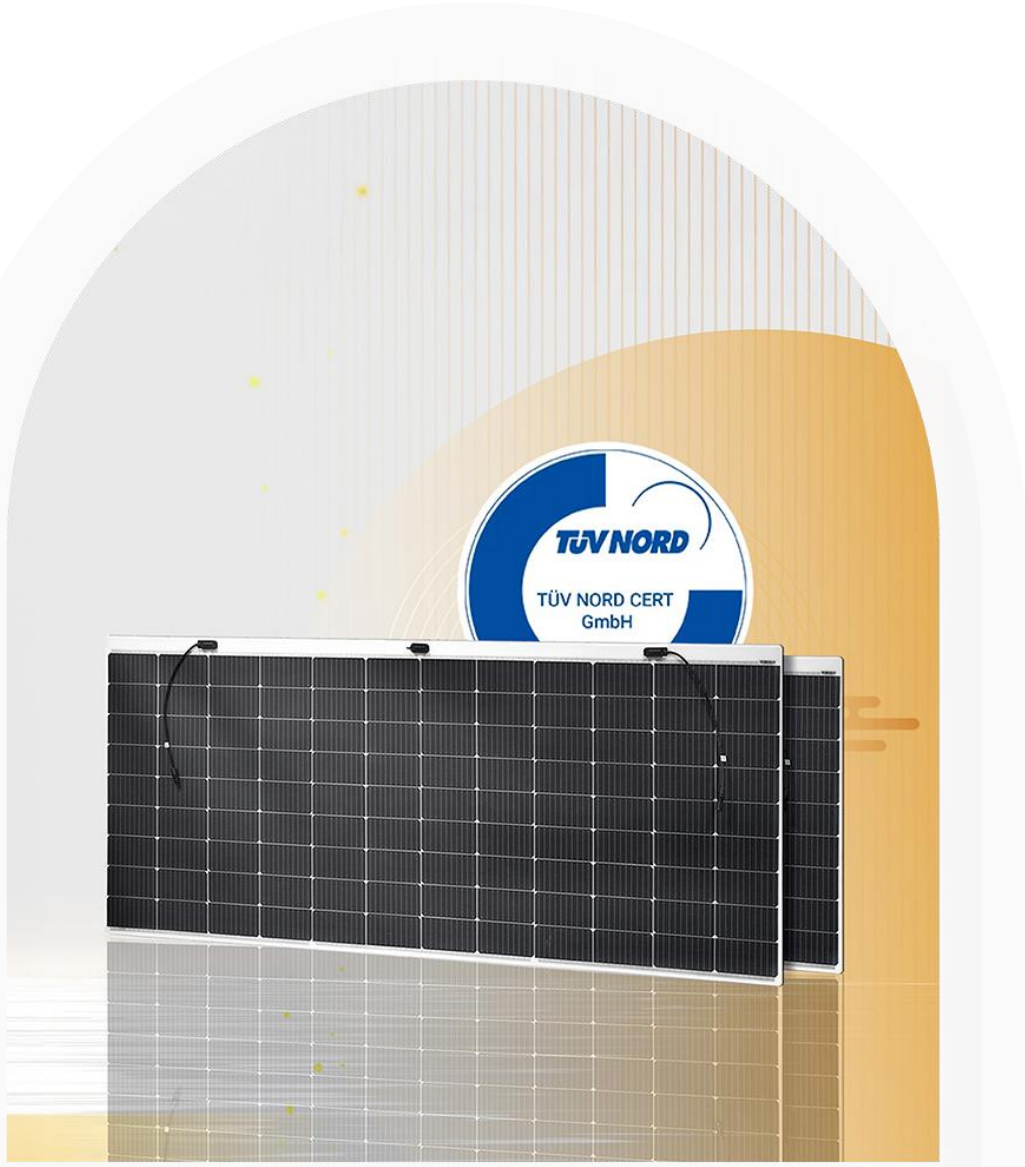
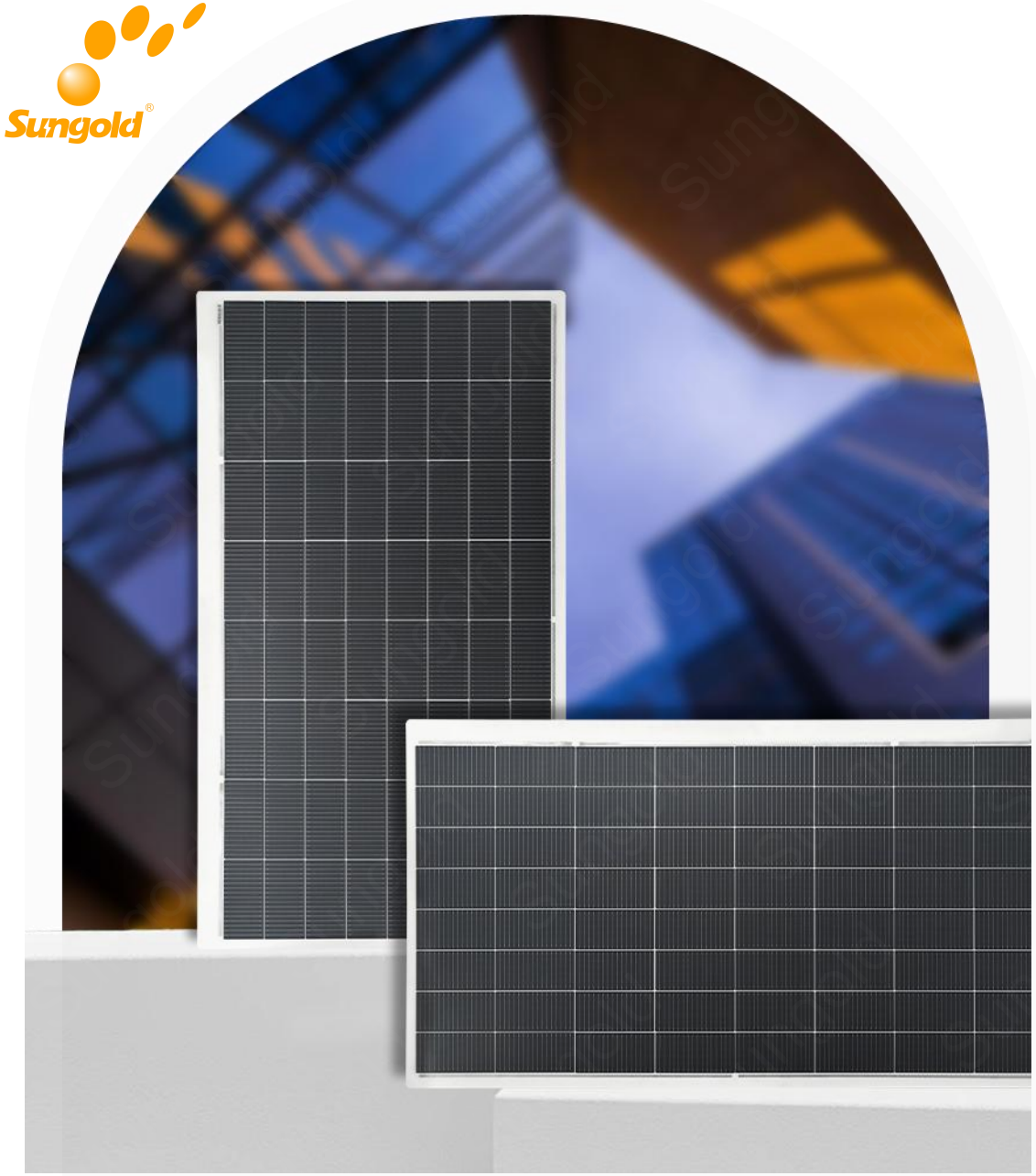
Not Just Roofs, solar everywhere

PA219 Flexible Solar Panel

Sungold New Product Launch





Powering Versatile Energy Solutions

The PA219 Flexible Solar Panel is designed for a wide range of applications, providing a lightweight, durable, and adaptable energy solution for diverse environments.

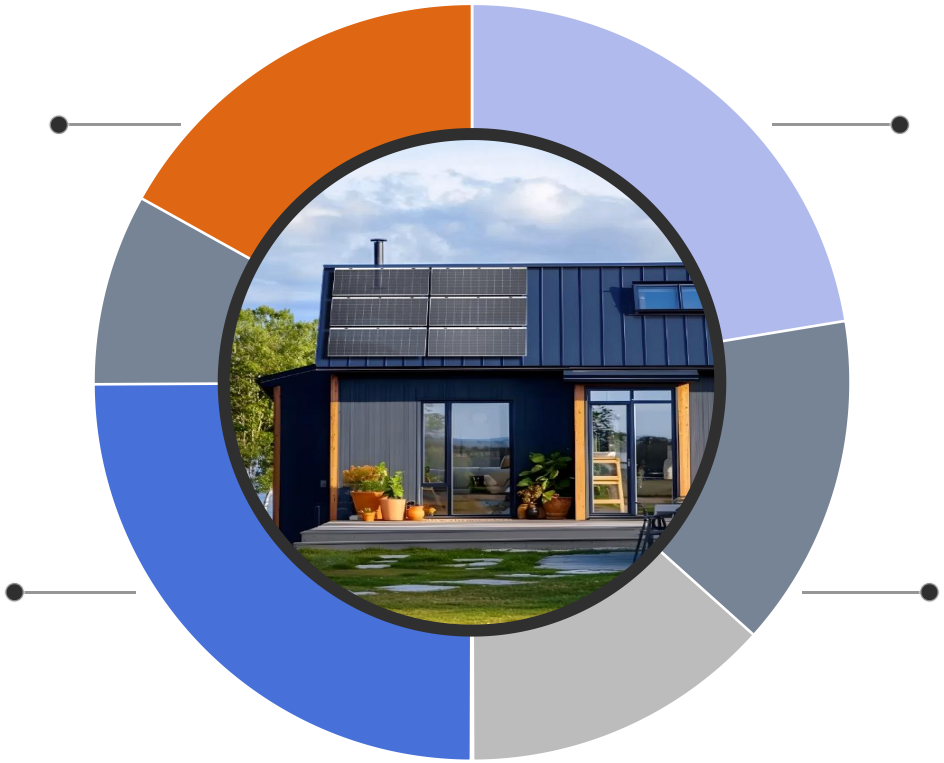
Flexible Solar Panel: Application Challenges?

Insufficient Practical Power Generation Efficiency

Under low-light or high-temperature conditions, the conversion efficiency of flexible materials significantly decreases. This necessitates a larger installation area to match the power output of traditional photovoltaic systems, thereby increasing costs.

Lack of Uniform Application Standards

The absence of standardized testing protocols for bending cycles and weather resistance makes it difficult for users to compare product performance, leading to high procurement decision risks.



Short Outdoor Environmental Lifespan

Prolonged exposure to ultraviolet radiation, heat, humidity, or repetitive bending leads to frequent issues such as encapsulation degradation and electrode fractures, resulting in maintenance costs far exceeding expectations.

High Barrier to Scene Adaptation

Adhesive failure on curved surfaces can lead to detachment, and vehicle/marine applications require additional vibration-resistant designs. These customization demands drive up overall costs.

Multi-Scene Energy, One Panel Delivers

Lightweight, highly adaptable, and durable, fulfilling your diverse needs. PA219 flexible solar panel delivers efficient and reliable solutions tailored to diverse application scenarios.



For Roofs: Eliminate Overload Risks and Achieve Perfect Fit






Concern

- ✗ Too heavy for lightweight roofs
- ✗ Struggle to conform to curved roofs
- ✗ Fire safety performance is difficult to guarantee

Solution

- ✓ **Ultra-Lightweight Design:**
  3.3kg/m² ultra-lightweight design significantly reduces roof load.
- ✓ **Seamless Fit:**
  Flexible materials perfectly conform to curved roofs, enhancing aesthetics and installation efficiency.
- ✓ **Class C Fireproof:**
  Fire propagation Class C & Fire resistant Class C

For Vehicle: Vibration-Resistant, Easy Installation, More Durable



Concern

- ✗ Damage caused by vibration
- ✗ Hard to install

Solution

- ✓ Vibration-Resistant Design:
  PA219 uses high-toughness materials, resistant to vibrations, and has a long service life.
- ✓ Plug-and-Play:
  Simplified installation, quick and convenient, no need for professional tools.

For Marine: Corrosion and Waterproofing Performance



Concern

- ✗ Corrosion affecting the lifespan
- ✗ Water ingress or vapor infiltration

Solution

- ✓ **Salt Spray Corrosion Resistance:**
  PA219 has passed IEC salt spray testing certification, ensuring long-term stable operation in marine environments.
- ✓ **IP68 Protection Rating:**
  The product has an IP68 waterproof rating, completely dustproof and waterproof, and suitable for harsh marine environments.

For Off-Grid： Flexible Power Solutions

Concern

- ✗ Rough appearance, affecting the aesthetics.
- ✗ Lack of application flexibility

Solution

- ✓ Matte Anti-Glare Surface:
  PA219 adopts a matte surface design, reducing light pollution and enhancing aesthetics.

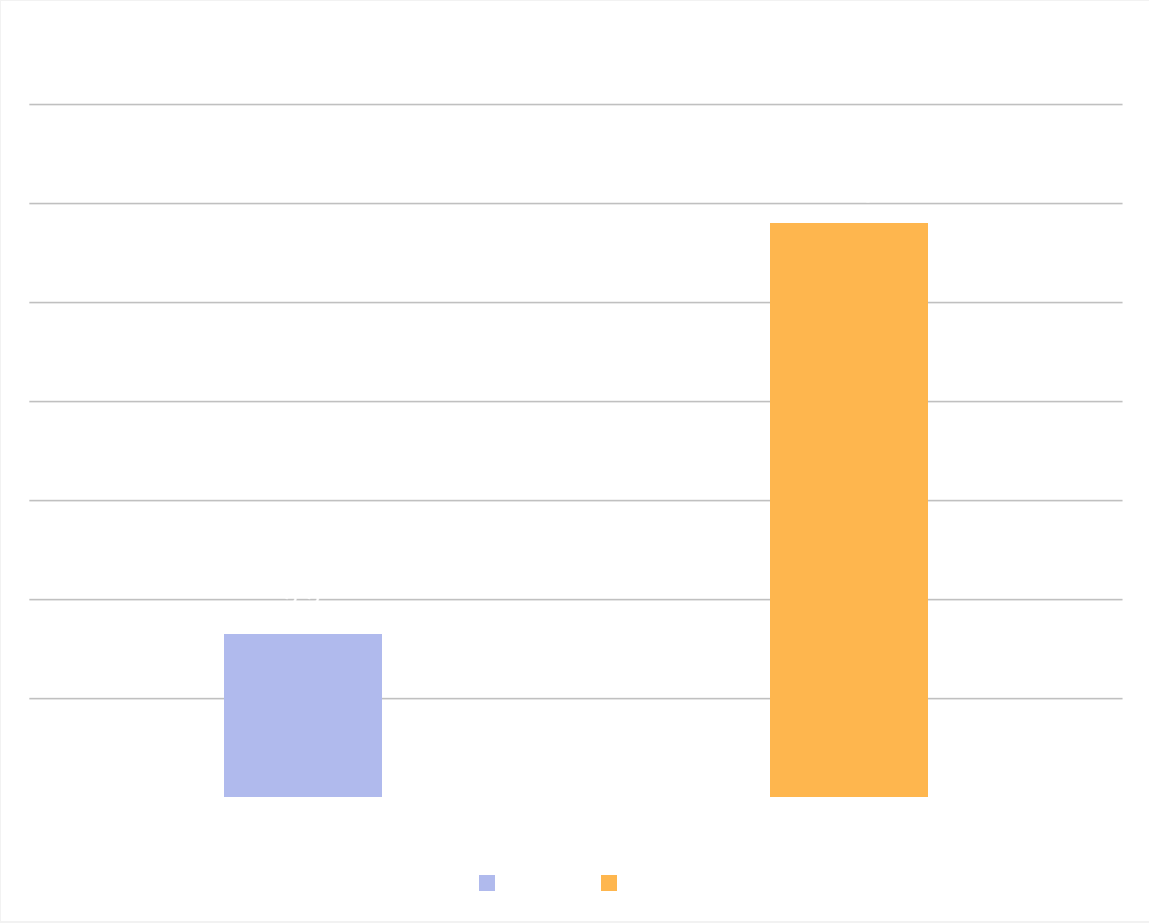
- ✓ Adaptable to Small Energy Storage Systems:
  The product can be flexibly matched with small energy storage devices to meet personalized power supply needs in off-grid scenarios.





So How Does PA219 Address The Pain Points?

PA219 Flexible Solar Panel



Lightweight Design, Broad Application

Weighing only **3.3 kg/m2**, less than **35%** of traditional glass modules, it significantly reduces the building load.

Benefiting from its lightweight properties, the product exhibits remarkable adaptability in a wide array of application domains, with particular suitability for load-bearing constrained architectural structures, including industrial and commercial rooftops and lightweight construction systems.







Rigorously Tested for Extreme Weather Durability

The PA219 module is designed for durability, proving that lightweight doesn't mean fragile.
Rigorous third-party testing guarantees its superior quality and reliability in challenging weather and installation environments, making it a trustworthy solution.



168h

Salt Spray Corrosion Test

2400 Pa

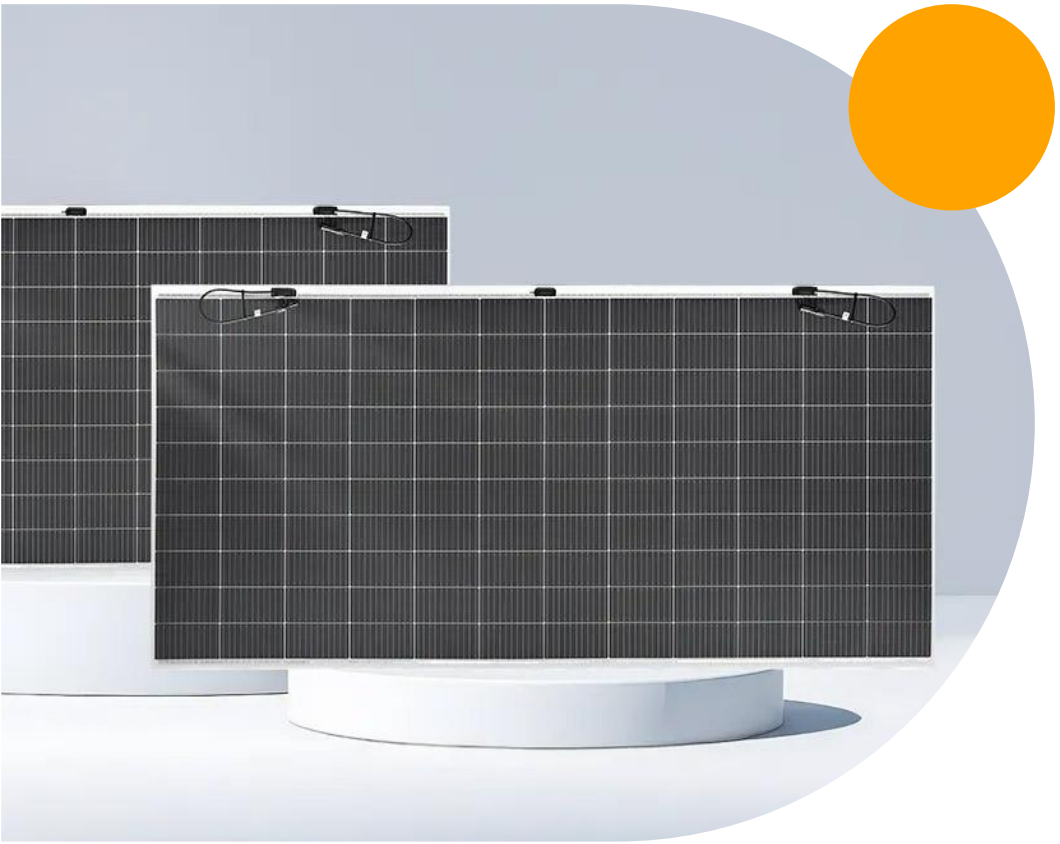
Snow Load Resistance

25 / 35 / 45 (mm)

IEC 61730 Hail Test

20 Days

IEC 62716 Standard Ammonia Test



PID-Free Innovation With Optimal Power Performance

This **PID-free** innovation leverages advanced **polymer composite materials** and a **frameless structure** to prevent potential differences, eliminating the PID effect in solar panels. By avoiding leakage currents and charge buildup caused by high DC voltage, it preserves surface passivation and maintains optimal power performance.

PID can degrade key metrics like fill factor, open-circuit voltage, and short-circuit current, potentially causing over **50%** power loss and affecting entire solar strings. This solution ensures sustained reliability and efficiency for long-term use.



Hotspot Prevention: Extending Solar Panel Lifespan

Typically flexible solar panels often experience partial shading due to obstructions like leaves or building shadows, leading to the hotspot effect. **Hotspots** not only reduce the power generation efficiency of the modules and shorten their lifespan but, in severe cases, can even cause the modules to burn.

The Sungold PA219 series, equipped with **cell-level shadow management technology**, effectively mitigates the partial shading effect, significantly reduces the likelihood of hotspots, and ensures the safety and reliability of the system's operation.

On request, this technology can be used for PA219 modules.

Reducing Reflection from Photovoltaic Modules

When installing photovoltaic modules in sensitive areas such as rooftops or near airports, it is crucial to minimize light pollution caused by solar reflection and reduce glare's impact on aviation safety. Additionally, the installation of rooftop photovoltaic modules in residential areas should consider the potential interference of specular reflection on the surrounding environment.

Currently, most flexible photovoltaic modules utilize ETFE surfaces, which are prone to significant specular reflection under high solar irradiance.But the PA 219 module addresses this with an **innovative coating** and **matte surface design** . This anti- glare solution ensures safer operation and reduces visual disturbances in sensitive areas.









Class C Fire Resistance for Superior Safety





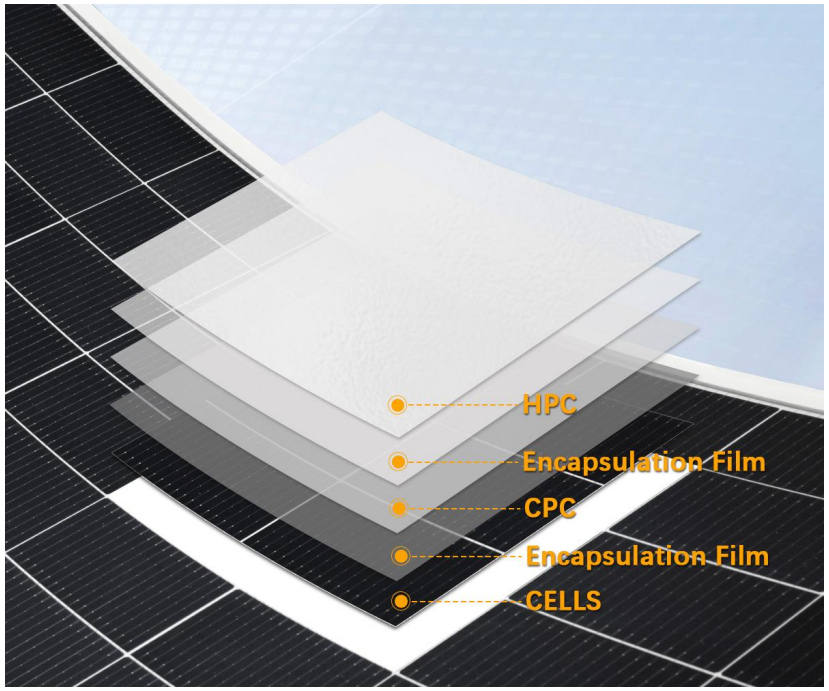
Long-term high-load operation of photovoltaic (PV) systems may lead to degradation, malfunctions, and fire risks due to DC arc faults and short circuits.

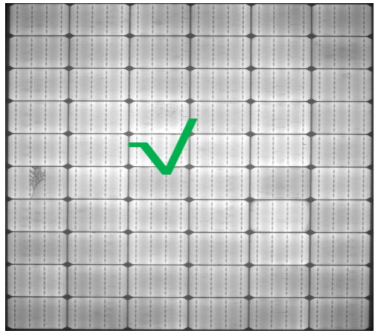
The Sungold PA219 module has passed **Class C flame spread and flammability tests**. It uses flame-retardant polymer composites, special additives, and a flame-retardant backsheet to enhance system safety.

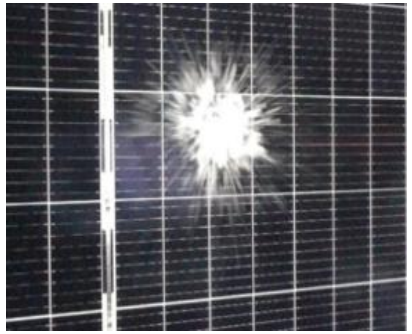
Hidden Crack Resistance Technology For Enhanced Durability And Protection

Adopts composite materials with high flexural modulus, high flexural strength and strong impact resistance, symmetrical structural design for more uniform force during bending to reduce hidden cracks, passed **IEC61730** hail test.

The front of the product is made of transparent **HPC**, while the back is a **flame-retardant composite backsheet**. Combined with the **CPC** in the middle layer, it provides the overall strength and toughness of the component and offers more effective protection for the battery cells.







Pioneering Leadership with TÜV Certificatiaon

PA 219 stands as an industry benchmark, being one of the **first** flexible solar panels to earn **TÜV** certification alongside **UL, CE, RoHS**, and **REACH** , ensuring unparalleled quality, safety, and sustainability across global markets.





Why PA219 Leads with TÜV Certification?

PA219 is one of the first flexible solar panels to earn TÜV certification, setting the industry benchmark for quality, safety, and performance. Achieved in 23/1/2025，TÜV certification ensures PA219 meets rigorous international standards for durability, electrical safety, and environmental resistance.

Why Is TÜV Certification So Important?

01.

Authoritative Endorsement, Building Trust

TÜV certification is an endorsement from a leading certification authority, guaranteeing the highest standards of safety, durability, and performance, ensuring your solar investment is reliable and trustworthy.

With PA219's pioneering TÜV certification, you choose an industry leading solution validated by authority, giving you confidence.

02.

Reducing Costs, Maximizing Returns

For business users, TÜV certification builds trust with stakeholders, **lowering maintenance** and **installation costs**.

It ensures compliance with global regulations, maximizing long-term value and return on investment for diverse commercial applications.

03.

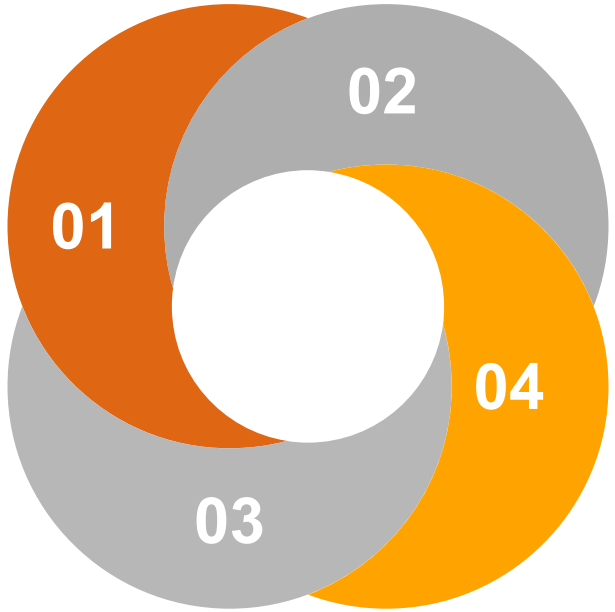
Protecting Your Roof, Ensuring Peace of Mind

For building owners, TÜV certification reduces risks of damage or system failure on fragile or unique roofs, such as low-load or curved designs.

It ensures PA219 remains stable under various roof conditions, **safeguarding your investment and structural integrity**.

How PA219’ s Certifications Prove Unmatched Reliability?

PA219 has passed **IEC 61215** and **IEC 61730**, as well as **UL 61730-1** and **UL 61730-2** tests, proving its long-term reliability and service life for diverse applications.



With **IEC 61730**:2023 certification, PA219 meets enhanced safety standards, including tests for sharp edges, voltage, current, insulation, and stricter reliability requirements.

These rigorous tests ensure PA219 delivers safe, durable performance on any roof, from low-load to high-altitude scenarios.

Achieving Class C application certification, PA219 demonstrates superior mechanical performance, fire resistance, and reliability, reinforcing its position as a **TUV-certified** industry leader.

Specification

Model	PA219-100W	PA219-150W	PA219-220W	PA219-250W	PA219-310W	PA219-375W	PA219-420W	PA219-460W
Cell Type	Mono 182	Mono 182	Mono 182	Mono 182	Mono 182	Mono 182	Mono 182	Mono 182
Cell Efficiency	>22.70%	>22.70%	>22.70%	>22.70%	>22.70%	>22.70%	>22.70%	>22.70%
Dimensions (mm)	1030×595×3	1103×780×3	1030×780×3	1159×780×3	2250×935×3	2250×1135×3	2250×1135×3	2250×1125×3
Power Voltage	100W/17.8V	150W/26.1V	220W/18.8V	250W/21V	310W/26.2V	375W/32V	420W/35.7V	460W/39.2V
Open Circuit Voltage (V)	20.7	30.4	20.0	25.0	30.5	37.4	41.6	45.7
Operating Voltage (V)	17.8	26.1	18.8	21.4	26.3	32.1	35.7	39.2
Short-Circuit Current (A)	5.9	6.11	12.49	12.48	12.61	12.5	12.58	12.58
Max System Voltage	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V
Weight (kg)	3.5	4.8	6.2	7.1	8.5	9.2	9.5	9.8
Warranty	10 years	10 years	10 years	10 years	10 years	10 years	10 years	10 years

Customize PA219 for Your Project

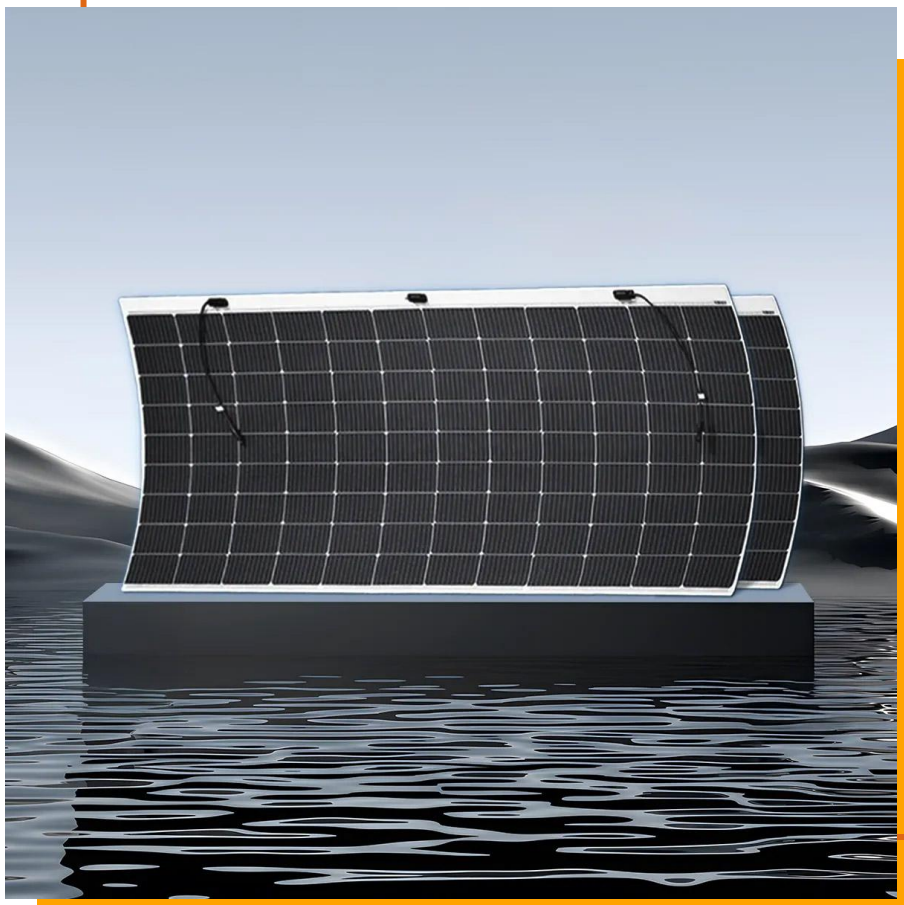
We offer flexible customization options to meet a wide range of application needs

Color customization:
Supports all-black panel customization

Size customization:
Up to 2250×1150mm

Specification customization:
60-480W

Furthermore, Sungold offers a series of in-depth customization solutions, including voltage and logo design.



Solar Customizer for SMEs

Energy Tailored, Future Empowered



Sungold is committed to becoming a specialized expert in energy brand customization for small and medium enterprises, focusing on delivering tailored solar energy branding solutions.

Leveraging the advantages of flexible and efficient small-batch customization services, we empower businesses to create distinctive, independent brand identities.

Energy Tailored, Future Empowered

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