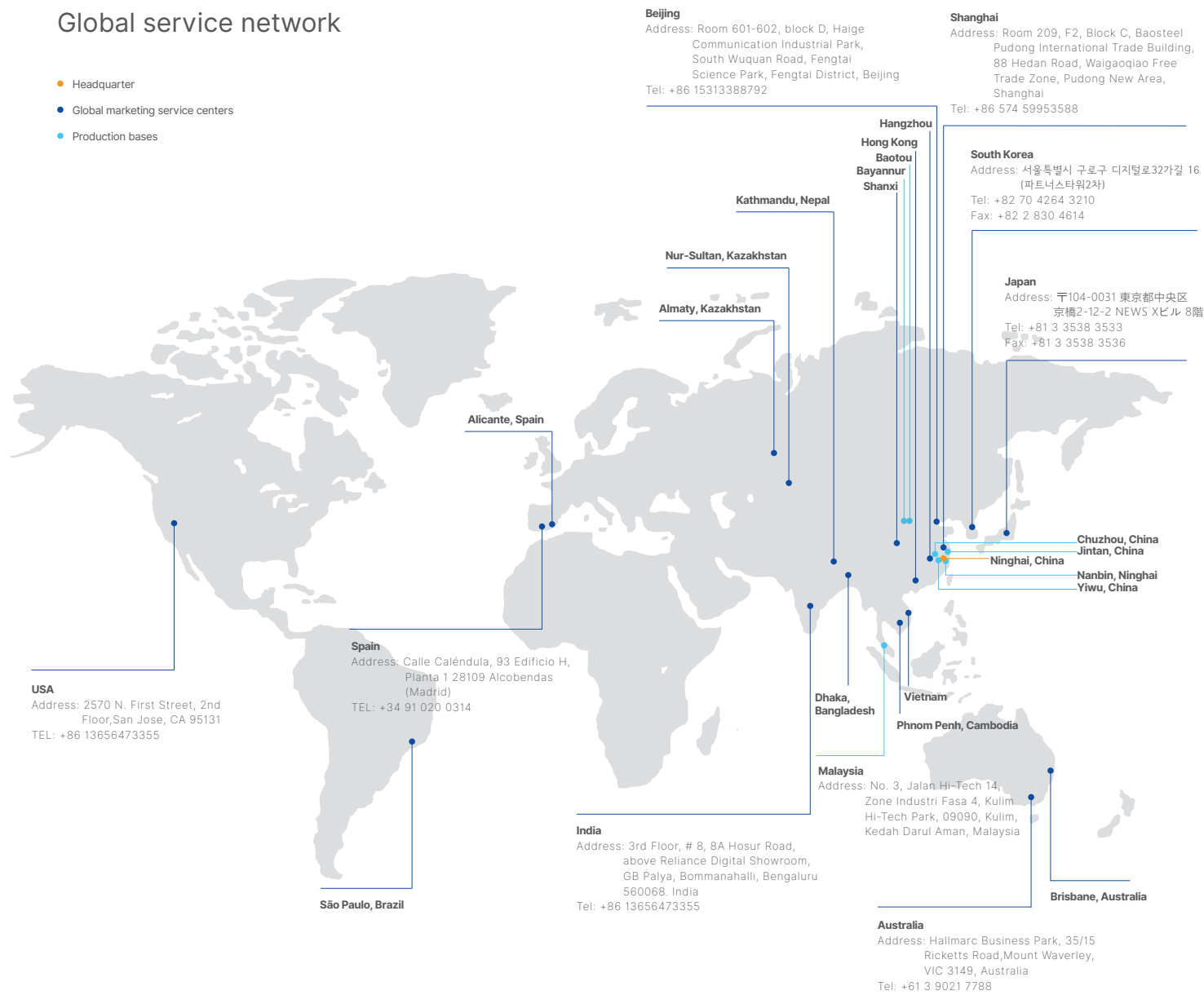


Global service network

- Headquarter
- Global marketing service centers
- Production bases



PRODUCT BROCHURE

Risen Energy Co., Ltd.

Address: Tashan Industry Zone, Meilin Street, Ninghai, Ningbo, China

Tel: 400 8291 000

Fax: +86 574 59953599

Email: marketing@risenenergy.com

Website: www.risenenergy.com



ABOUT RISEN ENERGY

As a global leading new energy enterprise, Risen Energy leads the global energy revolution with solar cells, solar modules, photovoltaic (PV) power stations, energy storage systems, and more. Providing the world with green solutions and integrated services in new energy, the company continuously helps customers achieve “low-carbon” or “zero-carbon” goals through its products, contributing to the transition into the carbon-neutral era for society as a whole.

As a national high-tech enterprise, Risen Energy possesses multiple core technologies in its main business and has established a national photovoltaic (PV) laboratory accredited by the international CNAS, capable of conducting testing for 54 projects based on international standards such as IEC 61215 and UL 1703. The establishment of the Photovoltaic Research Institute in November 2023 marks an important step in the company's strategic development. It is primarily responsible for integrated technology research, product development and iteration, and technical management, and is committed to providing the lowest carbon PV solutions and building a global efficient PV R&D and innovation center, to strengthen the company's technical support and consolidate its competitive position through products and technology. The company will leverage this institute as a platform for global exchange and cooperation, to make the PV technology universally known and applied across the globe, thereby laying a solid foundation for meeting the vision - “Risen with the World for Ages”.

Vision

Creating a new life for mankind through green new energy.

Service

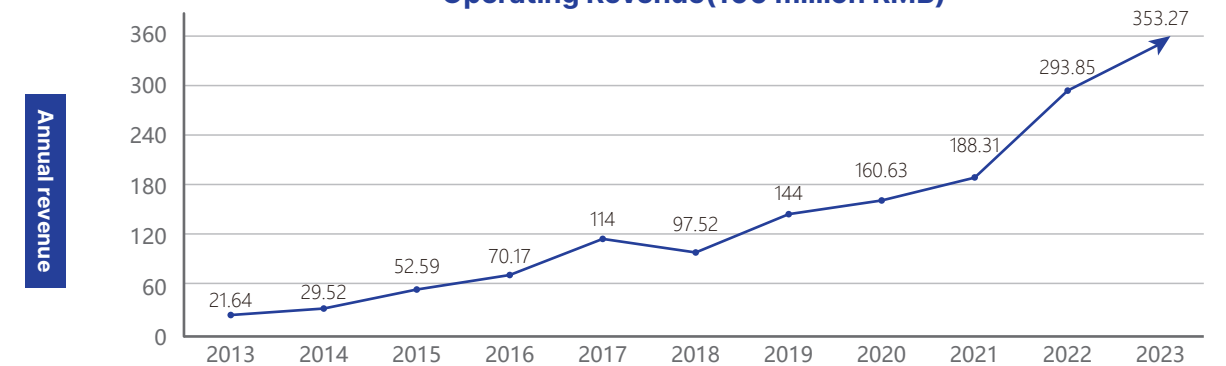
Customer-centered, providing value through service.

Mission

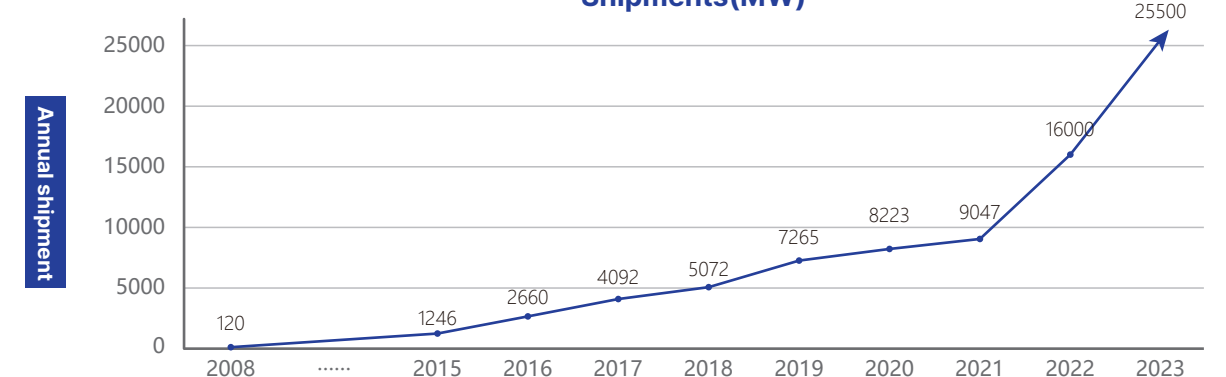
Continuously improving the energy pattern with technological innovation and the quality of human life.



Operating Revenue(100 million RMB)



Shipments(MW)





Company Capability



Tier 1

PV module manufacturer

Grade A

Financing eligibility ranking

15000+

Employees worldwide

48GW+

Modules capacity in 2024

95.6GW+

Cumulative shipment volume (by Q3 2024)

6.75+

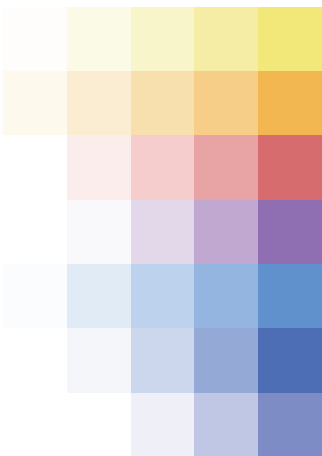
R&D investment in 2023 (100 million RMB)

15000+

Customers worldwide

2059

R&D personnel in 2023



Product Certification

Comprehensive product and system certifications

IEC61215:2016; IEC61730-1/-2:2016

ISO 9001: 2015 quality management system

ISO 14001: 2015 environmental management system

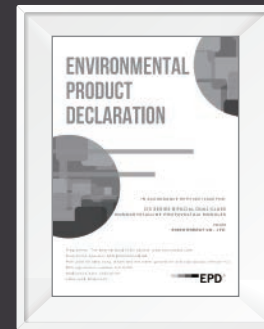
ISO 45001: 2018 occupational health and safety management system

ISO 14064 greenhouse gas emission verification



Product Warranty

Product series	Product warranty	Power warranty	First-year degradation	Annual degradation
Hyper-ion™	15 years	30 years	1%	0.3%
TOPCon	conventional products: 15 years all-black products: 25 years	30 years	1%	0.4%
THAN	conventional products: 12 years all-black products: 25 years	mono-facial: 25 years bifacial: 30 years	2%	mono-facial: 0.55% bifacial: 0.45%



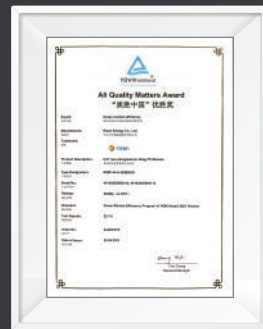
Italy EPD



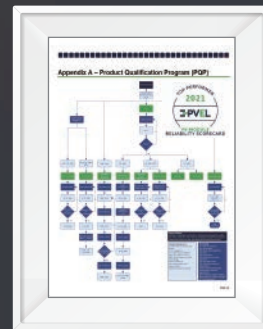
Certisolis Carbon Footprint



3X IEC



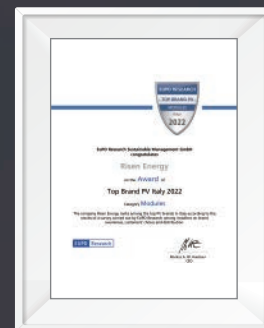
Solar Congress



PQP



EUPD





Contents

Hyper-ion
Series

09

TOPCon
Series

11

Titan
Series

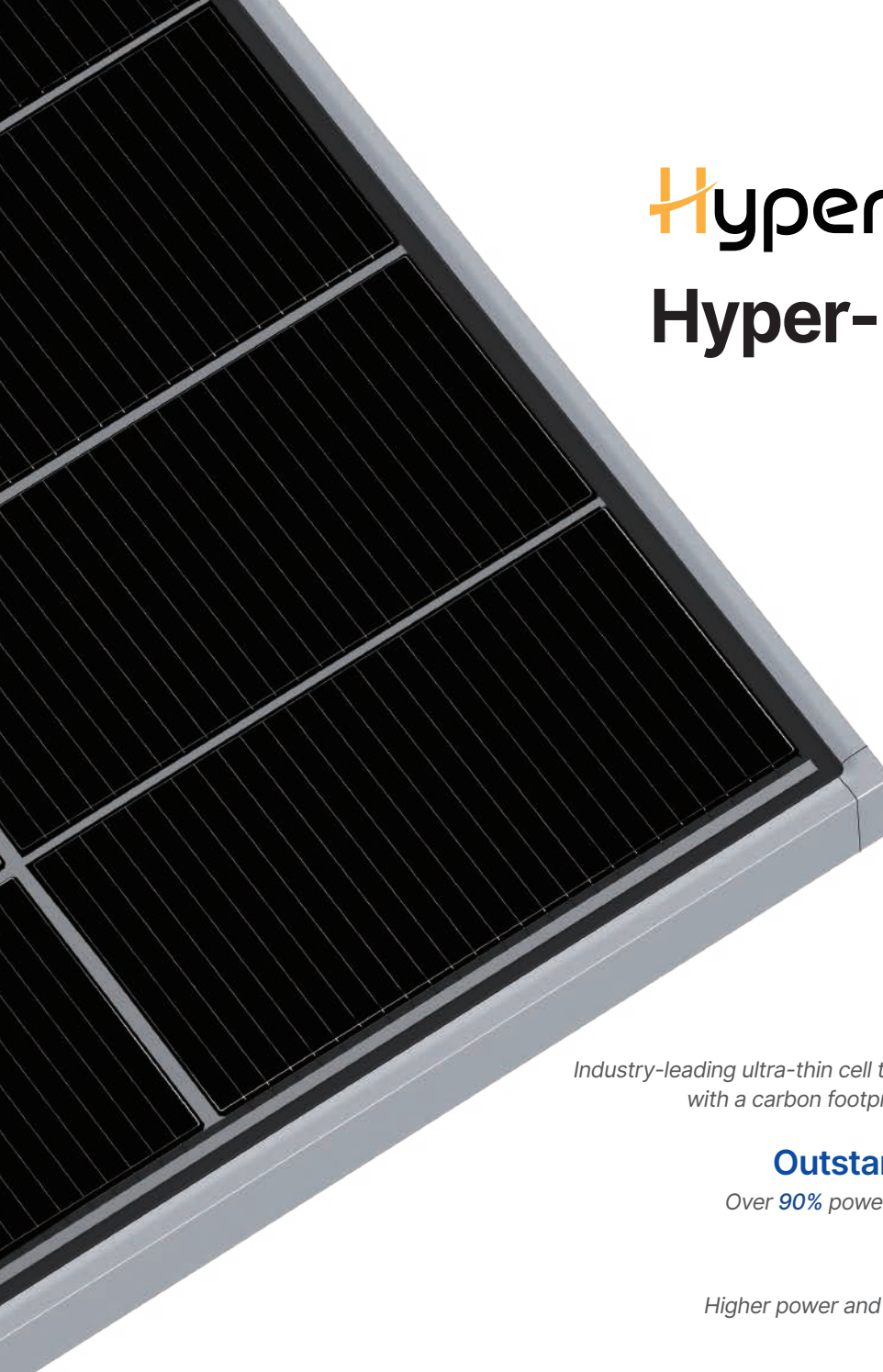
15

Project
Cases

18

Hyper-ion Pro

Hyper-ion Series >>



Ultra-low carbon footprint

Industry-leading ultra-thin cell technology and low-temperature process, with a carbon footprint value lower than 376.5kg eq CO₂/kWc

Outstanding power retention rate

Over 90% power retention rate for products over 30 years

Lower BOS and LCOE

Higher power and efficiency leading to lower BOS and LCOE

High strength alloy steel frame

- Greater tear resistance
- Better corrosion resistance
- Lower carbon emissions, and lower energy consumption

Advanced product technologies

- First to mass-produce the OBB solar cell
- First to mass-produce the ultra-thin solar cell
- First to adopt low-silver metallization materials in mass production
- First to adopt Hyper-link technology in mass production

Hyper-ion 740Wp+

RSM132-8-720-740BHDG



132 cells
n-Type HJT Module

720-740Wp
Module Power

23.8%
Module Efficiency

85%±10%
Bifacial Factor

2384×1303×33/35mm
Module Dimensions

37.5kg (Aluminum Frame)
40.0kg (Steel Frame)
Module Weight

Solar cells	n-type HJT
Cell configuration	132 cells(6x11+6x11)
Temperature Coefficient of Voc	-0.22%/°C
Temperature Coefficient of Pmax	-0.24%/°C
Maximum System Voltage	1500VDC

Efficient HJT cells combined with efficient encapsulation technology
Maximum module power of 740Wp+
Maximum module efficiency of 23.8%

Highly stable temperature coefficient and exceptionally high bifaciality (85%±10%) for maximum power generation yield



Global top Tier1 PV module manufacturer



n-type cells with no B-O LID, first-year power degradation not exceeding 1%



Excellent PID resistance



Outstanding low-temperature coefficient



Bifacial power generation technology provides additional power gain on the backside (up to 30%)



Higher power generation

TOPCon Series >>



High strength alloy steel frame

- Greater tear resistance
- Better corrosion resistance
- Lower carbon emissions, and lower energy consumption

Advanced product technologies

- High-density encapsulation technology
- Non-destructive cutting technology
- Better internal resistance design
- SMBB technology

TOPCon 630Wp+

RSM132-11-605-630BNDG



132 cells
n-type TOPCon Module

605-630Wp
Module Power

23.3%
Module Efficiency

2382×1134×30mm
Module Dimensions

32.5kg (Aluminium Frame)
Module Weight

Solar cells	n-type TOPCon
Cell configuration	132 cells(6x11+6x11)
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.29%/°C
Maximum System Voltage	1500VDC

Higher power and efficiency leading to lower BOS and LCOE

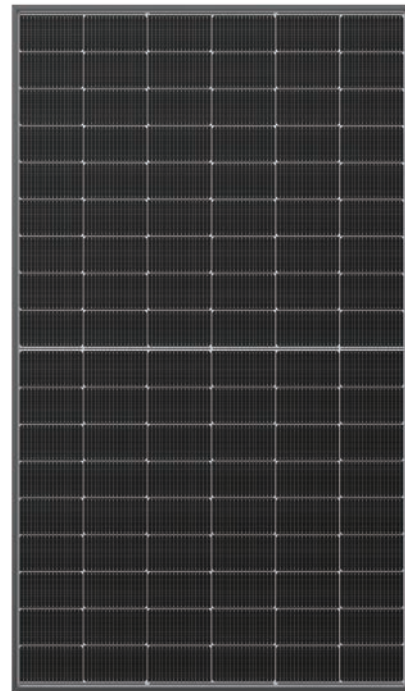
Increased packing density and lower logistics costs

Perfect match for tracker system

- Global top Tier1 PV module manufacturer
- n-type cells with no B-O LID, first-year power degradation not exceeding 1%
- Excellent temperature coefficient
- Bifacial power generation technology provides additional power gain on the backside (up to 30%)
- Excellent weak-light performance
- Excellent PID resistance

TOPCon 515Wp+

RSM108-11-490-515NDG



108 cells

n-type TOPCon Module

490-515Wp

Module Power

23.2%

Module Efficiency

1961×1134×30mm

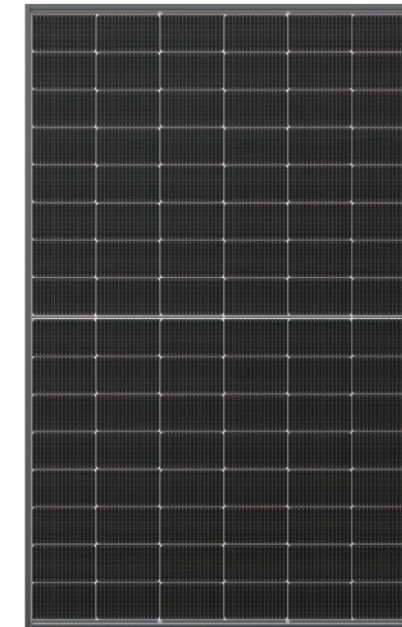
Module Dimensions

27.0kg (Aluminium Frame)

Module Weight

TOPCon 460Wp+

RSM96-11-440-460NDG



96 cells

n-type TOPCon Module

440-460Wp

Module Power

23.0%

Module Efficiency

1762×1134×30mm

Module Dimensions

21.5kg (Aluminium Frame)

Module Weight

Solar cells	<i>n</i> -type TOPCon
Cell configuration	108 cells(6x9+6x9)
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.29%/°C
Maximum System Voltage	1500VDC

n-type technology leads to a lower power degradation rate

Better temperature coefficient, higher bifaciality, and lower LID/LeTID for increased power generation yield

Perfect for residential scenario application, with options of all-black and black frames



Global top Tier1 PV module manufacturer



n-type cells with no B-O LID, first-year power degradation not exceeding 1%



Excellent temperature coefficient



Bifacial power generation technology provides additional power gain on the backside (up to 30%)



Excellent weak-light performance



Excellent PID resistance

Solar cells	<i>n</i> -type TOPCon
Cell configuration	96 cells(6x8+6x8)
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.29%/°C
Maximum System Voltage	1500VDC

n-type technology leads to a lower power degradation rate

Better temperature coefficient, higher bifaciality, and lower LID/LeTID for increased power generation yield

Perfect for residential scenario application, with options of all-black and black frames



Global top Tier1 PV module manufacturer



n-type cells with no B-O LID, first-year power degradation not exceeding 1%



Excellent temperature coefficient



Higher power generation



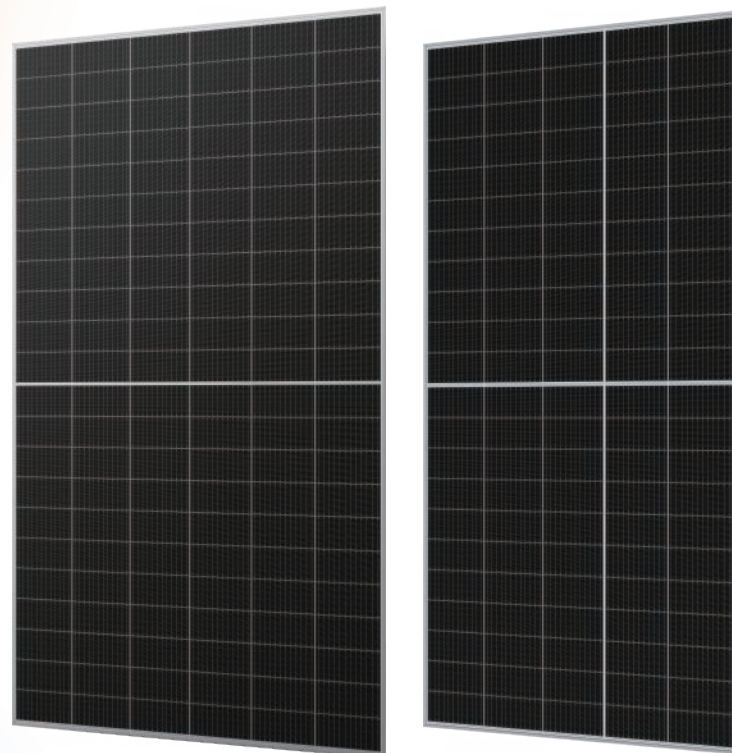
Excellent weak-light performance



Excellent PID resistance



Titan Series >>



High strength alloy steel frame

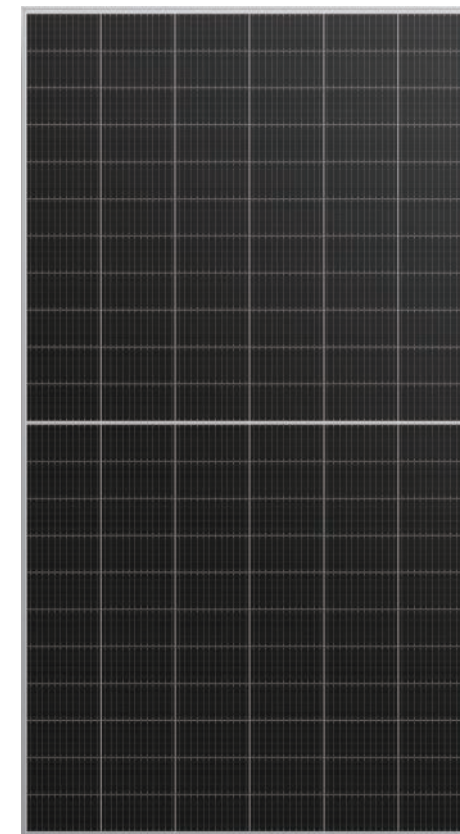
- Greater tear resistance
- Better corrosion resistance
- Lower carbon emissions, and lower energy consumption

Advanced product technologies

- High-density encapsulation technology
- Non-destructive cutting technology
- Better internal resistance design
- SMBB technology

Titan 670Wp+

RSM132-8-650-670BMDG



132 cells

Monocrystalline PERC Modules

650-670Wp

Module Power

21.6%

Module Efficiency

2384×1303×35mm

Module Dimensions

33.5kg (Aluminium Frame)

35.0kg (Steel Frame)

Module Weight

2384×1303×33/35mm

Module Dimensions

38.3kg (Aluminium Frame)

40.0kg (Steel Frame)

Module Weight

Mono-facial

Bifacial

Solar cells	Monocrystalline PERC
Cell configuration	132 cells(6x11+6x11)
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.34%/°C
Maximum System Voltage	1500VDC

Low voltage, high string power to reduce system costs

Half-cut solar cell encapsulation technology, optimized circuit design, and ability to increase module power generation by 10%

NDS and MBB technologies to enhance long-term reliability of modules



Global top Tier1 PV module manufacturer



12- year warranty for product materials and process technology



Excellent weak-light performance



Bifacial power generation technology provides additional power gain on the backside (up to 30%)



Module current sorting to reduce mismatch losses



Certified for 2400Pa wind load and 5400Pa snow load with specified installation methods

Titan 560Wp+

RSM110-8-540-560BMDG



110 cells

Monocrystalline PERC Modules

540-560Wp

Module Power

21.4 %

Module Efficiency

2384×1096×30/35mm

Module Dimensions

28.5kg (Aluminium Frame)

30.5kg (Steel Frame)

Module Weight

Mono-facial

2384×1096×30mm

Module Dimensions

33.5kg (Aluminium Frame)

33.5kg (Steel Frame)

Module Weight

Bifacial

Solar cells	Monocrystalline PERC
Cell configuration	110 cells(5x11+5x11)
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.34%/°C
Maximum System Voltage	1500VDC

Low voltage, high string power to reduce system costs

Half-cut solar cell encapsulation technology, optimized circuit design, and ability to increase module power generation by 10%

Lower BOS and LCOE



Excellent weak-light performance



Excellent PID resistance



0~+3% positive tolerance



Two EL inspection tests securing defect-free products



Module current sorting to reduce mismatch losses

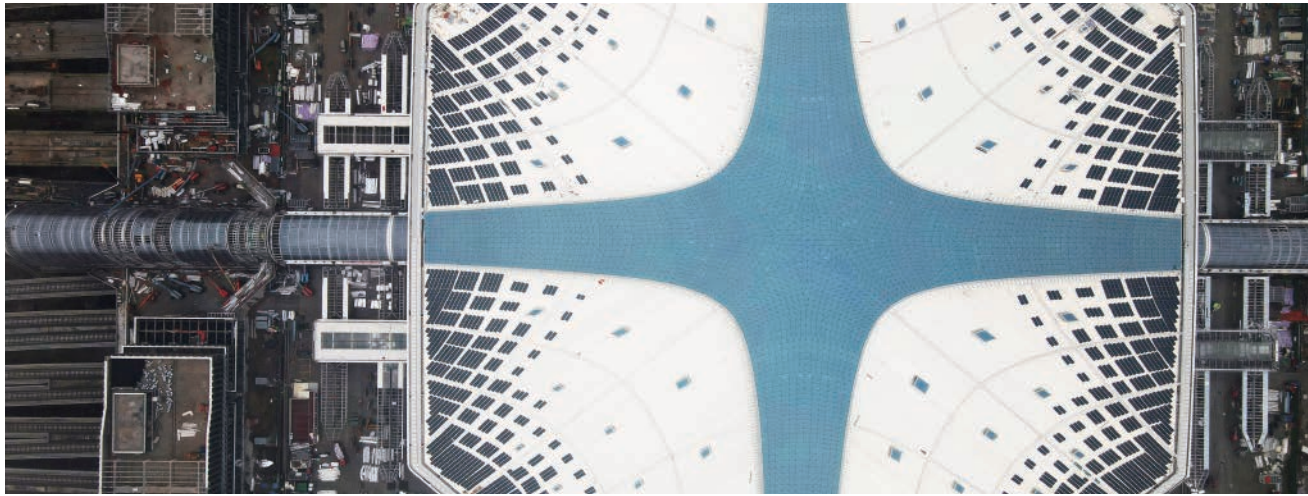


Certified for 2400Pa wind load and 5400Pa snow load with specified installation methods

PV Projects



Continuously improve the energy layout and enhance the human life quality with scientific and technological innovations



Hangzhou, China
Completed: 2022

3MW



Korea
Completed: 2024

5.3MW



Hainan, China
Completed: 2023

5MW



Germany
Completed: 2024

15MW



Mexico
Completed: 2023

7MW



Qinghai, China
Completed: 2024

22MW



Australia
Completed: 2020

100MW



Rio de Janeiro, Brazil
Completed: 2023

6.8MW



Inner Mongolia, China
Completed: 2021

150MW



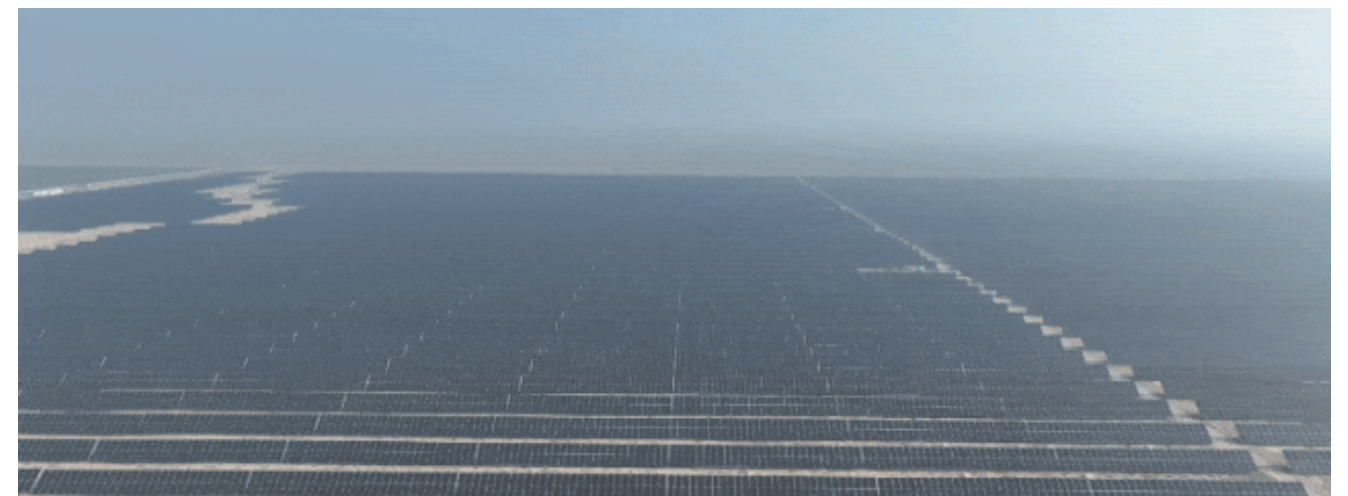
Shanxi, China
Completed: 2023

115MW



Guizhou, China
Completed: 2023

269MW



Xinjiang, China
Completed: 2023

600MW