

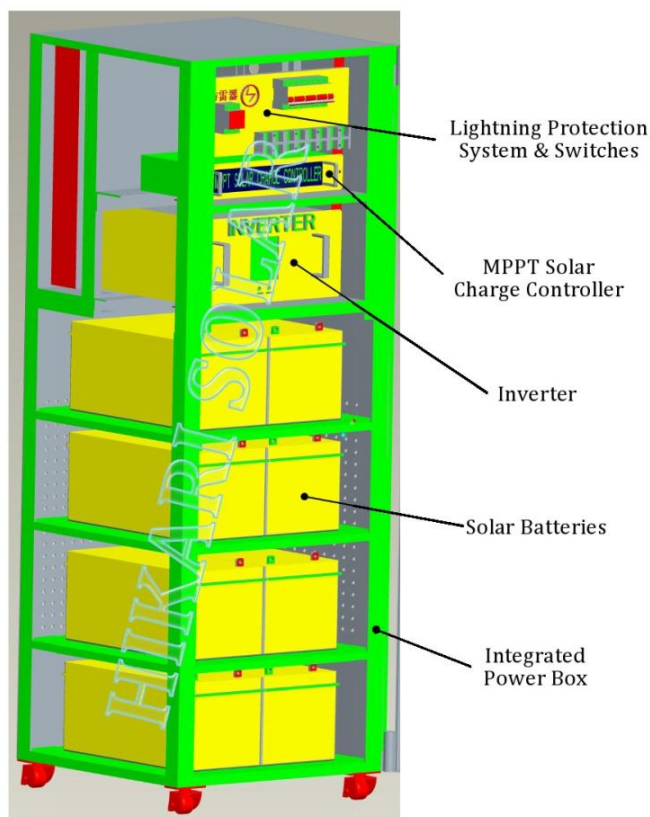
Stand-Alone Photovoltaic System **Integrated Version with Mounting System**

Product Description

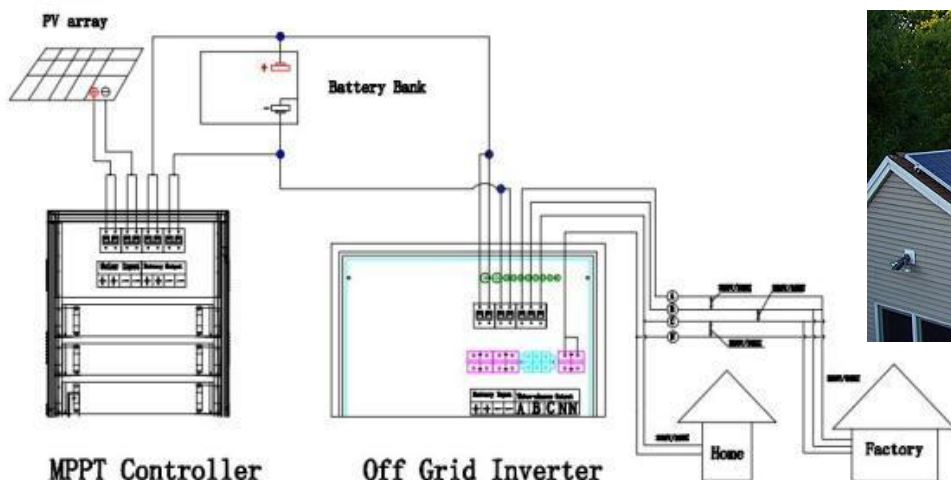
Everything in a complete package, the system is design for the location which is not connected to an electric utility. The system provides electricity beyond power lines. Stand-alone solar electric power systems install easily for all types of standard or remote power needs, systems add a battery backup for uninterrupted power during utility blackouts or outages.

Our controller and inverter is a high intelligent center of a renewable energy system, seamlessly converting DC power to clean and reliable AC electricity for your needs.

The package included all the necessary installation parts (except cable). The controller, inverter and batteries are well allocated and connected inside one box for ease of installation.



Stand Alone Photovoltaic System design figure



Component List

1kW Stand-Alone Photovoltaic Off-Grid System

	Model	No. of Unit	Warranty
Solar Modules	230Wp	6	25years
Inverter	1.2KW	1	3years
Controller without MPPT	40A	1	3years
Battery	12V 150Ah	4	3years
Mounting System	Flat Roof or Tilt Roof Top	1	10years

2kW Stand-Alone Photovoltaic Off-Grid System

	Model	No. of Unit	Warranty
Solar Modules	230Wp	10	25years
Inverter	2KW	1	3years
MPPT Controller	40A	1	3years
Battery	12V 200Ah	8	3years
Mounting System	Flat Roof or Tilt Roof Top	1	10years

3kW Stand-Alone Photovoltaic Off-Grid System

	Model	No. of Unit	Warranty
Solar Modules	230Wp	14	25years
Inverter	3KW	1	3years
MPPT Controller	40A	1	3years
Battery	12V 250Ah	8	3years
Mounting System	Flat Roof or Tilt Roof Top	1	10years

230Wp Solar Module



Benefits



Electrical Data

Maximum Power(W)	230	235	240	245	250
Optimum Power Voltage(Vmp)	30.36	30.60	30.72	30.85	31.02
Optimum Operating Current(Imp)	7.58	7.68	7.81	7.94	8.06
Open Circuit Voltage(Voc)	36.42	36.54	36.60	36.91	36.99
Short Circuit Current(Isc)	8.11	8.22	8.36	8.50	8.62
Cell Efficiency (%)	16.07	16.42	16.77	17.11	17.46
Module Efficiency (%)	14.17	14.47	14.78	15.09	15.40
Tolerance Wattage(%)	0 \pm 3%				
NOCT	47°C \pm 2°C				

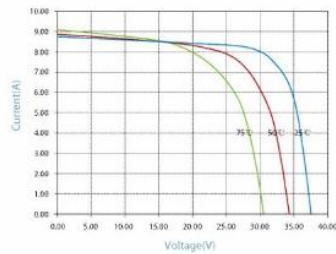
Temperature Coefficients

Temperature Coefficients of Isc(%)!□	+0.04
Temperature Coefficients of Voc(%)!□	-0.35
Temperature Coefficients of Pm(%)!□	-0.45
Temperature Coefficients of Im(%)!□	+0.04
Temperature Coefficients of Vm(%)!□	-0.35

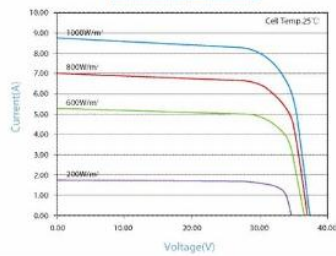
Components & Mechanical Data

Solar Cell	156*156 Poly
Number of Cell(pcs)	6*10
Size of Module(mm)	1640*990*40
Front Glass Thickness(mm)	3.2
Surface Maximum Load Capacity	2400-5400Pa
Allowable Hail Load	23m/s ,7.53g
Weight Per Piece(KG)	18.6
Junction Box Type	Pass the TUV Certificate
Bypass Diode Rating(A)	12
Cable & Connector Type	Pass the TUV Certificate
Frame(Material Corners,etc.)	40#
Backing (Brand Type)	TPT
Temperature Range	-40°C to +85°C
FF (%)	70-76%
Standard Test Conditions	AM1.5 1000W/3j 25 \pm 2°C

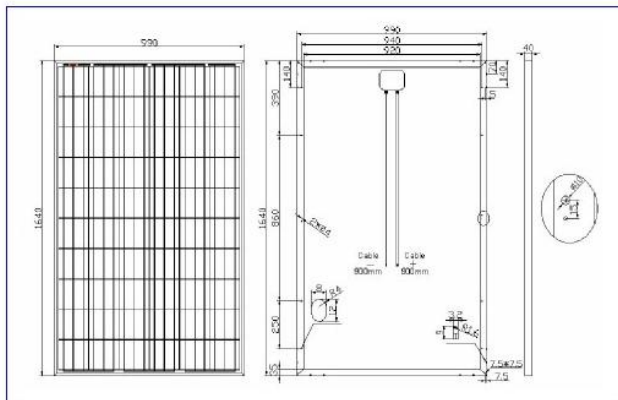
IV-Curves



IV-CURVES of PV module
SL230-250TU-30P



Engineering Drawings



☑ Manufacturing facility certified to ISO 9001 / ISO 14001 / OHSAS 18001 quality management system standards.



Warranty & Certifications

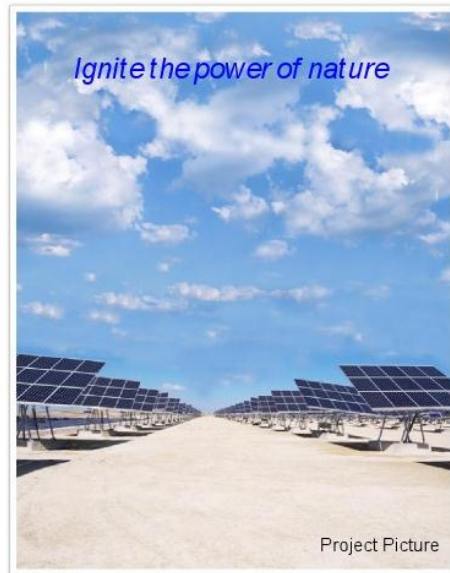
Warranty	25 years limited power warranty
	10 years limited product warranty
Certifications	IEC 61215, IEC 61730

Packing

Packing	Wooden Box
1*20'	14Pallets/332pcs
1*40'HQ	28Pallets/840pcs

Applications

- ☑ On- grid residential roof-tops
- ☐ On- grid commercial/industrial roof-tops
- ☐ Solar power stations
- ☑ Other on- grid applications



Project Picture

Inverter (Pure sine wave)



Characteristics:

1. Completely controlled by CPU
2. Output pure sine wave
3. Protections: against short-circuit, overload, battery reverse polarity, low-voltage, and over-voltage protection, etc.
4. Strong ability of resist concussion, can load all kinds of electric apparatus and industry equipment, such as air condition, refrigerator, television, fan, washer, etc.
5. The service life can reach a decade
6. With RS232,it can realize software control function
7. High transfer efficiency, highest can reach 95%. No load cost is no more than 5W. It is good for solar system.

Capacity		1200W	2000W	3000W
Output	Inversion Voltage	220V±3%(220V AC), 120V±3%(120VAC)		
	Inversion Frequency	50HZ/60hz±2%		
DC voltage		48V DC		
O/P waveform		pure sine wave		
THD		≤3%		
transfer efficiency		95%		
Protections		Protection against overload, short-circuit, and high and low voltage		
communication ports		RS232 or SNMP card (optional)		
unit size (mm)		281*228.5*72	470*193*333	485*243*363
N.W (KG)		3	23.5	30
G.W (KG)		3.5	25.5	32
shipping size (mm)		285*235*75	540*290*430	560*343*440

Controller (with Electrical Power Distribution and Display System)



Features:

1. We adopt the principle of MPPT and advanced Microprocessor Controlled and DSP technology.
2. Improve PV system output efficiency of 10%-30%.
3. Wide input DC voltage range
4. Digital intelligent control, use light signal transmission to control signal inner system for transfer with protection from interference and power loss
5. Solar controller charge module with electric plug, which is more convenience for adding adequate capacity maintenance
6. Battery charge control adopt three stags e.g., equilibrium, boost, and float
7. DC and AC power distribution cabinets designed with lighting protection, connecting wires could come out from the top or bottom which is easy to connect.
8. When the temperature is 50°C, system will reach rated output.
9. High reliability, no need for maintenance, lifetime up to 20 years
10. LCD display which shows PV voltage, charge voltage and charge current ISO9001:2000

Specifications:

		MPS403 40A/48V	MPS603 60A/48V	MPS803 80A/48V	MPS1031 100A/48V
System voltage		48V			
Single charging module capacity		48V20A			
Charging module quantity		2	3	4	5
System rated charging current		40A	60A	80A	100A
MAX power of PV system		1.92KWP	2.88KWP	3.84KWP	4.8KWP
Solar Charging Module	MPPT voltage range	40~100V			
	Battery floating voltage	54V			
	Single module rated output current	20A			
	Single module rated output voltage	48V			
	Solar panel open-circuit voltage	100V			
	Charging loop pressure drop	<0.25V			
	Voltage slow ability	Charging to lowest battery from MAX 40v			
	output no load Consumption current	<5mA			
	Mode of connection	Terminal connection			
	protection functions	Protect against over-voltage , filling the current , Over-charging , solar cell short-circuit , lightening			
Monitoring Module	Controlling signal inside system	optical transmission			
	display	LCD: 4 line , 80 character			
	menu language	English and Chinese			
	data record	Solar voltage , charging voltage , charging current, DC output voltage , DC output current , DC load power			
	Remote display and control	RS232 serial communication port			
	External sensor	Temperature of battery, environment, solar cell			
	Battery management	Battery charging control use : balance , boosting ,floating			
	Setting up of Charging voltage	Balance voltage 55.2v, boosting voltage 64v, floating voltage 58v			
	Battery temperature compensation	5.0mv/°C/single battery (2V)			
Power distribution Module	input groups of solar panel	2 lines ,50A each			
	Battery groups	2 lines ,50A each			
	DC output	2 lines ,50A each			
	protection	Short-circuit ,fuse ,SPD			
Working temperature range		-10~60℃			
Environment Humidity		0~90%			
Transfer efficiency		98.5%			
Using environment		indoor			
SIZE		720*600*430MM			
weight		45KG			

12V Battery



Gel Series:

Gel Battery is mainly made up of positive and negative plates, special diaphragm, gel electrolyte, battery shell and security valve and so on. Through colloid technology, the electrolyte is fixed in solid state in battery. Some trace gases are generated during the charge-discharge process, they will be freely floating through the crannies of the gel, can be regenerated according to Pb-Ca alloy cathode absorption principle, which make sealed up and maintenance free come true. The GEL battery series are specially designed for applying in solar energy photovoltaic power system.

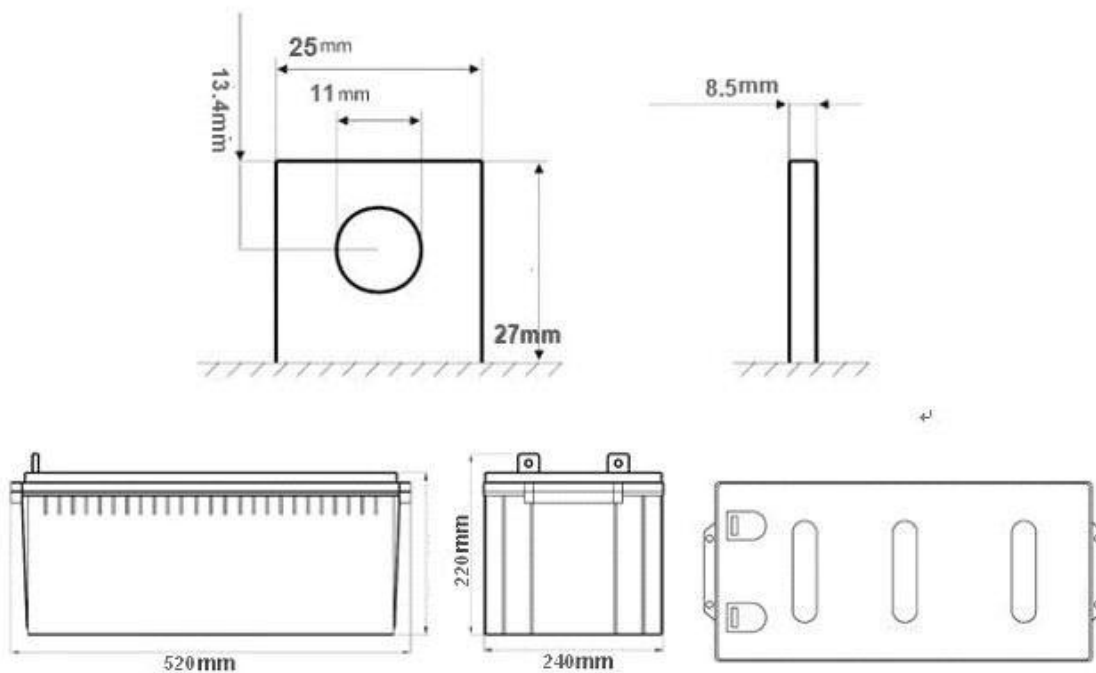
General Features:

1. Completely sealed and water-free maintenance, no acid gas and environmental friendly.
2. It has adopted colloid electrolyte technology, avoiding density stratification problem of acid solution and elimination plate corrosion and passivation caused by density stratification.
3. It has a long float charge life. The designed life of 12V series battery can reach up to 6 to 8 years (environment temperature from 20°C to 25°C)
4. Applied with German Gel formula, grid alloy and plate formula, the battery is performed very well in cycling and recovery from deep discharge, especially in rainy days.
5. More suitable for using in harsh condition than AGM battery as the rich electrolyte inside of the GEL battery makes it working stable in high temperature or over charge.
6. Good performance in cold environment and the battery capacity decreases little when using in low temperature.
7. Little self-discharge because of the super-pure material and the low density of the electrolyte, it can be stored over 6 months.

Construction:

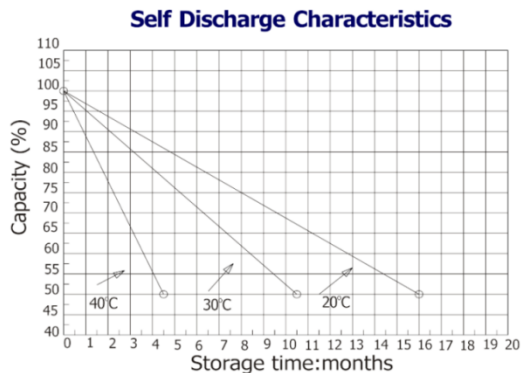
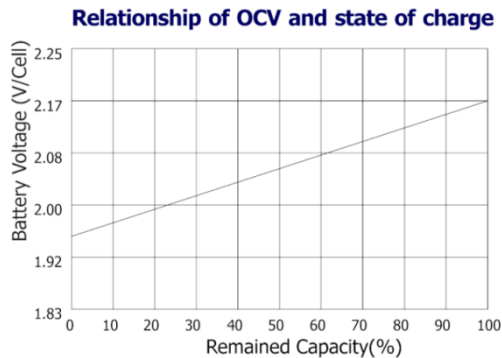
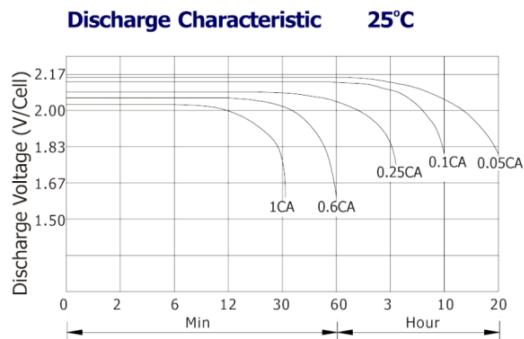
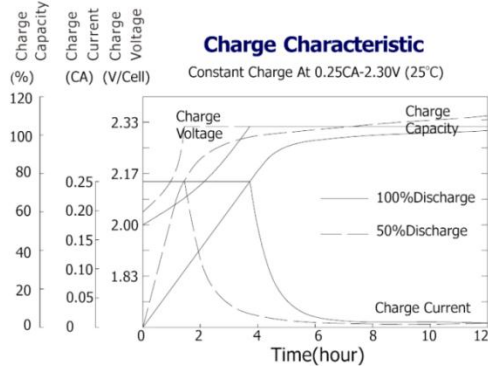
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|------------------------------|---|
| ▪ Component.....Raw material | ▪ Sealant Epoxy Resin |
| ▪ PositiveLead dioxide | ▪ Safety valve EPDR |
| ▪ NegativeLead | ▪ Terminal Copper |
| ▪ ContainerABS | ▪ Separator Macromolecule polymer |
| ▪ CoverABS | ▪ Electrolyte sulfuric acid thixotropic Gel |

Terminal Dimensions:



Technical Specification:

Battery Model	GEL12-200			
Designed life	12 Years (Floating) or > 750 Cycles @ 50% D.O.D			
Capacity (25°C)	20HR(10.1A,1.75V)	10HR(20A,1.75V)	5HR(34A,1.75V)	1HR(126A,1.75V)
	202AH	200AH	170AH	126AH
Dimensions	Length	Width	Height	Total Height
	525mm	234mm	218mm	245mm
Approx. Weight	56.5KG			
Internal Resistance	Full charged at 25°C: 0.004 Ohm			
Self-Discharge	3% of capacity declined per month at (25°C)			
Capacity Affected	40°C	25°C	0°C	-15°C
By Temp. (20HR)	102%	100%	85%	65%
Charge voltage	Cycle use		Float use	
(25°C)	14.4-15V (-30mV/°C),max Current:50A		13.6-13.8V (-20mV/°C)	



Constant current discharge ratings-amperes at 25°C

F.V/Time	5 MIN	10 MIN	15MIN	30MIN	1HR	3HR	5HR	10HR	20HR
1.60V	700	480	350	210	132	54.6	38.2	21.2	10.5
1.67V	630	438	340	204	132	54.4	37.8	20.9	10.5
1.70V	598	422	328	200	131	54.4	37.8	20.7	10.5
1.75V	532	390	310	196	130	54.0	37.5	20.4	10.5
1.80V	480	362	296	190	128	53.8	37.2	20.0	10.1
1.85V	364	298	256	175	127	53.6	36.9	19.7	9.88

Constant power discharge ratings-watts at 25°C

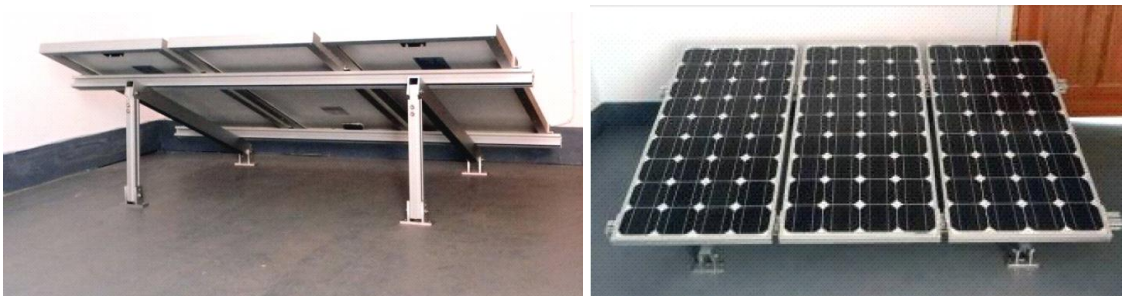
F.V/Time	5 MIN	10 MIN	15MIN	30MIN	1HR	3HR	5HR	10HR	20HR
1.60V	1154	796	620	396	260	105	73.0	42.4	21.1
1.67V	1094	786	614	388	251	105	73.0	41.8	21.0
1.70V	1022	766	604	378	245	105	73.0	41.5	21.0
1.75V	952	716	568	368	243	103	72.2	40.7	20.9
1.80V	854	666	534	358	238	102	71.0	40.0	20.2
1.85V	684	552	466	328	236	101	70.0	39.3	19.8

Flat Roof Mounting System

Application: Flat plate roof, Ground surface with cement base

Features: Professional Design mountings make the installation easy and fast, which can be connected even for over 10 panels, whose back supports can be raised or got down, so there are many installation angle designs for choices: 5-15degree, 15-30 degree, 30-45degree and 45-60degree.

It has an excellent performance among the same products in solar panels mounting business, with reasonable design, high anti-wind, adjustable angles, using minimal material, lowest cost and easy installation.



Technical Information:

Support Material: Extruded Aluminum Alloy

Installation: flat roof and ground

Anti-wind: 60m/s

Snow-load: 1.4KN/m²

Hardness: >12HW



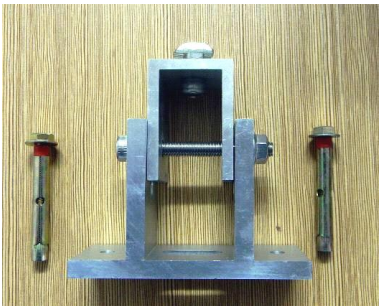




Intensity:>180Mpa

Color: Natural Color

Solar panels: 30MM-50MM solar panels

Warranty : 10years for solar stand

Components:

	
<p>Rail</p>	<p>Connecting accessory</p>
	
<p>Brace</p>	
	
<p>End Clamp Kit</p>	<p>Middle Clamp Kit</p>
	
<p>Joiner</p>	

Slope Roof Mounting System

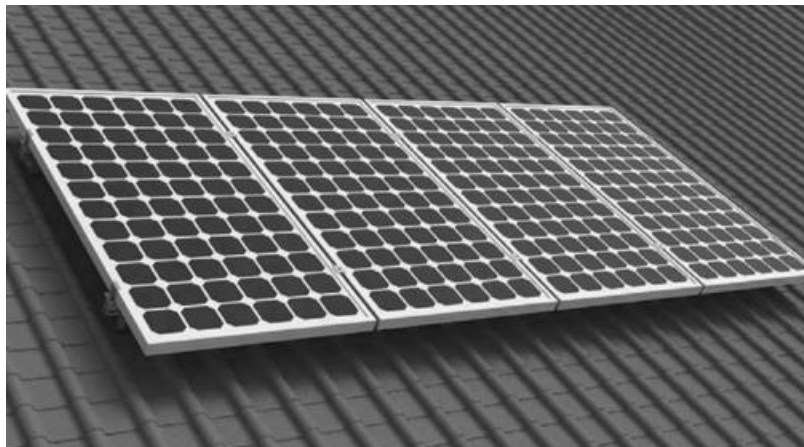
Application: Tile Roof

Features: Professional design rails, clamps and rail joiners make them just been simply installed without your rework.

“So easy and convenient” “Good products” are the feedback from customers. Our mounting products exported to Australia have passed the AS1170.2 test.

What’s more, we can design and manufacture the mountings according to customers’ needs.

Simple reasonable design structure, high hardness brackets and rails make the installation easy and gain positive criticism.



Technical Information:

Support Material: Extruded Aluminum Alloy With Oxidation Treatment

Anti-wind: $\leq 36\text{m/s}$

Snow-load: $\leq 1.75\text{KN/m}^2$

Hardness: $>12\text{HW}$

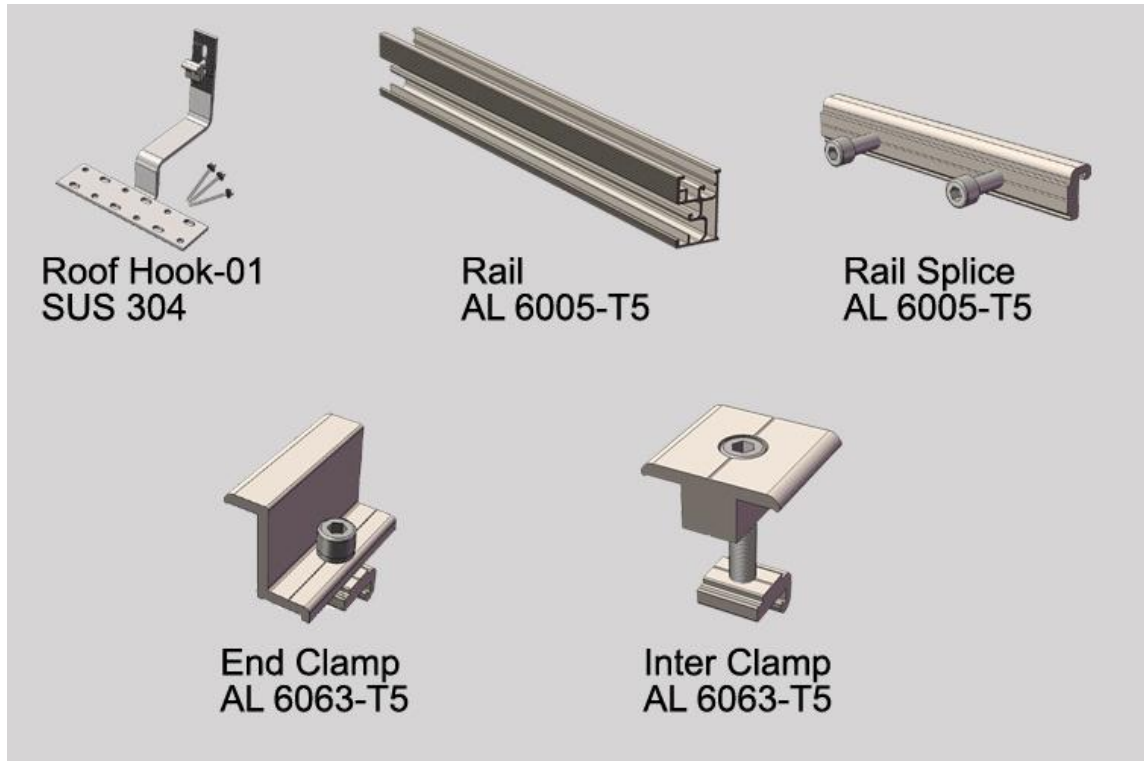
Intensity: $>180\text{Mpa}$

Color: Natural Color

Solar panels: 30MM-50MM solar panels

Warranty: 10 years for solar bracket

Components:



- END -