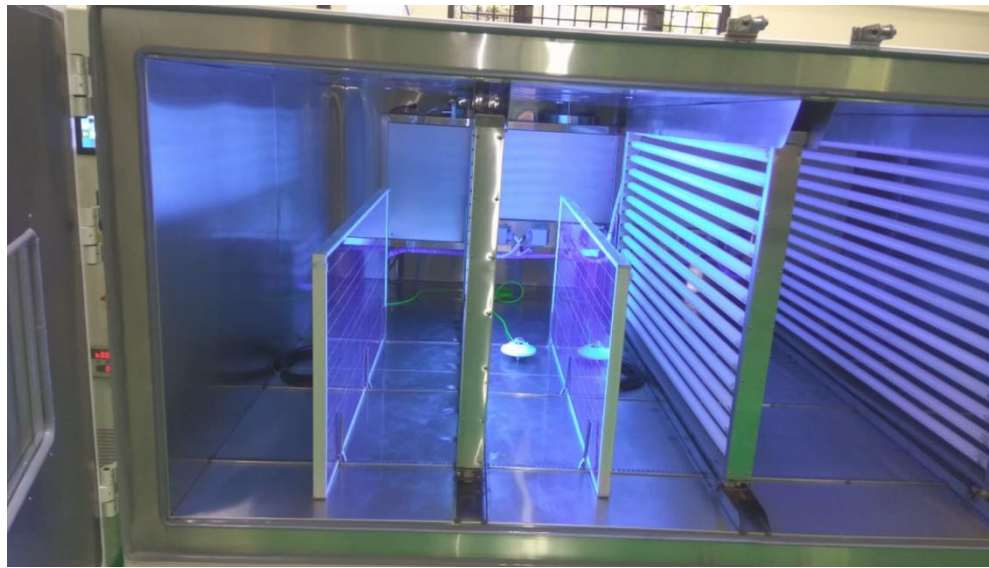


### **SAND AND DUST TEST**

Tested against sand grains blown from 4 different positions for 90 minutes each at 9m/s to withstand effect of sand and dust in desert regions.

### **UV PRECONDITIONING TEST**

Subjects panels to UV radiation up to 5 times the sun's intensity, helping identify issues like delamination and encapsulant discoloration.





## External Tests

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### **NH<sub>3</sub> CORROSION TEST**

Tested against 6667 ppm NH<sub>3</sub> concentration for 480h (20 cycles) for corrosion testing, suitable for solar farms and chemical plants with high levels of NH<sub>3</sub>.



### **TRANSPORTATION TEST**

Simulates Road Transportation through vibration and shock tests for ensuring safety and reliability of panels during transportation.

### **POTENTIAL INDUCED DEGRADATION (PID) TEST**

Panels subjected to 60°C, 85% humidity under 1000V for 96 hours for testing effect of PID on panel performance.







# ALMM Approved (MNRE, GoI) Solar Panels

# GAUTAM SOLAR

F. No. 283/54/2018-GRID SOLAR-Part(1)  
 भारत सरकार / Government of India  
 नवीन और नवीकरणीय ऊर्जा मंत्रालय / Ministry of New & Renewable Energy  
 गिड सोर ऊर्जा प्रभाग / Grid Solar Power Division

Atal Akshay Urja Bhawan,  
 Lodhi Road, New Delhi – 110003.  
 Dated: 24<sup>th</sup> January, 2024

### OFFICE MEMORANDUM

**Sub: Updation of List I (Manufacturers and Models of Solar PV Modules) of ALMM Order, 2019 – Reg.**

- Ref:** (i) MNRE's O.M. No. 283/54/2018-GRID SOLAR-Part(1) dated 10.03.2021  
 (ii) MNRE's O.M. No. 283/22/2023-GRID SOLAR/Pt dated 10.05.2023;

Reference is invited to this Ministry's O.M.s of even no. dated 10.03.2021, regarding implementation of Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019 and publishing List – I (Manufacturers and Models of Solar PV Modules) of ALMM Order, 2019.

2. This Ministry vide its O.M. No. 283/22/2023-GRID SOLAR/Pt dated 10.05.2023 had issued major reforms in the Approved List of Models and Manufacturers for Solar Photovoltaic Modules which inter-alia include enlistment of only such models of Solar PV Module Manufacturers, under ALMM, which comply with the BIS Standards and are having the following minimum module efficiency:

Category	Application/ Use	Minimum Module Efficiency required to be eligible for enlistment under ALMM
Category I	Utility / Grid Scale Power Plants	20.0%
Category II	Rooftop and Solar Pumping	19.5%
Category III	Solar Lighting	19.0%

3. Post 10.05.2023, only such models of Solar PV Modules have been considered for enlistment under ALMM List-I, whose module efficiency is equal to or greater than 19.00%.
4. The List – I (Manufacturers and Models of Solar PV Modules) of ALMM Order, 2019 was last updated on 16.11.2023.
5. The List – I (Manufacturers and Models of Solar PV Modules) of ALMM Order, 2019 is hereby further revised and the Revision-XX of same is enclosed at Annexure-I. The details of provisional enlistments granted by MNRE in ALMM List-I are at pages after Annexure-I.
6. The ALMM enlistment validity is subject to valid BIS Registration; else to be deemed delisted.
7. The details of Registration Number (R. No.) which has been allotted by BIS is mentioned against each manufacturer/ manufacturing unit enlisted in ALMM and further details related to BIS certification like validity, models included etc., may be checked from BIS website by using the following link: [https://www.crsbis.in/BIS/Lims\\_registration.cdo?hmode=getLimsData](https://www.crsbis.in/BIS/Lims_registration.cdo?hmode=getLimsData)
8. This issues with the approval of competent authority.

  
 (Sanjay Karndhar)  
 Scientist-E  
 E-mail: karndhar.sg@nic.in

Encl: As above

To: All Concerned  
 Copy to: Director (Technical), NIC, MNRE for uploading this document on MNRE's website

Revision - IX

List of Manufacturers and Models of Solar PV Modules Enlisted under ALMM Order (As on 25.01.2023)

S.No.	Type of Module	Applied Model	Enlisted Models	No. of Cells in Module	System Voltage (in Volt)	Validity	
						From	To
1	Mono C-Si Module	SS05-TP260(210Wp)	SS05-TP260	72 (Full Cell)	1000	28.09.2021	28.09.2023
			SS05-TP260A				
			SS05-TP260B				
			SS05-TP260C				
			SS05-TP260D				
			SS05-TP260E				
			SS05-TP260F				
			SS05-TP260G				
			SS05-TP260H				
			SS05-TP260I				
2	Mono C-Si Module	SS05-TP262(210Wp)	SS05-TP262	72 (Full Cell)	1000	28.09.2021	28.09.2023
			SS05-TP262A				
			SS05-TP262B				
			SS05-TP262C				
			SS05-TP262D				
			SS05-TP262E				
			SS05-TP262F				
			SS05-TP262G				
			SS05-TP262H				
			SS05-TP262I				
3	Mono C-Si Module	SS05-TP264(210Wp)	SS05-TP264	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP264A				
			SS05-TP264B				
			SS05-TP264C				
			SS05-TP264D				
			SS05-TP264E				
			SS05-TP264F				
			SS05-TP264G				
			SS05-TP264H				
			SS05-TP264I				
4	Mono C-Si Module	SS05-TP266(210Wp)	SS05-TP266	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP266A				
			SS05-TP266B				
			SS05-TP266C				
			SS05-TP266D				
			SS05-TP266E				
			SS05-TP266F				
			SS05-TP266G				
			SS05-TP266H				
			SS05-TP266I				
5	Mono C-Si Module	SS05-TP268(210Wp)	SS05-TP268	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP268A				
			SS05-TP268B				
			SS05-TP268C				
			SS05-TP268D				
			SS05-TP268E				
			SS05-TP268F				
			SS05-TP268G				
			SS05-TP268H				
			SS05-TP268I				
6	Mono C-Si Module	SS05-TP270(210Wp)	SS05-TP270	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
7	Mono C-Si Module	SS05-TP272(210Wp)	SS05-TP272	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP272A				
			SS05-TP272B				
			SS05-TP272C				
			SS05-TP272D				
			SS05-TP272E				
			SS05-TP272F				
			SS05-TP272G				
			SS05-TP272H				
			SS05-TP272I				
8	Mono C-Si Module	SS05-TP274(210Wp)	SS05-TP274	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP274A				
			SS05-TP274B				
			SS05-TP274C				
			SS05-TP274D				
			SS05-TP274E				
			SS05-TP274F				
			SS05-TP274G				
			SS05-TP274H				
			SS05-TP274I				
9	Mono C-Si Module	SS05-TP276(210Wp)	SS05-TP276	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP276A				
			SS05-TP276B				
			SS05-TP276C				
			SS05-TP276D				
			SS05-TP276E				
			SS05-TP276F				
			SS05-TP276G				
			SS05-TP276H				
			SS05-TP276I				
10	Mono C-Si Module	SS05-TP278(210Wp)	SS05-TP278	60 (Half Cell)	1000	28.09.2021	28.09.2023
			SS05-TP278A				
			SS05-TP278B				
			SS05-TP278C				
			SS05-TP278D				
			SS05-TP278E				
			SS05-TP278F				
			SS05-TP278G				
			SS05-TP278H				
			SS05-TP278I				

Revision - IX

List of Manufacturers and Models of Solar PV Modules Enlisted under ALMM Order (As on 25.01.2023)

S.No.	Type of Module	Applied Model	Enlisted Models	No. of Cells in Module	System Voltage (in Volt)	Validity	
						From	To
11	Mono C-Si PERC Module	SS05-AAA(180 Wp)	SS05-AAA	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-AAA1				
			SS05-AAA2				
			SS05-AAA3				
			SS05-AAA4				
			SS05-AAA5				
			SS05-AAA6				
			SS05-AAA7				
			SS05-AAA8				
			SS05-AAA9				
12	Mono C-Si PERC Module	SS05-AAA(180 Wp)	SS05-AAA	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-AAA1				
			SS05-AAA2				
			SS05-AAA3				
			SS05-AAA4				
			SS05-AAA5				
			SS05-AAA6				
			SS05-AAA7				
			SS05-AAA8				
			SS05-AAA9				
13	Mono C-Si PERC Module	SS05-AAA(180 Wp)	SS05-AAA	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-AAA1				
			SS05-AAA2				
			SS05-AAA3				
			SS05-AAA4				
			SS05-AAA5				
			SS05-AAA6				
			SS05-AAA7				
			SS05-AAA8				
			SS05-AAA9				
14	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
15	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
16	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
17	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
18	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
19	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
20	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
21	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
22	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
23	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
24	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
25	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
26	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
27	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
28	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
29	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
30	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
31	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
32	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
33	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP270D				
			SS05-TP270E				
			SS05-TP270F				
			SS05-TP270G				
			SS05-TP270H				
			SS05-TP270I				
34	Mono C-Si Module	SS05-TP270(210 Wp)	SS05-TP270	72 (Full Cell)	1000	29.09.2021	28.09.2023
			SS05-TP270A				
			SS05-TP270B				
			SS05-TP270C				
			SS05-TP27				

# Certified as per UL Standards



**CERTIFICATE OF COMPLIANCE**

**Certificate Number:** SGSNA/23/SH/00270

**Contract Number:** 802343  
**Certificate Project Number:** SH-CERT230805111

**Certified Product:** Mono-crystalline Solar Modules  
**Trademarks:**

**Model(s):** See page 2  
**Technical Data:** Max. System voltage: 1500V  
Maximum Over-current Protection: 30A

**Certificate Holder:** Gautam Solar Private Limited  
Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR,  
UTTARAKHAND, 249403, INDIA

This certificate supersedes previous certificates issued with the same certificate number. Certification is valid when products are indicated on the SGS directory of certified products at [www.sgs.com](http://www.sgs.com) or using the QR code below. The product is certified according to ISO/IEC Guide 17067, Conformity assessment - Fundamentals of product certification, System 3, and in accordance with:

UL 61215-1, 2.0 Edition, Dated July 28, 2021  
UL 61215-2, 2.0 Edition, Dated July 28, 2021

Authorized by: Effective date: 14 September 2023

Mark Lohmann  
Certifier

**SGS**

**SGSSGS**

Page 1 of 2

SGS operates certification programs under the authority of several accreditation or recognition bodies including AZLA, ANAB, OSHA NRTL, and Standards Council of Canada. This certificate is issued by the company under its General Conditions for Certification Services accessible at <https://www.sgs.com/terms-and-conditions>. Attention is drawn to the limitations of liability defined therein and in the Test Report here above mentioned which findings are reflected in this Certificate. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

**Certification Body**  
Connectivity & Products, a division of SGS North America Inc.  
620 Old Peachtree Road, Ste. 100, Suwanee, GA 30024, USA  
t: +1 770 570 1800 f: +1 770 277 1240 [www.sgs.com](http://www.sgs.com)

**CERTIFICATE OF COMPLIANCE**

**Certificate Number:** SGSNA/23/SH/00269

**Contract Number:** 802343  
**Certificate Project Number:** SH-CERT230805112

**Certified Product:** Mono-crystalline Solar Modules  
**Trademarks:**

**Model(s):** See page 2  
**Technical Data:** Max. System voltage: 1500V  
Maximum Over-current Protection: 30A

**Certificate Holder:** Gautam Solar Private Limited  
Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR,  
UTTARAKHAND, 249403, INDIA

This certificate supersedes previous certificates issued with the same certificate number. Certification is valid when products are indicated on the SGS directory of certified products at [www.sgs.com](http://www.sgs.com) or using the QR code below. The product is certified according to ISO/IEC Guide 17067, Conformity assessment - Fundamentals of product certification, System 3, and in accordance with:

UL 61730-1, 1.0 Edition, Dated December 04, 2017  
UL 61730-2, 1.0 Edition, Dated December 04, 2017

Authorized by: Effective date: 14 September 2023

Mark Lohmann  
Certifier

**SGS**

**SGSSGS**

Page 1 of 2

SGS operates certification programs under the authority of several accreditation or recognition bodies including AZLA, ANAB, OSHA NRTL, and Standards Council of Canada. This certificate is issued by the company under its General Conditions for Certification Services accessible at <https://www.sgs.com/terms-and-conditions>. Attention is drawn to the limitations of liability defined therein and in the Test Report here above mentioned which findings are reflected in this Certificate. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

**Certification Body**  
Connectivity & Products, a division of SGS North America Inc.  
620 Old Peachtree Road, Ste. 100, Suwanee, GA 30024, USA  
t: +1 770 570 1800 f: +1 770 277 1240 [www.sgs.com](http://www.sgs.com)

## UL 61215 & UL 61730 Standards





## VERIFICATION OF COMPLIANCE

No.: LVD SHES2304007023PV  
 Applicant: Gautam Solar Private Limited  
 Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403, India  
 Manufacturer: Gautam Solar Private Limited  
 Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403, India  
 Product Name: Photovoltaic (PV) Module(s)  
 Product Description: Photovoltaic (PV) Module(s)  
 Model No.: See Page 2-3  
 Trade Mark:

Rating: Max. system voltage: 1500V  
 Protection against Electric Shock: Application class: Class A  
 Degree of Protection: Protection class: Class II  
 Additional Information: Refer to test report  
 Sufficient samples of the product have been tested and found to be in conformity with  
 Test Standard: EN 61730-1 :2018  
 EN 61730-2 :2018  
 as shown in the  
 Test Report Number(s): SHES230400702302

This Verification of Compliance has been granted to the applicant based on the results of tests, performed by Laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on sample of the above-mentioned product in accordance with the provisions of the relevant harmonized standards under the Low Voltage Directive 2014/35/EU. The CE marking as shown below can be affixed, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The affixing of the CE marking presumes in addition that the conditions in annexes III and IV of the Directive are fulfilled.



Andrew Zhai  
 Technical Manager  
 SGS-CSTC

2023-09-14

This verification is issued by the company under its General Conditions of Services accessible at <https://www.sgs.com/en/terms-and-conditions>. Attention is drawn to the limitations of liability defined therein and in the Test Report here above mentioned which findings are reflected in this verification. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Member of SGS Group (Société Générale de Surveillance)



## ZERTIFIKAT NR. PVC231261

SEITE 1/3  
PAGE 1/3

**GENEHMIGUNGSINHABER**  
LICENSE HOLDER  
 GAUTAM SOLAR PRIVATE LIMITED  
 PLOT NO-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403, INDIA

**FERTIGUNGSSTÄTTE**  
MANUFACTURING PLANT  
 GAUTAM SOLAR PRIVATE LIMITED  
 PLOT NO-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403, INDIA

**Projekt-Nr-ID**  
PROJECT NO.-ID  
 SHES2304007023PV  
 6727822

**GENEHMIGTES PRÜFZEICHEN**  
LICENSED TEST MARK

**Prüfberichts-Nr.**  
TEST REPORT NO.  
 SHES230400702301  
 SHES230400702302

**Zertifizierte(s) Produkt(e)**  
Certified product(s)  
 Crystalline Silicon PV Modules

**Technische Daten**  
Technical data  
 Details of certified solar module(s) are documented in the test report(s).

**Geprüft nach**  
Tested according to

- IEC 61215-1:2021
- IEC 61215-1-1:2021
- IEC 61215-2:2021
- IEC 61730-1:2016
- IEC 61730-2:2016

**Bemerkung(en)**  
Remark(s)  
 The certificate is for type approval and based on voluntarily product tests. Any changes to the design, materials, components or processing may require repetition of some of the qualification tests in order to retain type approval.

**Längste Gültigkeitsdauer**  
Latest validity date  
 13.09.2028

**Zertifizierungsstelle für Produktsicherheit**  
Certification Body  
 SGS-TÜV Saar GmbH



14.09.2023

Die Prüf- und Zertifizierungsordnung ist integraler Bestandteil des Zertifikats. The test mark regulation is an integral part of this certificate.

SGS-TÜV Saar GmbH, Im Hainel 14, 66332 Neunkirchen

Website: [www.sgstuv.de](http://www.sgstuv.de)

FR-ZPS-050-V00

E-mail: [ds.sgs.tuv@sgs.com](mailto:ds.sgs.tuv@sgs.com)

## VERIFICATION OF COMPLIANCE

No.: SHES2306011480PV-02

Applicant/ Manufacturer: Gautam Solar Private Limited

Address: Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403

Manufacturer: Gautam Solar Private Limited

Address: Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403

Trade Mark:

Factory: Gautam Solar Private Limited

Address 1: Plot No-67-70, SECTOR 8A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403

Address 2: Plot No.114-115 Sector -6A, SIDCUL, IIE RANIPUR, HARIDWAR, UTTARAKHAND, 249403

Product Description: Photovoltaic (PV) module(s) and shipping unit

Protection against Electric Shock: Class II

Detail of shipping unit: Refer to page 2, Annex 1

Model/Type reference: Refer to page 3, Annex 2

Sufficient samples of the product have been tested and found to be in conformity with

Test Standard: IEC 62759-1:2022 Transportation test  
IEC 60068-2-68 Sand and dust test  
IEC 60068-2-14 Ambient temperature changes (DH1000)  
IEC 60068-2-38 Composite temperature/humidity cyclic test (HF10)  
SHES230601148072

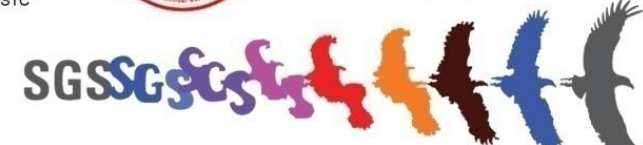
as shown in the Test Report Number(s):

This Verification of Compliance has been granted to the applicant based on the results of tests, performed by Laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on sample of the above-mentioned product in accordance with the provisions of the relevant specific standards.

Andrew Zhai  
Technical Manager  
SGS-CSTC



2023-07-25



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Member of SGS Group (Société Générale de Surveillance)

### ➤ IEC 62759-1:2022 Transportation Test

Shock, vibration, impact and drop tests for safe and reliable transportation of solar panels.

### ➤ IEC 60068-2-68 Sand and Dust Test

Testing for determining the effects of dust and sand on solar panels.

### ➤ IEC 60068-2-14 Ambient Temperature Changes (DH1000)

Testing for determining effects of change in temperature on solar panels.

### ➤ IEC 60068-2-38 Composite Temperature/Humidity Cyclic Test (HF10)

Testing for determining resistance of solar panels to combined effects of high temperature/humidity and cold conditions.



# Other IEC Standards: Going Above and Beyond

# GAUTAM SOLAR



Date: 18/01/2023

To,  
M/s. Gautam Solar Private Limited  
Plot no. 67-70, Sec-8A, IIE,  
SIDCUL, Haridwar-249403,  
Uttarakhand, India

**Sub: Statement of Compliance Letter for Salt-mist(Sev-1) Testing for One BOM of PV Modules**

This is to inform you that we have completed Salt-mist (Sev-1) testing on your submitted Crystalline Photovoltaic Module Model G2X450-HAA under project no- 4790633004 and after the successful completion of testing, all the samples met the compliance criteria of degradation less than 5% with satisfactory results and complied with the test standard. The final test report has been issued to M/S Gautam Solar Private Limited with report no. 4790633004 issue dated 17/01/2023.

**Standard:** IEC 61701 Edition 3.0, 2020-06- Photovoltaic (PV) modules – Salt mist corrosion testing (Sev-1).

**Models covered:**

(156 Half Cut Cells Family and Max. system voltage 1500V)  
G2XBifacial1767-HAE, G2XBifacial1760-HAE, G2XBifacial1754-HAE, G2XBifacial1747-HAE,  
G2XBifacial1741-HAE, G2XBifacial1734-HAE, G2X595-HAE, G2X590-HAE, G2X585-HAE, G2X580-HAE,  
G2X575-HAE, G2X570-HAE, G2X565-HAE.

(144 Half Cut Cells Family and Max. system voltage 1500V)  
G2XBifacial1715-HAD, G2XBifacial1708-HAD, G2XBifacial1702-HAD, G2XBifacial1695-HAD,  
G2XBifacial1689-HAD, G2XBifacial1682-HAD, G2XBifacial1676-HAD, G2XBifacial1669-HAD,  
G2XBifacial1663-HAD  
G2X550-HAD, G2X545-HAD, G2X540-HAD, G2X535-HAD, G2X530-HAD, G2X525-HAD,  
G2X525-HAD, G2X520-HAD, G2X515-HAD, G2X510-HAD.

(132 Half Cut Cells Family and Max. system voltage 1500V)  
G2XBifacial1656-HAB, G2XBifacial1650-HAB, G2XBifacial1643-HAB, G2XBifacial1637-HAB,  
G2XBifacial1630-HAB,  
G2X505-HAB, G2X500-HAB, G2X495-HAB, G2X490-HAB, G2X485-HAB.

(120 Half Cut Cells Family and Max. system voltage 1500V)  
G2XBifacial1598-HAA, G2XBifacial1591-HAA, G2XBifacial1585-HAA, G2XBifacial1578-HAA,  
G2XBifacial1572-HAA,  
G2X460-HAA, G2X455-HAA, G2X450-HAA, G2X445-HAA, G2X440-HAA

## Salt Mist Test

UL India Private Limited  
Registered Office: Kalpani Platina - Block L, 3rd Floor  
No. 34, ERP Zone, Phase II, Whitefield, Bangalore - 560066, India  
T: 91 80 4198 4400 / F: 91 80 2841 3759 / W: ul.com  
CN: U74200KA1999PFC02389

**Disclaimer:** Test results apply only to the sample(s) actually tested by UL LLC. The client provided all of the test samples for testing by UL. UL did not select the samples or determine whether the samples provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The client and/or manufacturer are solely and fully responsible for conformity of all products to all applicable standards, specifications or requirements. UL Logo and Marks shall not be used in connection with the above tested product(s). Only those products bearing the UL Listing and Classification Marks should be considered as being covered by UL's Listing, Classification and Follow-Up Service. Look for the UL Listing and Classification Mark on the product.



Date: 17/05/2023

To,  
M/s. Gautam Solar Private Limited  
Plot no. 67-70, Sec-8A, IIE, SIDCUL,  
Haridwar-249403, Uttarakhand, India

**Sub: Statement of Compliance Letter for Ammonia Testing for One BOM of PV Modules**

This is to inform you that we have completed Ammonia testing on your submitted Mono Crystalline Photovoltaic Module with model: G2X550-HAD under project no- 4790711429 and after the successful completion of testing, all the samples met the compliance criteria of degradation less than 5% with satisfactory results and complied with the test standard as mentioned below. The final test report has been issued to Gautam Solar Private Limited with report no. 4790711429-S1, issued dated 17/05/2023 (dd/mm/yyyy).

**Standard:** IEC 62716 Edition 1.0 2013-06- Photovoltaic (PV) modules – Ammonia corrosion testing.

Model covered	144 Half Cut Cells Family and Max. system voltage 1500V G2XBifacial1715-HAD, G2XBifacial1708-HAD, G2XBifacial1702-HAD, G2XBifacial1695-HAD, G2XBifacial1689-HAD, G2XBifacial1682-HAD, G2XBifacial1676-HAD, G2XBifacial1669-HAD, G2XBifacial1663-HAD, G2X550-HAD, G2X545-HAD, G2X540-HAD, G2X535-HAD, G2X530-HAD, G2X525-HAD, G2X520-HAD, G2X515-HAD, G2X510-HAD. 132 Half Cut Cells Family and Max. system voltage 1500V G2XBifacial1656-HAB, G2XBifacial1650-HAB, G2XBifacial1643-HAB, G2XBifacial1637-HAB, G2XBifacial1630-HAB, G2X505-HAB, G2X500-HAB, G2X495-HAB, G2X490-HAB, G2X485-HAB 120 Half Cut Cells Family and Max. system voltage 1500V G2XBifacial1598-HAA, G2XBifacial1591-HAA, G2XBifacial1585-HAA, G2XBifacial1578-HAA, G2XBifacial1572-HAA, G2X460-HAA, G2X455-HAA, G2X445-HAA, G2X440-HAA 108 Half Cut Cells Family and Max. system voltage 1500V G2XBifacial1539-HAY, G2XBifacial1533-HAY, G2XBifacial1526-HAY, G2XBifacial1520-HAY, 96 Half Cut Cells Family and Max. system voltage 1500V G2XBifacial1474-HAX, G2XBifacial1468-HAX, G2XBifacial1461-HAX, G2XBifacial1455-HAX, G2X365-HAX, G2X360-HAX, G2X355-HAX, G2X350-HAX.
---------------	--

Sincerely Yours,

Jayalakshmi. M  
Engineer Project Associate  
UL India Private Limited.

## Ammonia Test

UL India Private Limited  
Registered Office: Kalpani Platina - Block L, 3rd Floor  
No. 34, ERP Zone, Phase II, Whitefield, Bangalore - 560066, India  
T: 91 80 4198 4400 / F: 91 80 2841 3759 / W: ul.com  
CN: U74200KA1999PFC02389

**Disclaimer:** Test results apply only to the sample(s) actually tested by UL LLC. The client provided all of the test samples for testing by UL. UL did not select the samples or determine whether the samples provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The client and/or manufacturer are solely and fully responsible for conformity of all products to all applicable standards, specifications or requirements. UL Logo and Marks shall not be used in connection with the above tested product(s). Only those products bearing the UL Listing and Classification Marks should be considered as being covered by UL's Listing, Classification and Follow-Up Service. Look for the UL Listing and Classification Mark on the product.

# Other IEC Standards: Going Above and Beyond



**TECHLAB**  
TESTING & RESEARCH INSTITUTE PVT. LTD

**Lab** Plot No. F-19, MIDC, Kanhala, Bhusawal - 425201 (MH) India ☎ +91 9284029050

**Office** Plot No. 10, Gajanan Hsg. Society, Near Church, Girna Tank Road, Jalgaon - 425002 (MH) India ☎ +91 9529800374

## Potential Induced Degradation Test Certificate

As Per The Test Report No. TECHLAB/TR/22/12/0129 Dated 12/12/2022 the Photovoltaic Modules bearing Model G2X550-HAD manufactured and submitted By M/s Gautam Solar Private Limited, Plot No-67-70, Sector 8A, SIDCUL, IIE Ranipur, Haridwar, Uttarakhand, 249403, India; tested at Techlab Testing And Research Institute Pvt. Ltd. meets the requirement to pass the Potential Induced Degradation Test as per MNRE Specifications following the test procedure as per IEC TS 62804-1: 2015.

**Test Condition:** 4 Modules [2(+V) And 2(-V)] Biased at 1500 V and Subjected to 3 Cycles at 85% Relative Humidity and 85°C Temperature for 96 Hours in an Environmental Chamber (Test Procedure as per IEC TS 62804-1: 2015)

**Model Tested:** G2X550-HAD

Types Extended for Similarity with Mono Crystalline Silicon Solar Cell Technology as per IEC TS 62804-1: 2015 (Modules Made with Half Cut Cell and No Change in Bill of Material)

**Modules Covered:** Monocrystalline Modules – Model Range

(144 Half Cut Cells Family and Max. system voltage 1500V)  
G2X550-HAD, G2X545-HAD, G2X540-HAD, G2X535-HAD, G2X530-HAD, G2X525-HAD, G2X520-HAD, G2X515-HAD, G2X510-HAD.

(132 Half Cut Cells Family and Max. system voltage 1500V)  
G2X505-HAB, G2X500-HAB, G2X495-HAB, G2X490-HAB, G2X485-HAB.

(120 Half Cut Cells Family and Max. system voltage 1500V)  
G2X460-HAA, G2X455-HAA, G2X450-HAA, G2X445-HAA, G2X440-HAA.

(108 Half Cut Cells Family and Max. system voltage 1500V)  
G2X415-HAY, G2X410-HAY, G2X405-HAY, G2X400-HAY, G2X390-HAY.

(96 Half Cut Cells Family and Max. system voltage 1500V)  
G2X365-HAX, G2X360-HAX, G2X355-HAX, G2X350-HAX.



*Subhash*

Authorized Signatory  
(Technical Manager)

Maxop Research & Testing Institute Pvt. Ltd. ULR- TC87742300000032F  
TERI Gram, Gwal Pahari Gurgaon- Faridabad Road, Gurgaon-122003

### 1. SCOPE:

a. Requested by (Name & Address of the Organization)	M/s Gautam Solar Private Limited Plot No: 67-70, Sec-8A, SIDCUL, IIE Ranipur, Haridwar, UTTARAKHAND -249403
<b>Details of the Test Item</b>	
i. Nomenclature	Solar PV Modules
b. ii. Manufactured By	M/s Gautam Solar Private Limited Plot No: 67-70, Sec-8A, SIDCUL, IIE Ranipur, Haridwar, UTTARAKHAND -249403
iii. Model No.	G2X550-HAD
iv. Type	Mono Crystalline Silicon Modules 550Wp
v. Serial No.(s)	Refer the Test Results at Table given at Section no. 15 of Page no. 9
c. Date of Receipt of Samples	05.01.2023
d. Condition of the Sample on Receipt	Good
e. Applicable Standard	IS 16170 (Part 1):2014 IEC 61853-1:2011
f. Test Category	Part 1: Irradiance and Temperature Performance Measurements and Power Rating
g. Test Start Date	16.01.2023
h. Test End Date	26.01.2023
i. Number of Samples	03 Test Sample
j. Number of Photos	06 Photos

Prepared by:  
*Subhash*  
Subhash Chandra  
Test Engineer



Authorized Signatory:  
*Harish*  
Harish Singh  
Test Engineer

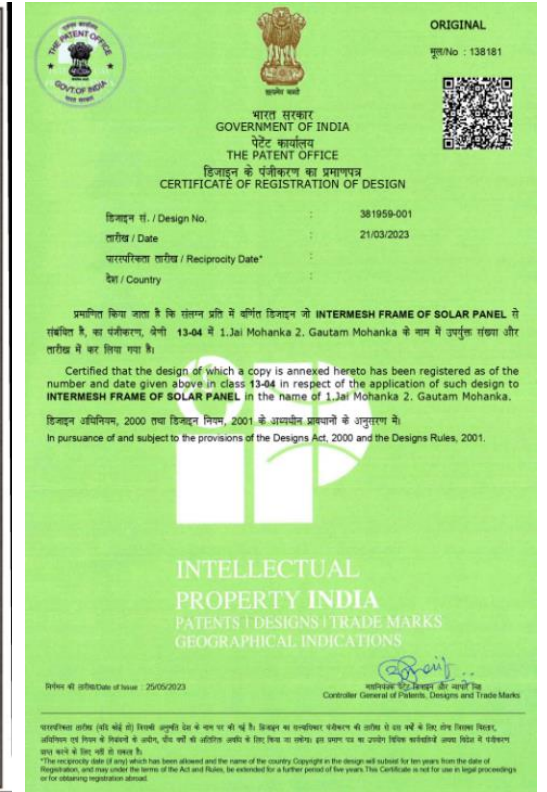
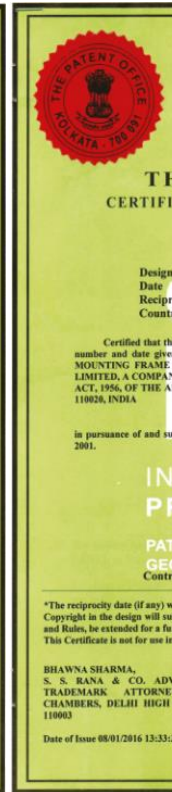
Test Report No.	Date of Issue	Total No. of Pages	Page No.
MRTCTP001620230019	31.01.2023	09	2

PID Test

Power Rating Test



# Gautam Solar Patents & IPs



With strong focus on R&D, Gautam Solar holds **Multiple Patents and IPs** related to solar panel technology



## Gautam Solar's patent on solar module lowers installation costs

March 27, 2023 - Updated 08:58 pm IST

The company said that innovation in solar modules halves the number of fasteners used during the installation of solar power plants



The cost of balance of systems, time for installation and commissioning plays a critical role and makes a big difference in the project cost

Homegrown manufacturer Gautam Solar on Monday said that it has filed a patent and design registration for innovation in solar panels that will cut down the installation cost of solar power plants at utility and rooftop scale.

"The innovation in solar modules halves the number of fasteners used during the installation of solar power plants. At Megawatt and Gigawatt scale, the cost of balance of systems, time for installation and commissioning plays a critical role and efficiency makes a big difference in the project cost," the solar module maker said in a statement.

### Patent design

The new solar panel design consists of two frames, a primary and a secondary frame with hollow structure (for light-weight design) which both have laterally extending brackets with grooves to provide an interlocking mechanism, the firm explained.

These frames are configured to secure the panel and the brackets are configured to mesh upon operation using fasteners. This leads to a reduction in the number of fasteners (nuts, bolts and washers) used during panel installation by 50 per cent. This not only saves time and is cost-effective, but also makes the installation process easier, it added....

## Gautam Solar granted patent for innovation in PV module production

Gautam Solar claims its bussing tool reduces manual work by over 50% and doubles solar panel yield, at a fraction of the cost of an automatic machine.

SEPTEMBER 19, 2023 UMA GUPTA



Gautam Mohanka,  
Managing Director, Gautam Solar

Indian manufacturer Gautam Solar has earned an intellectual property right for a "tool for the bussing process of solar panels," against the design submitted by the company's CEO, Gautam Mohanka.

The design registration was granted by The Office of the Controller General of Patents, Designs, and Trade Marks, affirming the tool's innovative and unique features.

Gautam Solar said its patented tool offers a host of advantages to module manufacturers, including over 50% reduction of manual work and a doubling of solar panel production capacity, at a fraction of the cost of an automatic machine. Additionally, the tool minimizes warpage, breakage, and thermal stress in solar cells, effectively increasing the panel's lifespan.

The tool minimizes human errors and significantly improves accuracy in the solar panel production process. Operating seamlessly within a temperature range of 300°C to 450°C, it provides precise control for soldering in harmony with solar panel assembly requirements. In addition, the tool features a unique junction configuration that ensures even thermal energy distribution, reducing stress on solar cells. A thermocouple probe allows for precise temperature control.



**Customer:** A Government Agency in Haryana (Indian State)

**Project Size:** 70 MW

**Solar Panels used:** 550 Wp & 450 Wp Bifacial

**Installed since:** 2022

**Energy Generated:** 5.6 kWh/kWp

**Location:** 100+ Sites in Haryana

**CO<sub>2</sub> Savings:** 71540 tonnes/71540000 kg annually

### Community Solar Project for Haryana



**Customer:** An EPC company in Uttarakhand

**Project Size:** 10 MW (2 Phases of 5 MW each)

**Solar Panels used:** 550 Wp Bifacial

**Installed since:** 2022 (Phase-1) & 2023 (Phase-2)

**Energy Generated:** 5.5 kWh/kWp

**Location:** Hilly terrains of Uttarkashi in Uttarakhand where installation is difficult

**CO<sub>2</sub> Savings:** 9860 tonnes/9860000 kg annually

### Utility Scale Solar Project in Uttarkashi, Uttarakhand





**Customer:** An EPC Company in Madhya Pradesh

**Project Size:** 10 MW

**Cumulative Capacity**

**Solar Panels used:** 550 Wp

**Bifacial**

**Installed since:** 2022

**Energy Generated:** 5.7  
kWh/kWp

**Location:** Multiple 1 MW Solar Plants at Sagar, Tikamgarh and Panna in Madhya Pradesh under PM-KUSUM Scheme

**CO<sub>2</sub> Savings:** 10220  
tonnes/10220000 kg annually

## Agri-photovoltaic Solar Plants in Madhya Pradesh





**Customer:** A Government Agency in West Bengal (Indian State)

**Project Size:** 11 MW

**Solar Panels used:** 550 Wp  
Bifacial

**Installed since:** 2023

**Energy Generated:** 5.6  
kWh/kWp

**Location:** Mejia Village in Bankura District of West Bengal

**CO<sub>2</sub> Savings:** 11050  
tonnes/11050000 kg annually

### Utility Scale Project in Bankura, West Bengal





**Customer:** An EPC Company in Gujarat

**Project Size:** 2.6 MW

**Solar Panels used:** 545 Wp

Monofacial

**Installed since:** 2024

**Energy Generated:** 5.6

kWh/kWp

**Location:** Bodeli Town in Chhota Udaipur District of Gujarat

**CO2 Savings:** 2800

tonnes/2800000 kg annually

### Solar Project for Chemical Company in Gujarat



**Customer:** An EPC Company in Ghana

**Project Size:** 136 kW Panels supplied beating Chinese competition

**Solar Panels used:** 545 Wp Bifacial

**Installed since:** 2023

**Energy Generated:** 5.5 kWh/kWp

**Location:** Ghana

**CO2 Savings:** 145 tonnes/145000 kg annually

## Supply of Solar Panels in Ghana

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## Gautam Solar Cracks Notable Deal In Ghana

Updated on Mon, Mar 04<sup>th</sup>, 2024

**Highlights :**  
In what it will hope will be the harbinger of many more such deals, Gautam Solar has delivered its latest modules to a client in Ghana.



India's solar module manufacturers have for long targeted the US and other developed markets for exports, considering the intense Chinese competition in other markets. In that context, an announcement by leading manufacturer Gautam Solar, of a successful export of cutting-edge solar modules to Ghana deserves notice. Despite intense competition from Chinese manufacturers dominating the African market, Gautam Solar prevailed, says the firm.

The manufacturer, with 27+ years of experience in solar, delivered its high-efficiency 545 Wp Mono PERC Solar Modules in December 2023. These modules have a number of distinct features. Their bigger M10 cells allow them to generate more power. Their cutting-edge 10BB structure with round ribbon helps deliver minimum electrical losses and improves light capture. Additionally, their half-cut design using NDC ensures the modules remain free of micro-cracks and enables good performance, even in low-light. Glass to Backsheet Bifacial technology enhances the power generation by providing additional power from the rear side. Clearly making a compelling case for the Ghanaian customer.

For Gautam Solar, the achievement underscores its ability to compete globally with customers who demand top class quality and matching prices. With 27+ years of solar industry experience. It has 4 factories in Haridwar, India and its corporate office in New Delhi, India. The company is in process of expanding its solar module capacity to 2 GWp this calendar year and to 5 GWp in FY2025-26.



**Customer:** An EPC Company in Madhya Pradesh

**Solar Panels used:** 550 Wp Bifacial

**Installed since:** 2023

**Energy Generated:** 5.7 kWh/kWp

**Location:** Parking Area and Staff Residence of International Airport in Bhopal, Madhya Pradesh

**CO2 Savings:** 106 tonnes/106000 kg annually

Supply of Solar Panels for Raja Bhoj Airport, Bhopal





**Gautam Solar Pvt. Ltd.**

**GAUTAM**  
SOLAR

**FINANCIALLY SECURE  
COMPANY  
WITH  
STRONG LEADERSHIP**







Listed as Top 10 Indian Solar Panel Manufacturer (in terms of modules shipped)  
by **Reputed Industry Publications**

<b>JMK Research &amp; Analytics</b>	"Annual India Solar Report Card CY2023", March 2024
<b>Bridge to India</b>	"India PV Module Intelligence Brief Q4 2023", February 2024
<b>JMK Research &amp; Analytics</b>	"RE Update Q4 2023", February 2024
<b>JMK Research &amp; Analytics</b>	"RE Update Q2 2023", August 2023
<b>JMK Research &amp; Analytics</b>	"India Solar Annual Report Card CY2022", March 2023

# India's Top 10 Solar Module Manufacturer



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## **Gautam Solar** ranked among Top 10 Solar Module Manufacturers in India

The list placing Gautam Solar in the top ten solar module manufacturers is based on total module shipments in Calendar Year 2022.

MAY 09, 2023 **GAUTAM SOLAR**

Gautam Solar has been ranked amongst the Top Ten Indian Solar Module Manufacturers by an independent reputed renewable energy-focused consulting firm.

The list placing Gautam Solar in the top ten solar module manufacturers is based on total module shipments in Calendar Year 2022. During the period, Gautam Solar accounted for a staggering 1.5 percent of total module shipments. According to a report by JMK Research and Analytics, titled "India Solar Annual Report Card CY2022", published in March 2023, the overall market size for module shipment in Calendar Year 2022 was 15013 MW.

"Gautam Solar has been steadfast in helping India achieve its renewable energy target of 500 GW. To achieve this ambitious target, the role of indigenous solar panel manufacturing is of paramount importance. Gautam Solar has been a vocal advocate for the need to accomplish India's Net Zero emissions target by 2070 set by the government to bring stability to the ecosystem. Gautam Solar has been manufacturing High-efficiency Solar Panels using automated setup and we are planning to expand our manufacturing capacity to meet the nation's growing energy demand. As the company is based on its strong R&D unit, the company has been constantly innovating to produce high efficiency solar panels using novel equipment and processes. We have filed patents for Solar Panels with innovative frame design to help reduce installation costs. Apart from this, we have designed and applied for patent, an original tool for bussing process of solar panels to reduce manufacturing costs and time," noted Gautam Mohanka, Managing Director of Gautam Solar Private Limited.

Presently Gautam Solar has an overall production capacity of 500 MW, and the company is steadily expanding its manufacturing capacity to reach 1 Gigawatts in next 6 months.

Gautam Solar's solar modules are manufactured in 4 state-of-the-art manufacturing facilities with first-hand topline machines – all of them in Haridwar, Uttarakhand. "Gautam Solar's modules have been designed to provide high efficiency in power generation to Utility Scale, Commercial & Industrial (C&I) and Residential Sectors, both in Ground-mounted and Rooftop installations. Gautam Solar is now among one of the few Indian Companies manufacturing high-wattage Mono PERC Solar



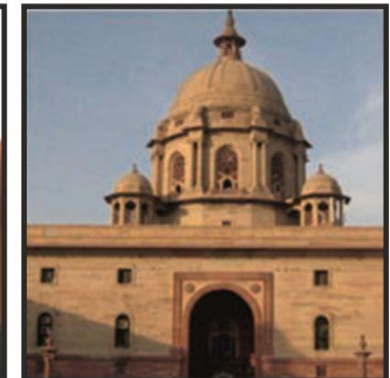
# 27+ Years in Solar Industry

# GAUTAM SOLAR

- Established in 1997 under the **visionary leadership of Mr. B.K. Mohanka**
- More than **27 years solar industry experience.**
- **Consistently profitable** year-over-year.
- Offering **quality solar modules with robust warranty support**, backed by 25+ years industry longevity (typical solar PV power plant lifetime).



Prime Minister of India  
**Shri Narendra Modi** requests  
the pleasure of the company of  
**Mr. Gautam Mohanka**



## Educationally Well-Qualified with Long Term Vision

### Mr. B.K. Mohanka (CMD)

**45+ Yrs. Of Business  
Experience**

- B. Tech from **NIT Patna**, Batch of 1972
- **Ex. Professor** in Engineering College
- **Visionary** to start Solar Business in 1998

### Mr. Gautam Mohanka (CEO)

**20+ Yrs. Of Solar Industry  
Experience**

- Eco (Hons.) from **Shri Ram College of Commerce (SRCC)**, Batch of 2000
- MBA from **MDI Gurgaon**, Batch of 2002
- Holds IPs for several **Technical Innovations** in Solar Industry

### Mr. Sharad Mohanka (COO)

**12+ Yrs. Of Solar Industry  
Experience**

- M.Tech from **North Carolina State University (Raleigh, USA)**, Batch of 2008
- BE from **Mumbai University**
- Responsible for managing **Capacity Expansion** and **Manufacturing Operations**



# Financially Strong

# GAUTAM SOLAR

## 100% Equity with promoters



Gautam Solar is privately held, with 100% equity with its promoters to ensure a long term outlook for the company as it allows the company to adapt to the changing market conditions with quicker and more decisive action and allow a long-term planning and execution of strategic initiatives.

## Profitable in Solar since last 25 years



Gautam Solar has been consistently profitable in the solar industry since the last 25 years, unlike a number of solar energy startups which have come into existence in just the past few years and are yet to reach profitability.

## Bankable Company for Solar Modules



Gautam Solar is a bankable company for businesses looking to procure solar modules, as evidenced by the company's strong balance sheet. Additionally, the company has a provision for a warranty fund and cash to withstand warranty claims.

## In Solar since 1998



Gautam Solar provides a 10-year product warranty and a 25-year performance warranty, backed by over 25 years of industry experience. It matches the typical lifetime of a Solar Plant in contrast to some less experienced companies, sourcing modules from China, which have faced bankruptcy or warranty issues.

# Capacity Expansion – 5 GW by 2025-26



Gautam Solar has **4 factories** with Total Module Manufacturing capacity of **1 GW**.

Capacity expansion in process:

- **Upcoming factory in Bhiwani, Haryana on 50 acres land**
- **2 GW total capacity by end of 2024**
- **5 GW capacity targeted by FY25-26**



## Gautam Solar targets 5 GW capacity at Bhiwani unit

Gautam Solar to launch 50-acre Bhiwani factory with 1 GW capacity and expand later



Gautam Solar, which is doubling its solar module manufacturing capacity to 2 gigawatt (GW), targets 5 GW capacity at its upcoming factory in Bhiwani (Haryana).

The homegrown solar modules manufacturer has four plants in Haridwar (Uttarakhand) with a cumulative capacity of 1 GW. It recently acquired 50 acres in Bhiwani for its upcoming manufacturing unit, which will have 1 GW capacity to begin with.

On the company's expansion plans, Gautam Solar Managing Director Gautam Mohanka told businessline, "This expansion took more time as we had to finalise the land... for doubling our manufacturing capacity and add more capacities in the future."



# Gautam Solar in News

# GAUTAM SOLAR


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## SOLARQUARTER

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### Gautam Solar High-power Modules Enhance Power Generation From 5 MW Plant In Uttarkashi

By Ashwini Chikkodi -14th December 2022



*Gautam Solar high-power modules enhance power generation from 5 MW plant in Uttarkashi*

**The 5 MW solar power plant in Uttarkashi of Uttarakhand is one of the highest power generating power plants in the region**

A 5 MW plant in Uttarkashi in Uttarakhand witnessed a significant boost in the company's electricity generation with the help of solar photovoltaic (PV) modules supplied by one of the fastest-growing solar manufacturers in the country Gautam Solar Private Limited. Gautam Solar supplied the PV modules to Engineering, procurement and construction (EPC) firm Solid Solar Private Limited for the setting up of the solar PV power plant at Uttarkashi.

THE ECONOMIC TIMES | Prime  
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### This homegrown firm is fuelling India's dream to beat China as a mega solar module manufacturer




Image courtesy of Gautam Solar

**Synopsis**

The Centre has been taking several steps to grow domestic manufacturing of solar modules and challenge China's supremacy in the supply chain. Delhi-based Gautam Solar, which has been exporting solar panels to various countries including the US and Europe, is emerging as a key player amid rising competition after the entry of Reliance and Adani.

It's difficult to miss them nowadays. You find those blue and black rectangle-shaped panels mounted on the rooftops of most hospitals and hotels, and at times tucked in individual houses as well as on the roadside. Indeed, solar

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### Gautam Solar releases 550 W bifacial solar module with 21.27% efficiency

Gautam Solar's 10-busbar solar panels feature peak power outputs ranging from 520 W to 550 W, with front-side conversion efficiencies ranging from 20.11% to 21.27%.



India's Gautam Solar has unveiled its new G2X bifacial module line. The new products are available in peak power outputs ranging from 520 W to 550 W, with front side conversion efficiencies between 20.11% and 21.27% under standard temperature conditions.

The open-circuit voltage is 48.83-49.48 V, and the short-circuit current is 13.55 A to 13.92 A. The rear side reportedly offers a 10% to 30% additional gain in power generation.

The modules also feature an IP68-rated split junction box with an individual bypass diode and an anodized aluminum alloy frame. The module can be used with operating temperatures of between -40 C and 85 C. Its operating temperature coefficient is -0.30% per degree Celsius.

*Gautam Solar G2X series 10BB bifacial module  
Image: Gautam Solar*

The modules are included in India's Approved List of Models and Manufacturers (ALMM). The list includes eligible models and manufacturers of solar modules that comply with the Bureau of Indian Standards.

The modules feature 144 monocrystalline half-cells and 10 busbars. They measure 2,280 mm x 1,134 mm x 35 mm and weigh 27.1 kg.

Gautam Solar currently has a module manufacturing capacity of 400 MW, but plans to expand that to 1 GW.

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### Gautam Solar supplies 60 MW solar panels for PM-KUSUM scheme

The solar panels will be delivered under Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) scheme, a company statement said.

19 Feb 2024, 03:07:00 PM IST



Gautam Solar on Thursday said it has delivered 60 megawatt (MW) of solar panels for PM-KUSUM- scheme. It has supplied 10BB mono passivation emitter rear contact cell (PERC) solar panels, which are more efficient in minimizing electrical losses and enable power generation from both sides, the company said in a statement.

The solar panels will be delivered under Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) scheme, it added.

The company did not disclose any further details with respect to the delivery of panels.



## Gautam Solar sells 100 MW modules under domestic content requirement

July 14, 2022 - Updated 11:13 am IST

The Delhi-based solar module manufacturer has four factories in Haridwar



Gautam Solar said on Wednesday that it has sold 100 megawatts (MW) solar modules under the domestic content requirement (DCR) category, which are majorly used by solar EPC and system integrators.

“Gautam Solar has 250 MWp (megawatt peak) solar module manufacturing expanding to 1 gigawatt (GW) production and provides a wide range of indigenously manufactured solar modules all over the country,” it said in a statement.

Gautam Solar Managing Director, Gautam Mohanka said, India needs solutions that are designed as per government policies, and geographical, economic, and social conditions. Gautam Solar provides 100 per cent genuine DCR solar modules without any mix of Chinese solar cells and with a full wattage guarantee, he said.

### Promoting domestic solar manufacturers

The government has earlier mandated the use of DCR solar modules to promote and encourage domestic solar manufacturers. All solar modules manufactured by Gautam Solar are indigenous and are under BIS and the Approved List of Models and Manufacturers (ALMM) — approved by the Ministry of Renewable and New Energy (MNRE), he added.

## Solar Power World

## Gautam Solar panels now available to US market

By Kelly Pickere | November 17, 2022

Indian solar panel manufacturer Gautam Solar is introducing its G2X series of panels to the U.S. market. The mono- and bifacial modules use M10 cells and are rated at 450- to 545-Wp.

“Gautam Solar has established strong trust in the Indian market for being committed toward innovating and manufacturing the best-in-the-market solar modules.

The new high-performance modules will further boost the transition towards replacing fossil fuel as a source of power with cleaner sources of energy. The modules will be ideal for both rooftop and ground-mounted solar power projects, both in India and the USA,” said Gautam Mohanka, director of Gautam Solar Private Limited.

These modules are manufactured at the company’s facility in Haridwar of Uttarakhand, which recently boosted its annual production capacity to 400 MW with the company eyeing to further expand to 1 GW in the near future.




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## SOLARQUARTER

### Gautam Solar Catapults Green India Vision; Supplies 70 MW Of High-efficiency Solar Panels

By Ashwini Chikkodi -13th March 2023



*Gautam Solar brings major push to green India*

In its pursuit to revamp the country's energy landscape, one of the leading players in solar manufacturing, Gautam Solar, has supplied 70 MW of high-efficiency solar panels for government projects in North India. The state-of-the-art panels were supplied for Solar PV Systems over a period of four months in the states of Haryana, Madhya Pradesh, Rajasthan and Uttar Pradesh. The high-efficiency solar panels are indigenous "Made in India" DCR Modules which are ALMM (MNRE, GoI) and BIS Approved.

Some of the distinctive features of Gautam Solar's 545 Wp 10BB Mono Solar Modules include bigger M10 cells for higher power generation, multi-busbar technology for lower electrical losses, round ribbon connectors for better light utilization, bifacial PERC technology for power generation from both sides, non-destructive laser-based cell cutting for higher reliability and lower chances of micro-cracks and half-cut cell technology for better low-light performance.

"The key relevance of solar power in India is driven by the increasing demand for energy and the country's commitment to reducing carbon emissions and reaching Net Zero by 2070. Our solar panels will save between 120 million to 175 million pounds of CO<sub>2</sub>, i.e. 54569 metric tons to 79372 metric tons annually. Solar power is a clean and renewable source of energy that can help meet the country's energy needs while reducing its dependence on fossil fuels. India's aim is of increasing renewable energy capacity to 500 GW by 2030, so that renewable energy comprises of 50% of the energy mix," noted Gautam Mohanka, Managing Director of Gautam Solar Private Limited.

"Gautam Solar has played a key role in the solar industry, and its contribution to the growth of solar power in India has been immense. We have earned a reputation for producing a wide range of high-quality solar modules that is well-suited for all types of solar power plants in India," mentioned **Mr Mohanka**.

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### Gautam Solar supplies high efficiency solar panels to power Bhopal Airport

Updated: 24 Apr 2023, 01:39 PM IST



New Delhi: Gautam Solar on Monday said that it has successfully supplied 10BB mono half-cut solar panels for a solar power plant at Raja Bhoj International Airport (Bhopal Airport) in the state of Madhya Pradesh.

"The supply of these solar panels is a significant step towards promoting the use of clean energy and reducing the carbon footprint of the airport," the company said in a press release.

The project was completed within the designated timeline, showcasing Gautam Solar's commitment to timely delivery of high-quality solar products.

"The panels supplied are capable of producing approximately 1,50,000 units of electricity per year, leading to a reduction of 106 metric tons of carbon dioxide emissions annually," it added.

"We are proud to have supplied our high-quality 545 Wp 10BB Mono Half-Cut solar panels to Bhopal Airport for this project," said Gautam Mohanka, CEO and Managing Director of Gautam Solar.

"We are committed to providing sustainable energy solutions that are efficient and cost-effective, and we look forward to working with more organizations to help them transition to renewable energy," he added.



# Thank You



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