

HUGE ENERGY

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XIAMEN HUGE ENERGY STOCK CO.,LTD





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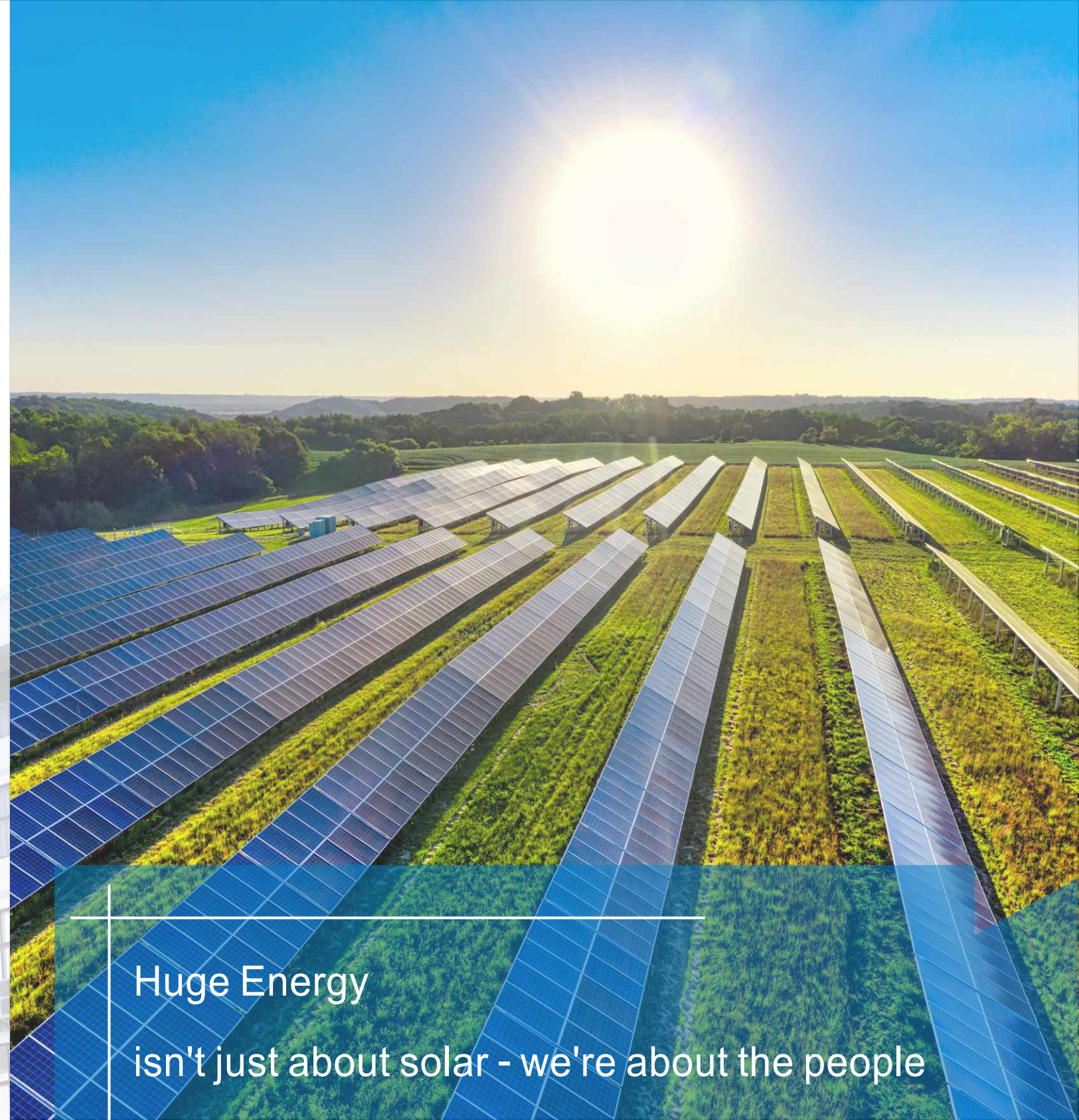
## XIAMEN HUGE ENERGY STOCK CO.,LTD

Xiamen Huge Energy is a manufacturer of solar mounting systems and a provider of solar energy solutions with 8 production facilities in China.

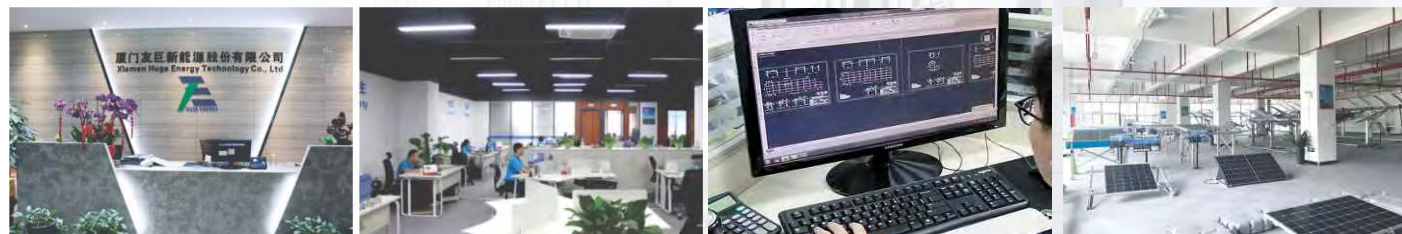
In the pursuit of excellence and technology innovation, and with over 100 R&D engineers' expertise, Huge Energy has obtained 48+ patents and our products have attained UL, TUV, JIS, AS/NZS, IEC certifications, Wind Tunnel Test, etc. Meanwhile, we have passed ISO9001, ISO45001, ISO14001 and other quality management system certifications. Huge Energy has set up branches worldwide, and has installed tens of thousands of photovoltaic projects all over the world with 12.6GW accumulative installed capacity worth more than US\$700 million by 2022.

We are not just about solar energy; we are about people. Whatever we do, we innovate to power a sustainable world that benefits the economy, society, and environment.

- 2013 - Certified by Japan JISC8955-2010, Australia AS/NZS1170.2, Germany SGS Anodization technology passed the US military standard MIL-A-8625F
- 2015 - German TUV ISO 9001-2015 Quality Management System Certificate One of the four Chinese enterprises listed on Solar Energy Products and Services by Resources and Energy Department of Japan Economic and Industrial Province Formulated CEEIA231-2016 China Intelligent PV Pre-installed Substation Support Standard
- 2016 - Built a megawatt tracking system in Japan, becoming one of Chinese enterprises that has introduced intelligent photovoltaic systems into Japan
- 2017 - Excellent Integrity Enterprise of Distributed Photovoltaic Power Station Design appraised by China Solar Energy Industry Research Association
- 2018 - Rated as the Most Promising New Energy, Energy Saving and Environmental Protection Innovation Enterprise Rated as Xiamen Municipal High-tech Enterprise
- 2019 - Xiamen Small Giant Enterprise of Science and Technology Taiwan Branch obtained patent for waterproof structure and 20 other patents in Taiwan ISO14001 Environment Management System Certificate ISO45001 Occupation Health and Safety Management System Certificate
- 2020 - National High Tech Enterprise Leading Enterprise of Science and Technology of Fujian Province Leading Enterprise of Science and Technology of Xiamen City
- 2021 - Photovoltaic Power Generation Engineering Design and Construction Qualification Certificate Leading Enterprise of AAA Enterprise Credit Evaluation
- 2022 - Xiamen Specialized, Specialized and New Small and Medium-sized Enterprise in 2022-2024 Industry Innovative Enterprise 2022



Huge Energy isn't just about solar - we're about the people



**15YRS+**

Corporate History

**12.6GW+**

Global Installation

**100,000M<sup>2</sup>**

Production Base

**900+**

Number of Staff



## Honors and Certificates

Renewable energy is driven by development and innovation. Huge Energy actively carries out product quality certification, and our product design is also strictly in accordance with international standards. After long-term efforts, Huge Energy has many national patents and international certifications.



National High Tech Enterprise



AAA Enterprise Credit Evaluation



Xiamen Specialized Small and Micro Enterprises



High-quality Solar Mount enterprises in 2021



the Most Promising New Energy, Energy Saving and Environmental Protection Innovation Enterprise



Fujian Science and Technology Giant



Xiamen Technology Giant



Industry Innovative Enterprise 2022



New Energy Innovative Enterprise



Industry Innovative Enterprise 2022



Science and Education Assistance and Love Unit



## Quality Management System Certificates



ISO 9001

ISO 14001

ISO 45001

## Product Certificates



TUV

CE

TAF



CPP



TUV Rheinland



GSMIL-A-8625F Test

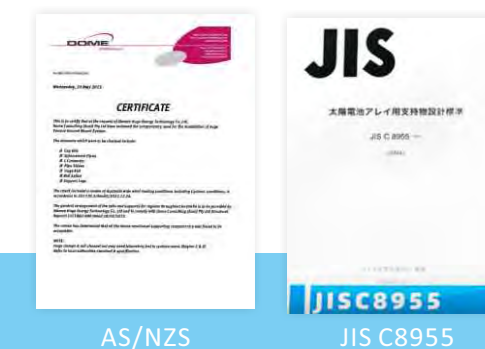
## SGS Testing Report



## Patents



## Design Patents



AS/NZS

JIS C8955

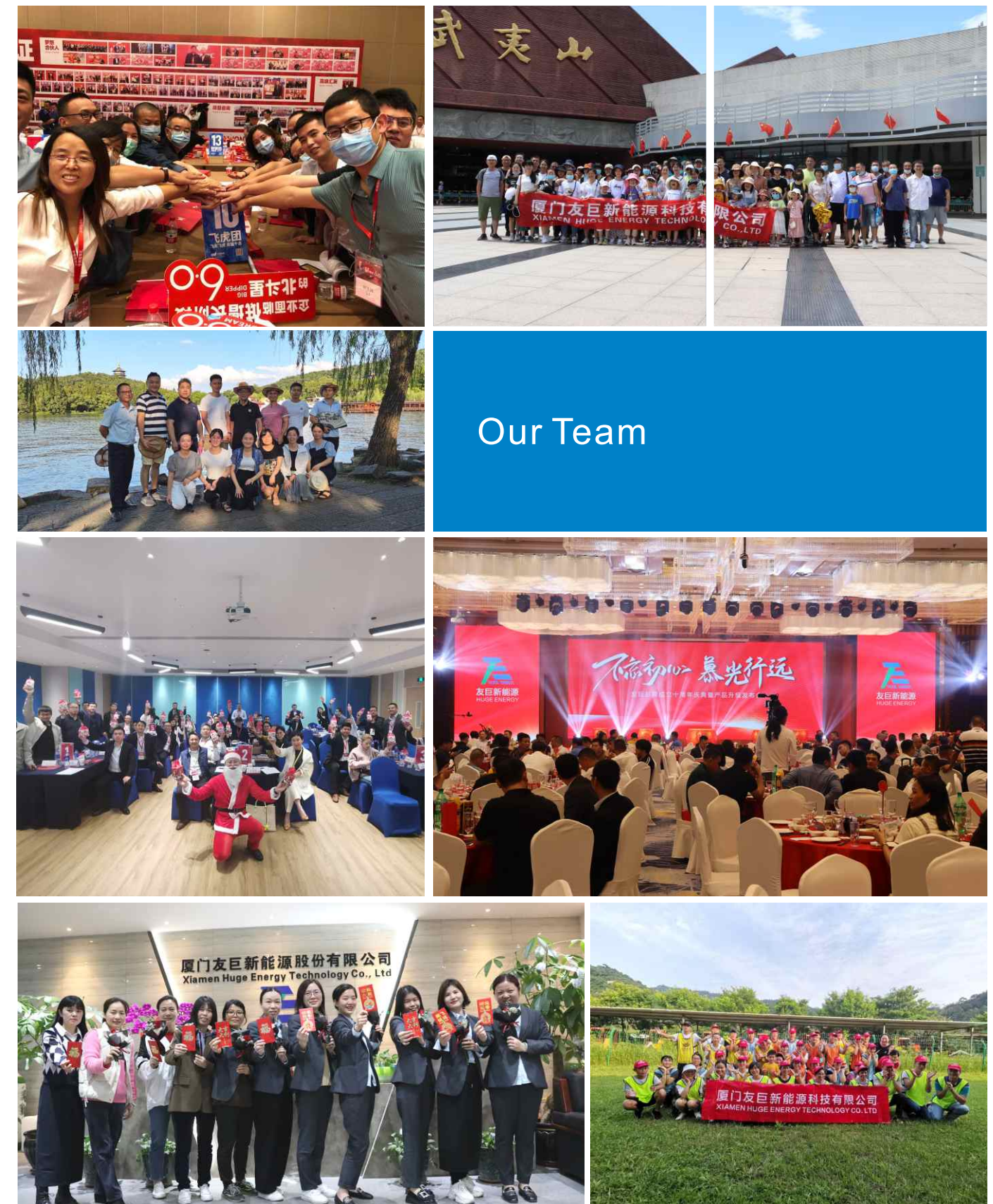
## EPC Certificates







Our Exhibition



Our Team





Steel Production Base



Aluminum Production Base



Intensive Processing Production Base

## Production

100% Owned Factories 8+

As a professional manufacturer of high-quality solar mounting structures, Huge Energy utilize cutting-edge technology and equipment to ensure the reliability and performance of our products. Through continuous research and development, we aim to improve both our production capacity and product performance. Our current production capacity is sufficient to meet market demand, and we are committed to expanding our capacity in order to accommodate future growth.

### Quality Control



Coating Thickness Inspection

Steel Thickness Inspection

Pitch Measurement

Weight Measurement



Ground Screw Production Base

Anodizing Production Base

Machining Production Base

HDPE Floating Production Base



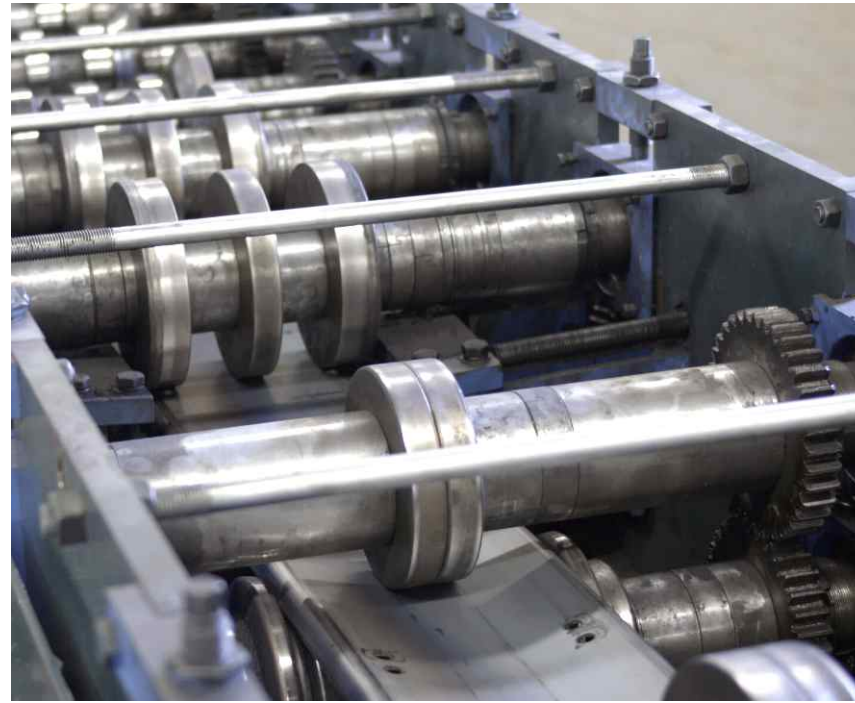
Drawing Test

Hardness Inspection

Salt Spray Test

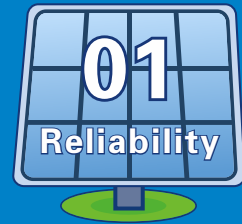
Dimension Measurement







## Our Strength ▶▶



Xiamen Huge Energy is a manufacturer of solar mounting systems and a provider of solar energy solutions with 8 production facilities in China. We firmly support the design and production in accordance with international standards. We guarantee the stability and reliability of our products. Even under extreme installation conditions such as heavy snows, storms and heavy salt damage areas, our products can be used for 25 years.



With over 100 R&D engineers' expertise, Xiamen Huge Energy designs solar mounting systems for time-saving and cost-saving installation for our customers. And we always keep pursuing excellence and technology innovation to reward our customers with cost-saving and time-saving solar mounting solutions.

With automation production lines, product material and quality are strictly under control. Meanwhile, all the processes from incoming material, production, inspection to shipment are in accordance with ISO quality manage system.



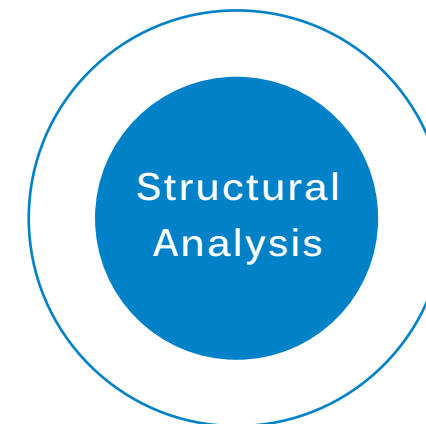
By 2022, Xiamen Huge Energy has installed tens of thousands of photovoltaic projects all over the world with over 12.6GW acumulative installed capacity worth more than US\$700 million. Along the way, our products have responded to installation challenges successfully during various challenging natural conditions, and have gained lots of production and manufacturing experiences and project installation experiences.

We stand behind what we sell. Our after-sales service guarantees your project will be operated efficiently after the project is installed.

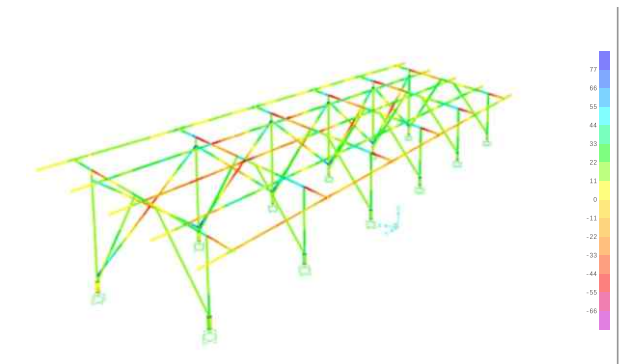


## Structural Analysis

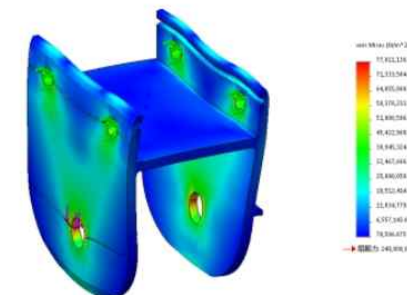
Huge Energy calculates load data (fixed load, wind pressure load, snow load, seismic load, etc.) based on solar mounting system design standards, and then uses SAP 2000 to calculate the strength of the overall structure and make design proposal. It can be used as a reference for frame design.



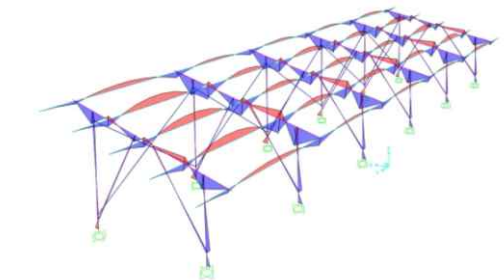
Overall strength diagram



Component strength diagram



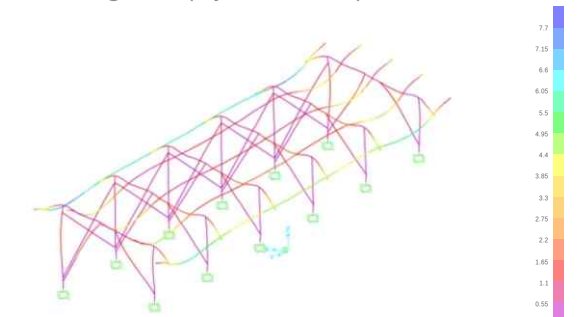
Overall internal force diagram (by SAP2000)



Component pull test



Overall deformation and deflection diagram (by SAP2000)





# Horizontal Single Axis Solar Tracking System

The horizontal single-axis solar tracking system is a solar tracker form arranged in the north-south direction and tracked in the east-west direction.

According to the astronomical algorithm, the motor drives the tracker to make the module track the azimuth of the sun, increase the direct module of the sun on the surface of the PV module, and then improve the power generation.



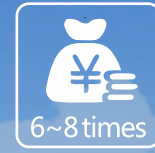
15~20%

Power Generation



2~3%

Reduce LCOE



6~8 times

Total Revenue



±1°

Astronomical Algorithm



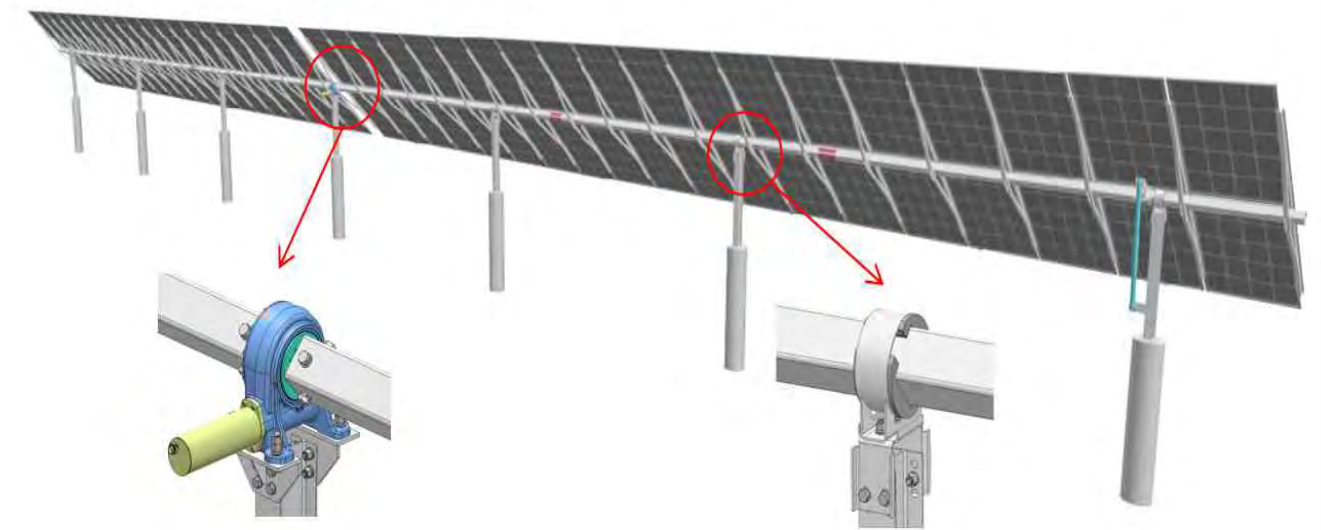
## Horizontal Single-Axis Solar Tracker

PRMD single-axis solar tracker adopts a driving motor to drive multiple push rods to run synchronously.

HST-01

HST-02

HST-03

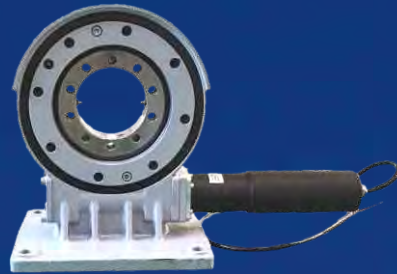


### Technical CHARACTERISTICS

Material	Q235 or Q355
Small Components	AL6005-T5 ( Anodized )
Foundation Type	Driven Pile or Concrete
Tracking Range	±60°
Wind Load	≤50m/s, Per Local Codes
Snow Load	2.4KN/M <sup>2</sup> , Per Local Codes
Operation Temperature	-40° ~ +70°
Wind Protection Mode	Stow Position When Wind Speed ≥ 18m/s
IP Code	IP65
Compatible Modules	Most Commercially Available Modules, Adapt to Bifacial Modules
Bifacial Compatibility	Bifacial Configuration Available



### Friction Part of Transmission Gear Wheel



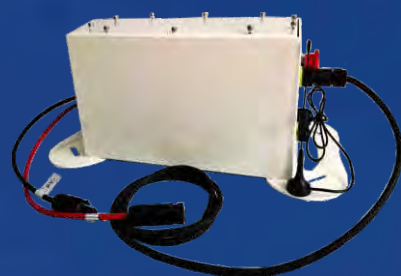
- High quality lubricating grease is adopted;
- Better corrosion resistance and abrasion resistance;
- Better high and low temperature resistance and better oxidation resistance;
- No vaporization at high temperature and no solidification at low temperature;
- Better weather resistance, normal use and maintenance free.

### Putter and Parts



- Special brush design is adopted for DC motor;
- Stable performance can be maintained after long-term high current startup;
- Imported high quality lubricating grease is adopted;
- Better high and low temperature resistance, better wear resistance and oxidation resistance;
- Combined with the special waterproof sealing ring imported from Japan which has the functions of self repairing and waterproof and has better sealing performance when meeting water expansion.

### Sealing Part of Controller



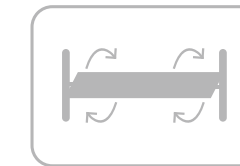
- Combined with the special waterproof sealing ring imported from Japan;
- Self repairing and waterproof functions;
- Sealing performance is better when it expands with water;
- Excellent water and steam resistance;
- Equipped with ventilation valve, which is waterproof and breathable;
- Realizes the pressure balance inside and outside the controller, and slows down the aging of electronic components at high temperature

## High Reliability Wind Tunnel Test



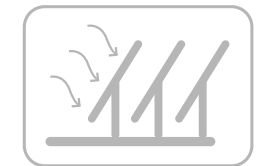
#### Pressure Model Test

- Evaluate the pressure coefficient of the solar tracker at each angle
- Torsion coefficient and dynamic amplification coefficient.



#### Two Dimensional Section Model And Numerical Model Test

- Calculate the critical wind speed of different solartracking system parameters.

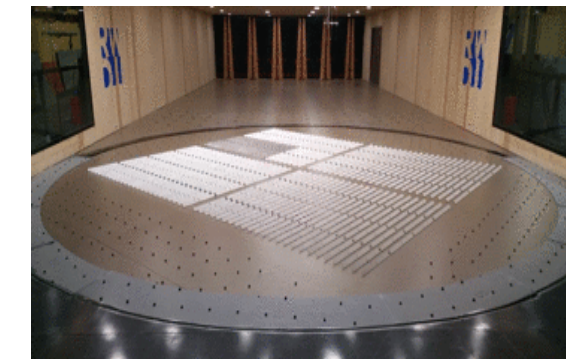


#### Full Aeroelastic Model Test

- Verify the test results of the first two models, define the critical wind speed and the protection position of the solar tracking system

### Wind Tunnel Test Verification By Global Authority

The complex wind and air flow of photovoltaic system and the increase of modules area mean that the reliability of the bracket is more stringent. In order to increase the high reliability of the product, HUGE has carried out a series of wind tunnel tests in cooperation with RWDI and CPP, the world's authoritative organizations, to continuously optimize the product, so that the reliability and matching degree of each component of the structure system are better.



### Through Wind Tunnel Test Product Optimization Design

The complex wind and air flow of photovoltaic system and the increase of modules area mean that the reliability of the bracket is more stringent. In order to increase the high reliability of the product, HUGE has carried out a series of wind tunnel tests in cooperation with RWDI and CPP, the world's authoritative organizations, to continuously optimize the product, so that the reliability and matching degree of each component of the structure system are better.





## Hot-Dip Galvanized Steel Ground Solar Mounting System

Huge Energy dedicated to research and development and excellent quality has produced a product able to withstand challenging environments where strong sand storms, wind gusts, humidity, saline environments, high temperature excursion, and even high snow load put the structure under the threat of premature corrosion and possible structural damage.

- High structure stability
- Concrete foundation, driving screw and screw piles are all applicable
- Top quality materials and high durability
- Pile-rampost integrated design to facilitate construction
- Highly pre-assembled, ensuring easy installation and lower labor costs
- Highly adaptable to ground installation
- Fully integrated grounding and bonding structure.



### Technical CHARACTERISTICS

**Material:**

Corrosion-resistant steel/Q235/Q355

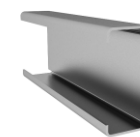
**Surface Treatment:**

Galvanized

**Warranty:**

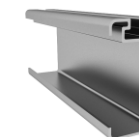
12 Years

#### Horizontal Rail



- New C-shaped profile design, enhanced bending resistance
- No need for drilling, maintains surface aesthetics

#### Vertical Rail

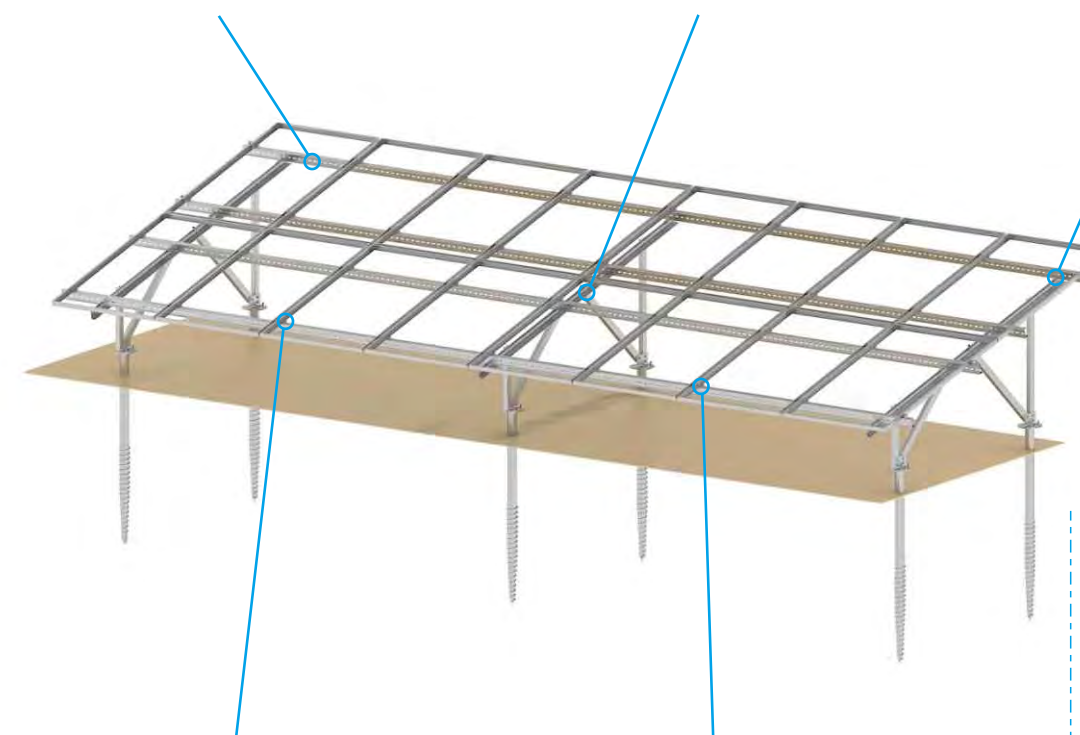


- Innovative groove design with adjustable fixed positions
- Easy PV modules installation

#### L-shaped Rail Clamp



- Stable fixation of the horizontal rail
- Fixed with round head bolts to prevent slippage
- Easy to install



#### Back Clamp

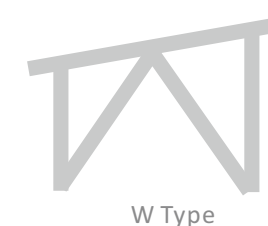
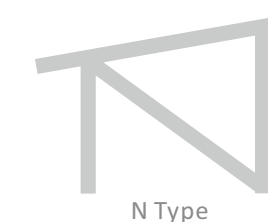
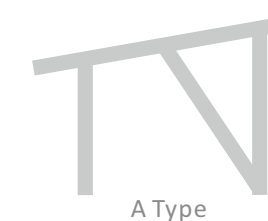


- Easy and safe to install
- Convenient for operation and maintenance

#### Top Clamp



- Suitable for low installation height
- No need to drill holes, simple structure, and easy installation.





# NEW MATERIAL

## Zn-Al-Mg Coated Steel

Compared with traditional materials, Zn-Al-Mg coated steel is environmentally friendly with better cost performance and a wide range of applications. There will be no red embroidery in 30 years and no corrosion perforation in 35 years. Huge Energy's Zn-Al-Mg coated solar racking system brings cost effective solutions to customers.



Severe Weather



Selfreparing



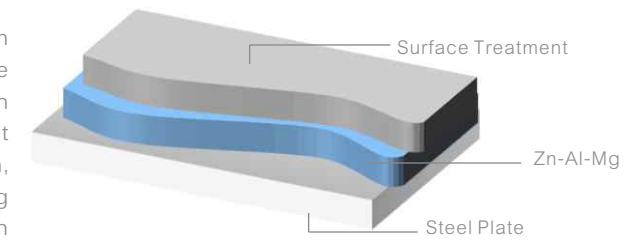
Service Life



Resistant to Corrosion

### Zn-Al-Mg Coated Steel

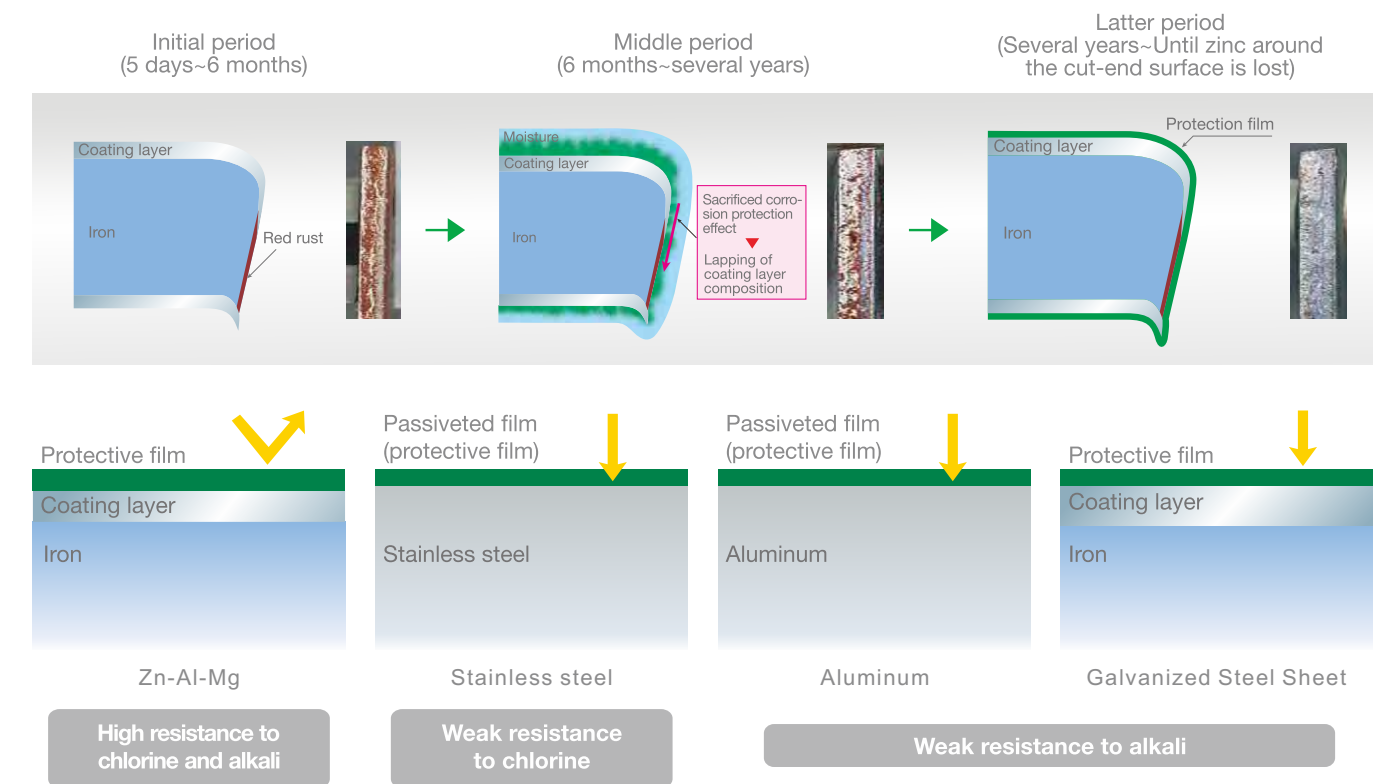
Zn-Al-Mg Coated Steel is produced by coating aluminum, magnesium and silicon to the conventional zinc coating, thereby using the composite effect of these added elements to derive its high corrosion resistance. That is, Zn-Al-Mg Coated Steel's capacity to protect against corrosion is enhanced by adding silicon and magnesium, Silicon is effective in improving the workability of coatings containing aluminum and at the same time enhances corrosion supression through composite action with magnesium.



### Features

- Strong corrosion resistance: Relevant research and tests show that the corrosion resistance of magnesium-aluminum-zinc-coated steel sheets is more than 5 times that of ordinary hot-dip galvanized steel sheets (GI, HGI) under the same coating amount
- Environmentally friendly and green: the plates can be shipped directly after forming and processing, without hot-dip galvanizing, green and environmentally friendly
- Strong self-healing ability: excellent self-healing ability, no need to protect the processed section of the plate, and not afraid of general bumps and scratches during installation, transportation and use
- Design optimization: with optimized design, the weight of the support system can be reduced by 5%~15%, and it is possible to make thin-walled complex sections without post-galvanizing

### Corrosion Protection Mechanism at Cut-end Surfaces





## Adjustable Ground Solar Mounting System

Adjustable ground mounting system is designed for increasing power generation by setting angles according to season changing. It can achieve different angles cover N-S 10°-60° manually or by gear to adjust. Carbon steel is adopted as the main material for structure to ensure the overall stability.



Arc Tube Adjustable

### Advantages

- Adjusted manually or by a special electric motor
- Triangle structure offers better stability for the whole system
- Suitable for N-S direction 10° - 60° adjustable
- Compatible for all solar modules



Push Rod Adjustable

### Technical CHARACTERISTICS

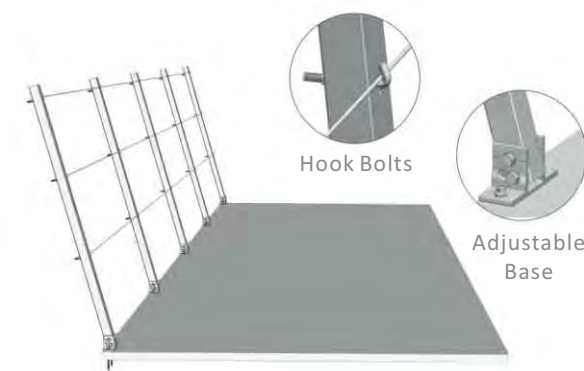
Material	AL6005-T5 or Q235 or Q355
Design Standard	JIS C8955-2017, AS/NZS 1170.0, IEC62817, etc.
Foundation Type	Driven Pile or Concrete
Regulation Mode	Gear or Manual Pushrod Adjustable
Adjustable Angle	10°— 60°
Wind Load	≤60m/s, Per Local Codes
Snow Load	2.4KN/M <sup>2</sup> , Per Local Codes
Module Type	Framed or Frameless
Panel Layout	Portrait or Landscape
Service Life	≥ 25 Years
Warranty	20 Years (Q235 or Q355); 12 Years (AL6005-T5)



## Solar Safety Fence

The solar safety fence mainly adopts AL6005-T5. The surface is anodized. It can be used for anti-corrosion and anti-rust overall beauty. It provides stable and safe and firm load-bearing structure for PV roof construction and maintenance. It can be designed and customized according to the customers site.

### Technical Parameter

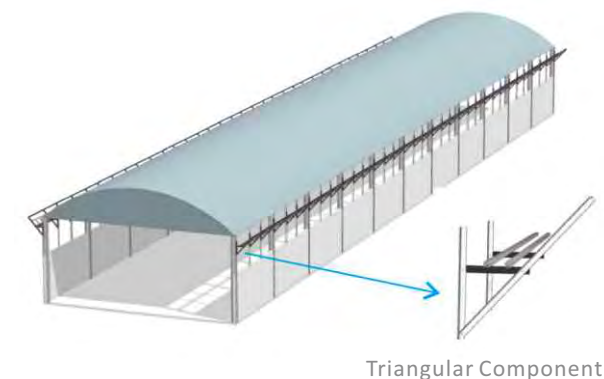


### Guardrail Fence

- ▶ Scientific human fixed way  
The column and the steel cable are fixed by a hook type design, and the steel cable is directly placed in the groove, and the single side lock nut can be used. Ensure that each node is individually stressed and the installation is simple and reliable.
- ▶ Multi-angle adjustable base  
The bottom of the base can be adjusted according to the actual needs of the site.

### Load-bearing Fence

- ▶ Safeguard performance  
The L-angle support structure is designed in cooperation with the building components to meet the requirements of mechanical construction and ensure overall stability and safety.
- ▶ Easy to install  
It adopts the L-angle structure, which is convenient to be fixed with the building structure and has strong versatility, which can fully meet the requirements of convenient installation.







## BR Solar Ground Mounting System

BR solar ground mounting system is designed using aluminum alloy, giving it an aesthetic and elegant appearance; lightweight materials, and lead to significant savings in terms of onsite installation costs. A 15um anodizing of the surface ensures high anti-corrosive performance; it is height-adjustable, thus flexible for use in various complex terrains; an 80% recycling rate of the aluminum allows the power station to effectively "retain value".

- Lightweight material, convenient for transportation and installation.
- High level of factory pre-assembly.
- Ensuring easy installation and lower labor costs.
- No on-site welding required, fully adjustable for a perfect installation.
- Fully Integrated grounding and bonding structure.
- Recyclable and "value retention".



### Technical CHARACTERISTICS

**Material:**

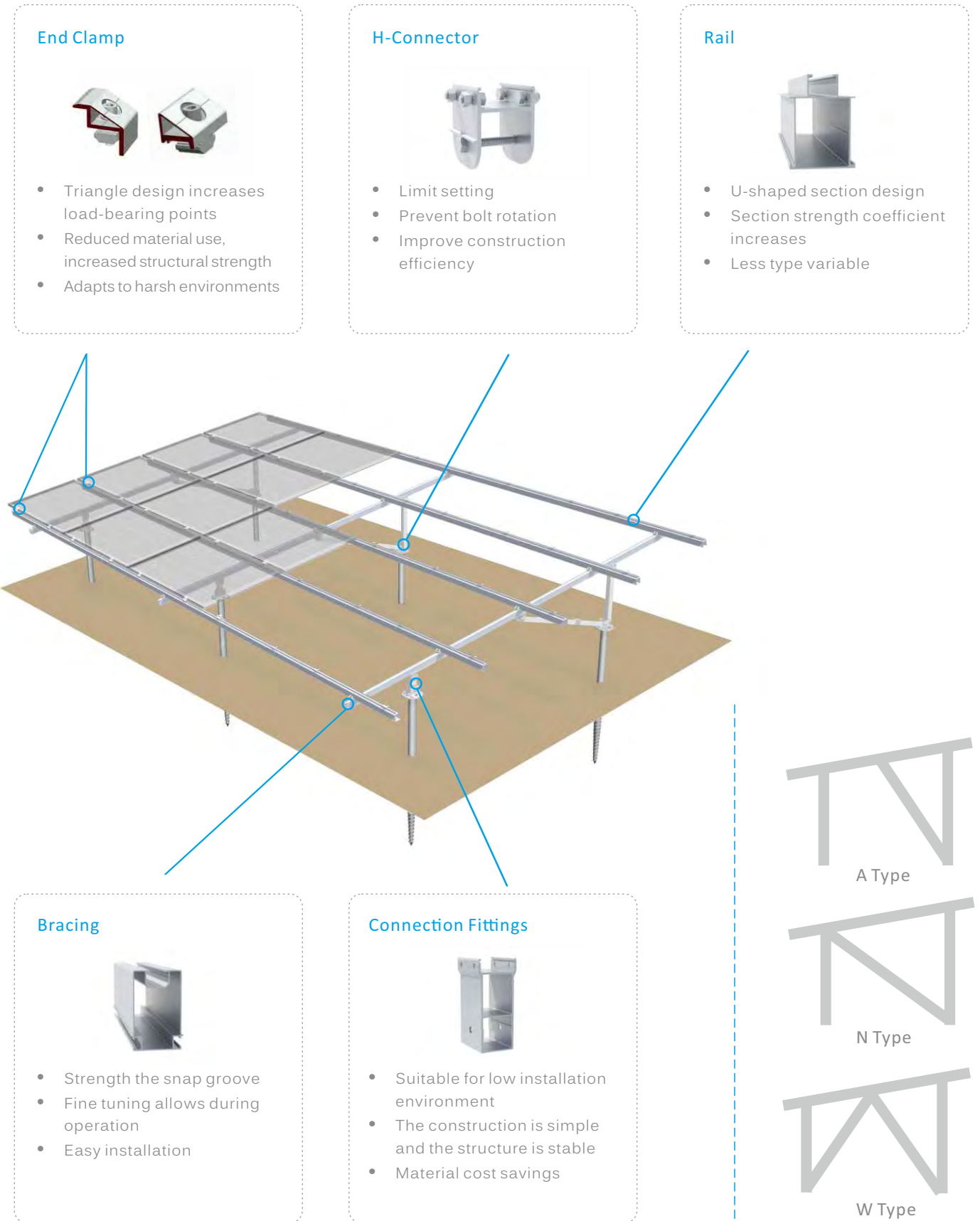
AL6005-T5/Q235 /Q355

**Surface Treatment:**

Anodized /Galvanized

**Warranty:**

12 Years







## Agrivoltaic Solar Mounting System

Dual-use in land for agriculture and energy production could alleviate competition for land resources and allow for less pressure to convert natural areas into more farmland, increase land use efficiency, crop production created an over 30%.

- Dual-use in land**

Agricultural production + photovoltaic power generation.

- Wide applicability**

The shading rate can be tailored to the specific needs of various plant species by optimizing the installation structure and PV modules layout.

- Pre-assembly**

High level of factory pre-assembly to save on-site construction time and labor costs.

- Other benefits**

The solar structure can also be installed with insect-proof nets, shade cloths, chains, etc.



### Technical CHARACTERISTICS

**Material:**

AL6005-T5/Q235 /Q355

**Surface Treatment:**

Anodized /Galvanized

**Warranty:**

12 Years

**Aluminum Alloy Tripod Stand**



- Adjustable angle
- Adjustable shading rate
- Pre-assembled

**GN Connector: Connect pillar and bracing**



- Round solitary hole design, error-free construction
- Adjustable angle
- Easy to install, saving construction time

**Pillar: Connect with fixed support rod**



- Using T-bolts, the position can be freely adjusted
- Easy to install, saving construction time

**Base**



- New design, increased structural strength
- Round solitary hole design, convenient for adjustment
- Easy to install, error-free construction

**XT Connector: connected with fixed support rod**

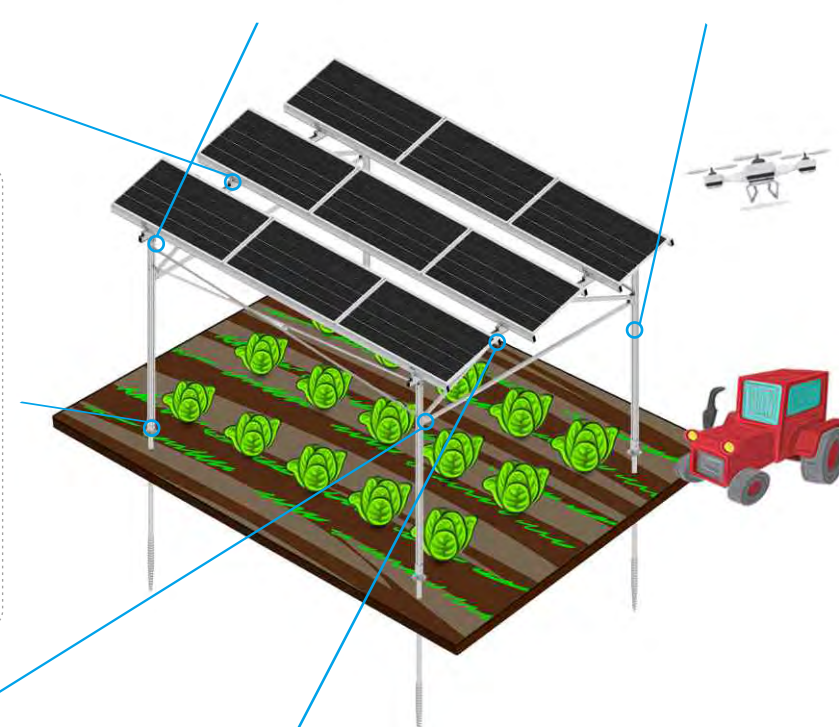


- Using T-bolts, the position can be freely adjusted
- Easy to install, saving construction time

**H-Connector**



- Limit setting to prevent bolt misassembly
- Improved construction efficiency







## Flexible Solar Mounting System

Flexible solar mounting system has the following advantages and successfully solves the disadvantages of traditional photovoltaic support systems, such as large lateral span and perishable rust by hanging, pulling and hanging the four large installation methods, and better improves the support mode of distributed photovoltaic power generation system

- Sewage treatment plants or coal plants or breeding plants
- The maximum span can reach 50m long
- Stable structure
- Excellent vibration resistance
- Innovative installation and fixation



Wire rope connection method    Panel fixing method    Anchor fixing method



### Technical CHARACTERISTICS

Application	Sewage Treatment Plants or Coal Plants or Breeding Plants
Material	Steel Wire Rope
Small Components	AL6005-T5 (Anodized)
Wind Load	60m/s
Snow Load	2.4KN/M <sup>2</sup>
Max. Span	≤50m
Service Life	≥ 25 Years
Warranty	12 Years

## Application Range



Farm



Water Plant



Agricultural Cultivation



Fish Pond



Station



Coal Plants





## Building-Integrated Photovoltaics (BIPV) System

Building-integrated photovoltaic (BIPV) systems have dual-purposes: They serve as both the outer layer of a structure and electricity generation for off-grid or on-grid. BIPV systems save construction material costs and electricity costs, reduce pollution,

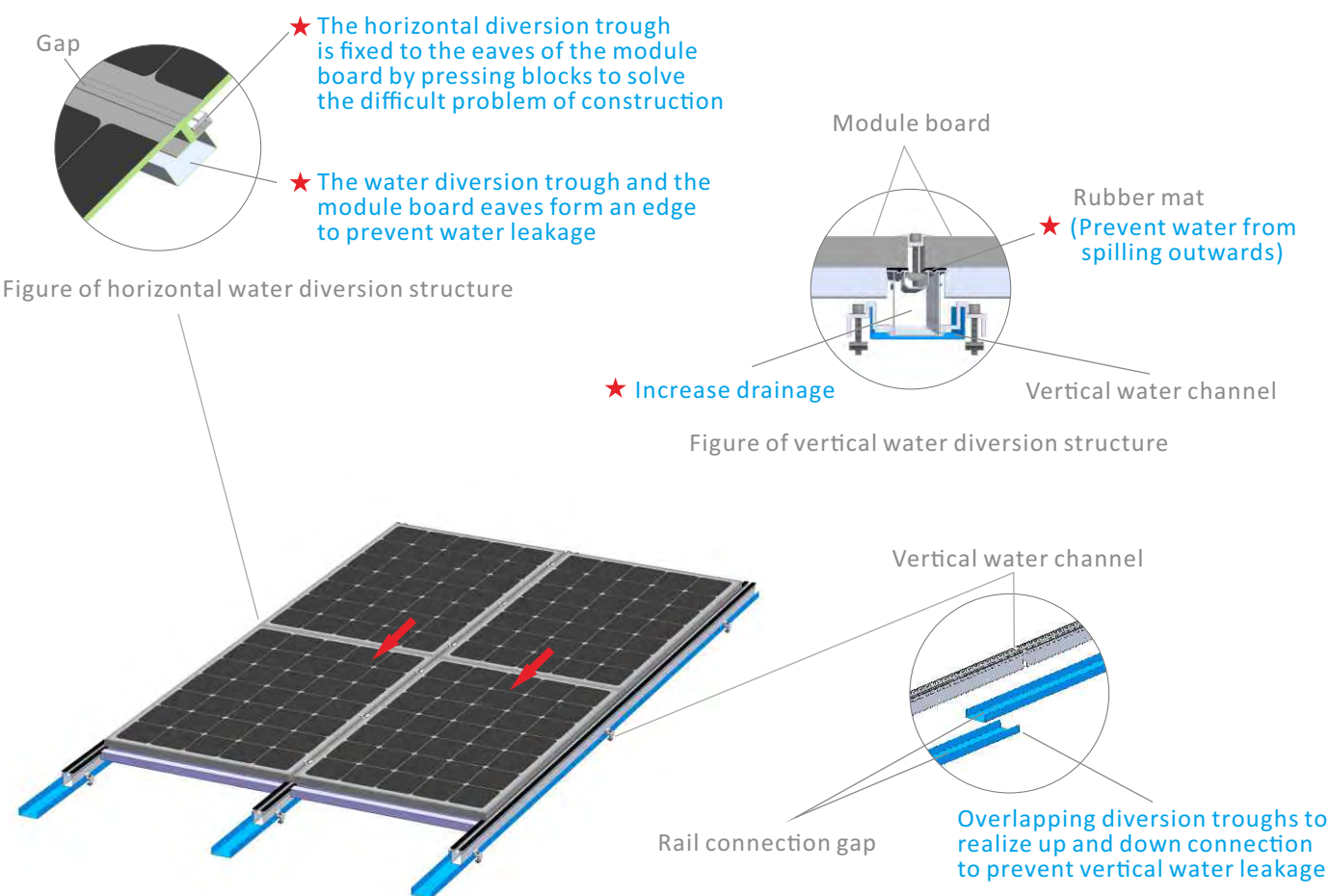
- Produces on-site clean electricity without requiring additional land area
- Improve thermal and acoustic insulation
- Earn a great return on your investment
- Bring innovation in your architecture and building design
- Make your properties and premises self reliant on power
- Save on taxes (due to accelerated depreciation policy)



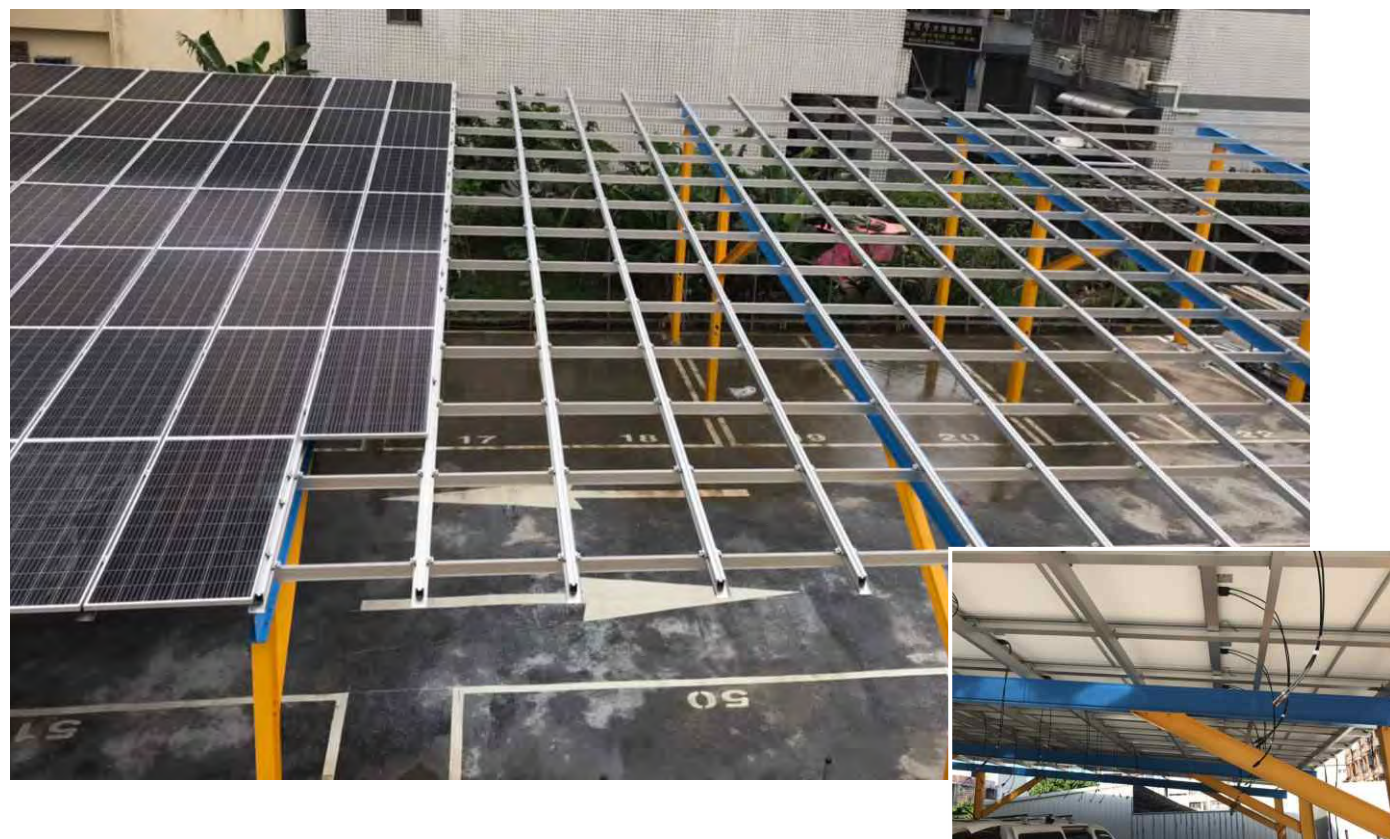
### Technical CHARACTERISTICS

<b>Material:</b>	AL6005-T5 (Anodized) or SUS304
<b>Wind Load:</b>	≤60m/s, Per Local Codes
<b>Snow Load:</b>	2.4KN/M2, Per Local Codes
<b>Wind Load:</b>	JIS C8955-2017, AS/NZS 1170.0, IEC62817, etc.
<b>Warranty:</b>	12 Years

## 100% Double-layer Non-glued Waterproof Solar Bracket







## Waterproof Solar Carport

Apply to commercial and residential, dual-use for parking and power, double income.

- Effective integrating land and solar energy
- Large-section components
- Stable and durable
- Waterproof rubber and water-guiding rails
- Pre-assembly , Easy and fast installation



### Technical CHARACTERISTICS

**Material:**

AL6005-T5/Q235 /Q355

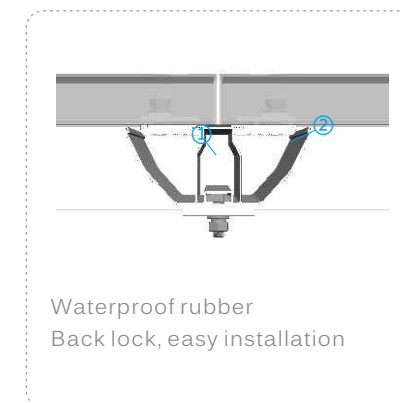
**Surface Treatment:**

Anodized / HDG

**Warranty:**

12 Years

Customization available



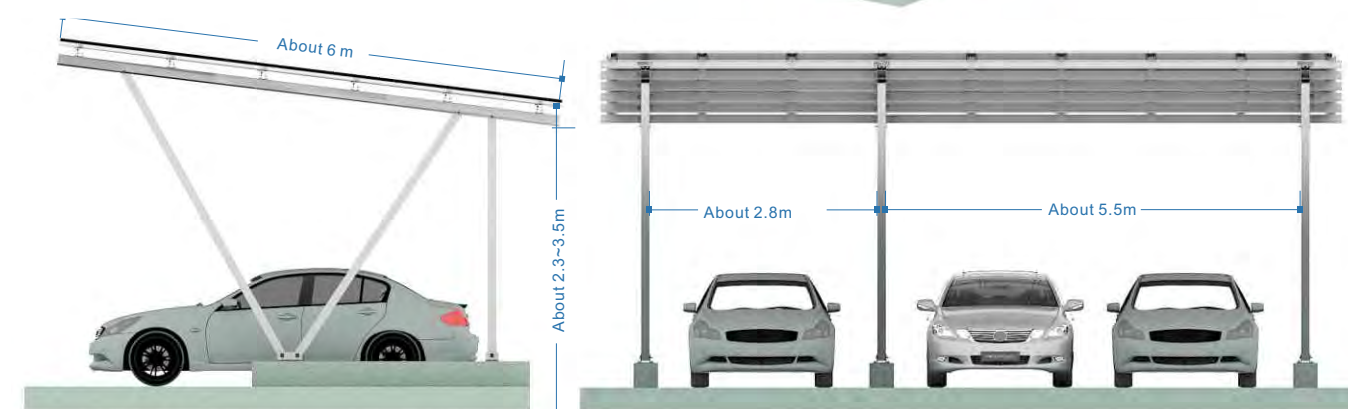
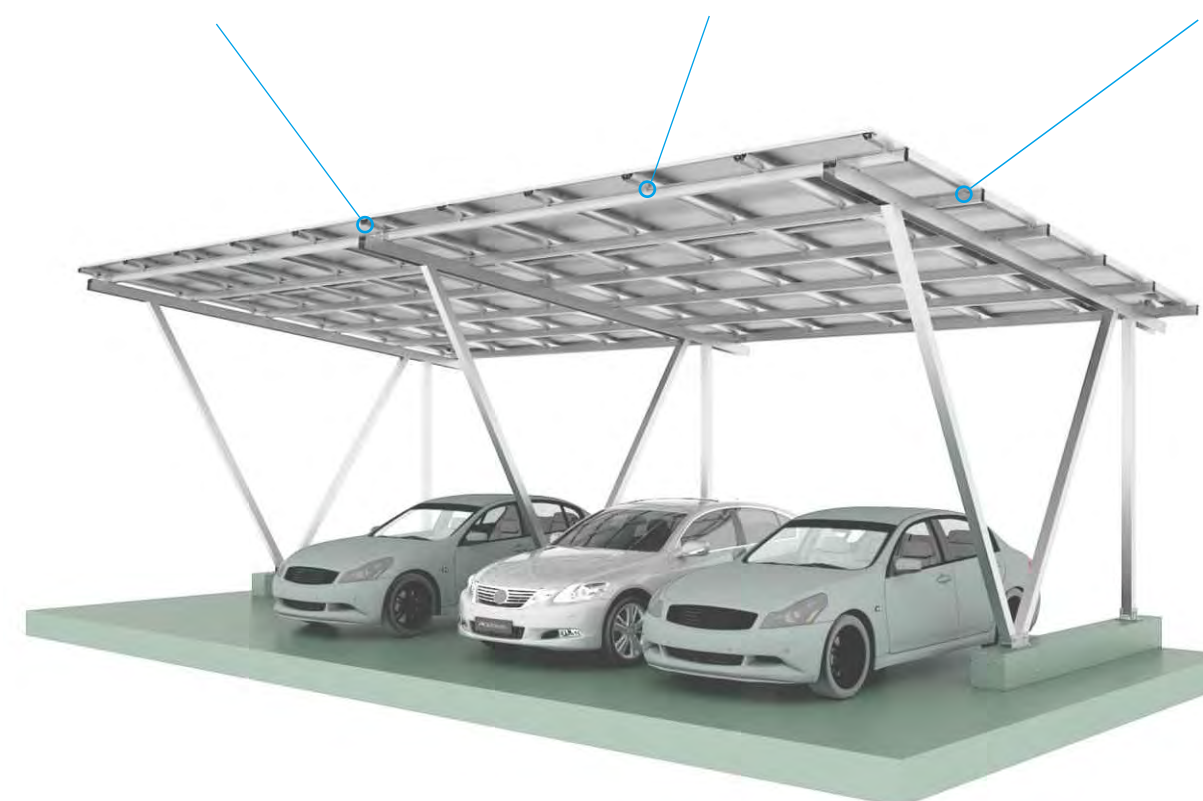
Waterproof rubber  
Back lock, easy installation



Angled cross-guide sink  
Prevent water backflow



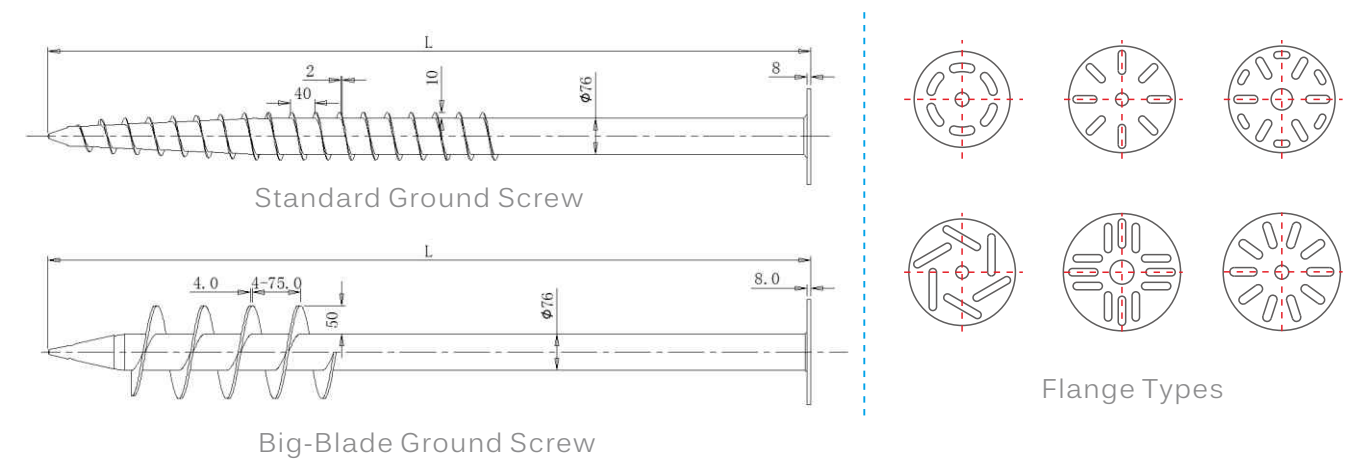
No drilling required to connect  
sinks and rails



■ Side view

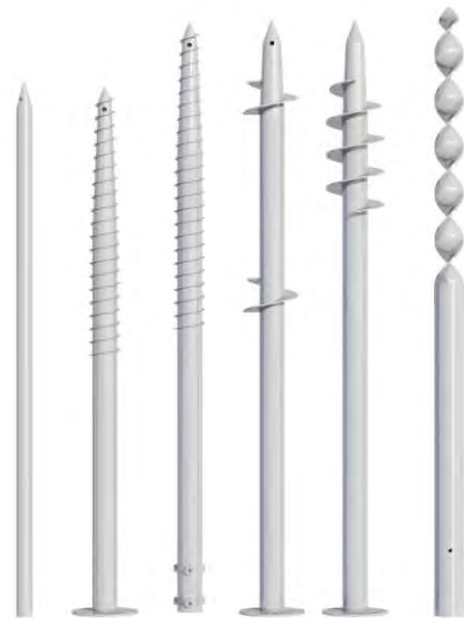
■ Front view





## Ground Screw

- Hot-dip galvanized carbon steel Q235
- The surface is hot-dip galvanized to ensure rust prevention and durability
- Zinc coating thickness 80-100um
- The pile driver spins for about 30-75 rounds per second
- Service life 25 years



Part Number		Flange Distance from Ground: 200mm					Tensile Strength (KN)				
		Soil Cohesion N Value					Sandy Soil N Value				
		3	5	10	15	25	3	5	10	15	25
Conventional Design	Φ76*T3*1200	3.6	6	12.1	18.1	30.2	1.6	2.7	5.4	8	13.4
	Φ76*T3*1400	4.3	7.2	14.5	21.7	36.2	1.9	3.2	6.4	9.7	16.1
	Φ76*T3*1600	5.1	8.4	16.9	25.3	42.2	2.3	3.8	7.5	11.3	18.8
	Φ76*T3*1800	5.8	9.7	19.3	29	48.3	2.6	4.3	8.6	12.9	21.4
	Φ76*T3*2000	6.5	10.9	21.7	32.6	54.3	2.9	4.8	9.7	14.5	24.1
	Φ76*T3*2200	7.2	12.1	24.1	36.2	60.3	3.2	5.4	10.7	16.1	26.8
	Φ76*T3*2500	8.3	13.9	27.7	42.6	69.4	3.7	6.2	12.3	18.5	30.8
Big-Blade Design	Φ76*T3*3000	10.1	16.9	33.8	50.7	84.4	4.5	7.5	15	22.5	37.5
	Φ76*T3*1200	4.8	7.9	15.8	23.8	39.6	2.1	3.5	7	10.6	17.6
	Φ76*T3*1400	5.7	9.5	19	28.5	47.5	2.5	4.2	8.4	12.7	21.1
	Φ76*T3*1600	6.7	11.1	22.2	33.3	55.4	3	4.9	9.9	14.8	24.6
	Φ76*T3*1800	7.6	12.7	25.3	38	63.3	3.4	5.6	11.3	16.9	28.1
	Φ76*T3*2000	8.6	14.3	28.5	42.8	71.3	3.8	6.3	12.7	19	31.7
	Φ76*T3*2200	9.5	15.8	31.7	47.5	79.2	4.2	7	14.1	21.1	35.2
Big-Blade Design	Φ76*T3*2500	10.9	18.2	36.4	54.6	91	4.9	8.1	16.2	24.3	40.5
	Φ76*T3*3000	13.3	22.2	44.3	66.5	110.8	5.9	9.9	19.7	29.6	49.3