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Fengwei (International)
XIAMEN FENGWEI ENERGY
TECHNOLOGY CO., LTD.

COMPANY PROFILE

COMPANY PROFILE

Gracesolar leads the PV mounting market with industry-leading technology and a breadth of product solutions and services designed to meet the needs of any type of solar installation.

It is one of the few large-scale solar mounting system companies in China, designs, manufactures. We obedience to spirit of enterprise: "integrity, professional services" to maintain good relationships with clients and establish a positive sales team. We highlight the management of human resource and training to provide more professional and efficient service to clients so as to further improve our competitiveness.

Gracesolar supports people with a desire to have renewable power available to them. Deliver mounting solutions with freedom, flexibility, fewer cost and guide you through the design process from beginning to end. Using highly engineered mounting technology, the products can make the customers satisfied not only with a variety of structures but also the high quality which are durable, long lasting, and efficient, including 10 years of material warranty.

Gracesolar is continually researching the latest technologies and the most sensible energy alternatives to meet the needs of our customers'. It will come to a remarkable growth of its innovative and superior racking systems.

Mission

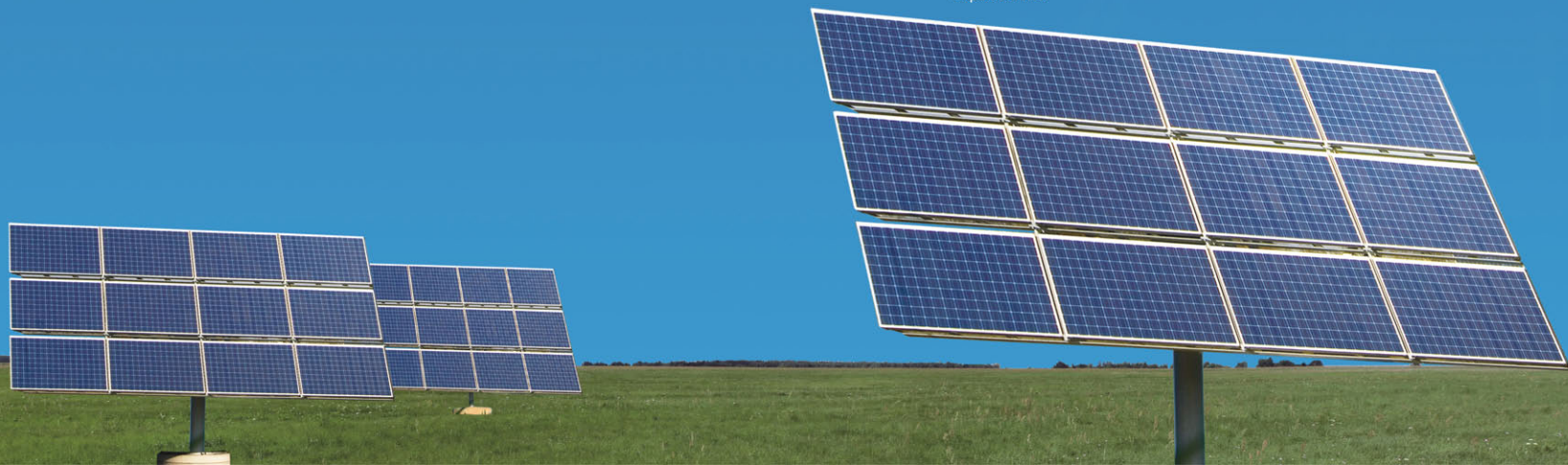
To win in the competitive position, enhance the viability of Solar Energy Industry, we are aiming at being recognized as one of World Class Supplier of Solar Mounting Technologies.

Values

- Relentless focus on meeting and exceeding our customer's and partner's needs
- Developing products and services that have professional and market leadership
- World-Class operations, anywhere, anytime with cost and quality
- Having a team with the spirit, integrity and competitiveness to achieve our mission

Vision

In the future, Gracesolar will be extremely valuable company, we will advance the adoption of solar rack system worldwide by exceeding our customer's PV mounting expectations.



GRACE SOLAR PITCHED ROOF RACKING SYSTEM

SLOPE ROOF

Grace Solar Pitched Roof Racking System is engineered for the maximum flexibility possible in designing and planning for the commercial and residential roof solar system. It is applicable to install the usual framed module to flush with the pitched roof. The special extruded aluminum rail, the tilt-in module, the clamp kit and the various roof hooks can be high pre-assembly and make the installation easy and quick to save your labor cost and time. The customized length can eliminate the weld and cut onsite to keep the high anticorrosive performance, the structure strength and the appearance.



Tilt Full Figure
Tile

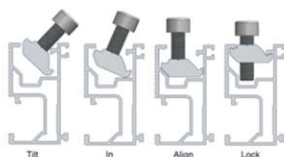
TECHNICAL INFORMATION

Install site: Pitched Roof
Tilt Angle: Flushed with the roof (10~60deg)
Building Height: 20m
Max Wind Speed: <60m/s
Snow Load: <1.4KN/m²
Standard: AS/NZS 1170 and other international Standard
Material: High Class Aluminum alloy A16005-T5& Stainless steel 304
Color: Natural or Optional
Anticorrosive: anodized aluminum&stainless steel
Warranty: Ten years warranty and twenty years service life

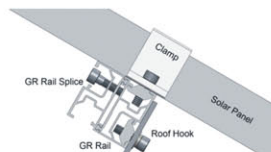
BENEFITS

- Easy to install. The tilt-in module can be put into the extruded rail from the any location and can be high pre-assembly with the clamp and roof hook to minimize the time and cost of installation
- Offer unmatched durability: with all structural components comprised of high class stainless steel and anodized aluminum alloy, it is designed for twenty years service life and backed by ten years warranty.
- Stand up to extreme weather. The grace solar pitched roof racking system is designed to stand up to the extreme weather complied with the AS/NZ 1170 and other international structure load standard by the skilled engineer. The main support components also have been test to guaranty its structure and load-carrying capacity.
- Provide broad installation flexibility. These systems accommodate most commercially available framed solar panels and diverse roof types, and they can scale easily from small to large, multi-megawatt installations.

ASSEMBLY FIGURE



Four Steps to put the tilt-in module into rail easily



Assembly drawing

COMPONENTS

Grace solar Rail

Features

- Material: Al6005-T5
- Extruded Aluminum Section
- High Class Anodized Aluminum
- Color of Al can be customized

Package: 8 Pcs/ package

Item No.	Description
Standard	
GR-R-2560	GR Rail with a standard length of 2560 mm Designed to mount 3 modules (width 808~826mm)
GR-R-3405	GR Rail with a standard length of 3405 mm Designed to mount 4 modules (width 808~826mm)
GR-R-4200	GR Rail with a standard length of 4200 mm Designed to mount 4 modules (width 990~996mm)
Customized Length	
GR-R	GR Rail with a customized length



GR-R (Clean Anodized)

Rail Splice Kit

Features

- Material: Al6005-T5 & A2-70 bolt
- Connect two pieces GR rail
- Color of Al can be customized

Package: 15Pcs/Box 4Boxes/CTN

Item No.	Description
GR-R-SP	GR standard rail splice kit



GR-R-SP
(Clean Anodized)



Color Anodized (Customized)



COMPONENTS

Framed Module Clamps

Features

- Material: Al6005-T5 & A2-70 stainless steel bolt
- Pre-assembly to compatible with the usual module
- Include the Inter Clamp and End Clamp
- Color of Al can be customized

Package: 100Pcs/Box 4Boxes/CTN

Inter Clamp Kit

Item No.	Description
GR-IC-F30	Grace Solar Inter Clamp Kit 30mm
GR-IC-F35	Grace Solar Inter Clamp Kit 35mm
GR-IC-F40	Grace Solar Inter Clamp Kit 40mm
GR-IC-F46	Grace Solar Inter Clamp Kit 46mm
GR-IC-F50	Grace Solar Inter Clamp Kit 50mm
GR-IC-F57	Grace Solar Inter Clamp Kit 57mm



Inter Clamp Kit
(Clean Anodized)



Color Anodized (Customized)

End Clamp Kit

Item No.	Description
GR-EC-F30	Grace Solar End Clamp Kit 30mm
GR-EC-F35	Grace Solar End Clamp Kit 35mm
GR-EC-F40	Grace Solar End Clamp Kit 40mm
GR-EC-F46	Grace Solar End Clamp Kit 46mm
GR-EC-F50	Grace Solar End Clamp Kit 50mm
GR-EC-F57	Grace Solar End Clamp Kit 57mm



End Clamp Kit
(Clean Anodized)



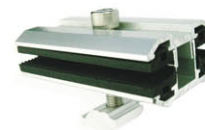
Color Anodized (Customized)

COMPONENTS

Frameless Module Clamps

Item No. Description

GR-IC-L80 Thin Film Module Inter Clamp



GR-IC-L80

Features

- Material: Anodized Al6005-T5
- Fix the thin film module with thickness 6~10mm
- Pre-assembly with Rubber Pad and Stainless Steel Fastener
- Color of Al can be customized

Item No. Description

GR-EC-L80 Thin Film Module Inter Clamp



GR-EC-L80

Features

- Material: Anodized Al6005-T5
- Fix the thin film module with thickness 6~10mm
- Pre-assembly with Rubber Pad and Stainless Steel Fastener
- Color of Al can be customized

Item No. Description

GR-CC-40 Rails Cross-Connector



GR-CC-40

Features

- Material: Anodized Al6005-T5
- Pre-assembly with Stainless Steel Fastener
- Color of Al can be customized

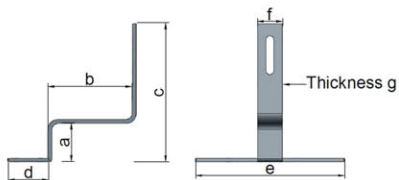


COMPONENTS

Tile Roof Hook

Features

- Material: Stainless steel 304 & A2-70 bolt
- Pre-assembly with the tilt-in module
- Various types to meet the difference roof
- Chooed according to the weather condition



Dimension Drawing For the Charts

Item No.	Description						
GR-IK-01	Stainless Steel Hook 1# -Fix rails to Roman tile roof -For low Snow loads and normal wind load						
Dimension Chart							
	a	b	c	d	e	f	g
mm	46	101	166	50	180	30	5

Package: 40PCS/CTN



GR-IK-01

GR-IK-02	Stainless Steel Hook 2# -Fix rails to Flat tile roof -For low Snow loads and normal wind load						
	a	b	c	d	e	f	g
mm	30	190	166	80	30	30	5

Package: 60PCS/CTN



GR-IK-02

GR-IK-03	Stainless Steel Hook 3# -Fix rails to Roman tile roof -For low Snow loads and normal wind load						
	a	b	c	d	e	f	g
mm	30	101	166	50	30	30	5

Package: 24PCS/CTN



GR-IK-03

COMPONENTS

Item No.	Description			
GR-IK-04	Stainless Steel Hook 4# -Fix rails to Slate tile roof -For low Snow loads and normal wind load			
	Length	Height	Width	Thickness
mm	200	120	30	5

Package: 80PCS/CTN



GR-IK-04

GR-IK-06	Stainless Steel Hook 6# -Fix rails to Roman tile roof -For low Snow loads and normal wind load						
	a	b	c	d	e	f	g
mm	46	70	166	50	180	30	5

Package: 40PCS/CTN



GR-IK-06

GR-IK-09	Stainless Steel Hook 9# -Fix rails to Roman tile roof -For the heavy snow load						
	a	b	c	d	e	f	g
mm	46	111	200	60	180	35	8

Package: 20PCS/CTN



GR-IK-09

GR-IK-10	Stainless Steel Hook 10# -Top fix rails to Roman tile roof -For the heavy snow load						
	a	b	c	d	e	f	g
mm	46	101	127	50	180	30	5

Package: 20PCS/CTN



GR-IK-10

GR-IK-12	Adjustable Stainless Steel Hook 12# -Top fix rails to Roman tile roof -For the low snow load and normal wind load						
	a	b	c	d	e	f	g
mm	38~50	101	158~170	55	140	30	5

Package: 40PCS/CTN



GR-IK-12



COMPONENTS

Corrugated Roof Hook

Features

- Material: Al6005-T5 & A2-70 bolt
- Extruded Aluminum Section
- Pre-assembly with the tilt-in module
- Color of Al can be customized

Item No.	Description
GR-IK-05	Aluminum Tin Interface Kit 5# -Fix rails to tin roof -Fixation by a wood screw M6x80

Package: 200PCS/CTN



Color Anodized (Customized)

GR-IK-H01	Hanger Bolt Hook 1# -Fix rails to corrugated roof -Fixation by M10x200 hanger bolt
GR-IK-H02	Hanger Bolt Hook 2# -Fix rails to corrugated roof -Fixation by M12x200 hanger bolt
GR-IK-H03	Hanger Bolt Hook 3# -Fix rails to corrugated roof -Fixation by M12x300 hanger bolt



GR-IK-05



GR-IK-H01
GR-IK-H02
GR-IK-H03

COMPONENTS

Sheet Metal Roof Hook

Features

- Material: Al6005-T5 & stainless steel 304 & A2-70 bolt
- Pre-assembly with the tilt-in module
- Customized according to the section parameter of the sheet metal roof.

Item No.	Description
GR-IK-07	Stainless Steel Hook 7# Fix rails to trapezoid sheet metal roof

Package: 160PCS/CTN

Note: the new type trapezoid need consider the tool fee.



GR-IK-07

GR-IK-S01	Standing Seam Roof Hook 1# -Fix rails to standing seam roof
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GR-IK-S01

GR-IK-S02	Standing Seam Roof Hook 2# -Fix rails to KalZip- Bemo-roofs
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GR-IK-S02

GR-IK-S03	Standing Seam Roof Hook 3# -Fix rails to Zambelli RibRoof
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GR-IK-S03



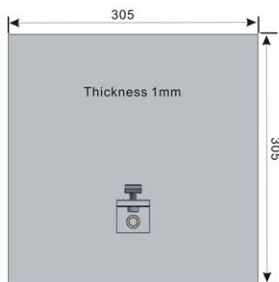
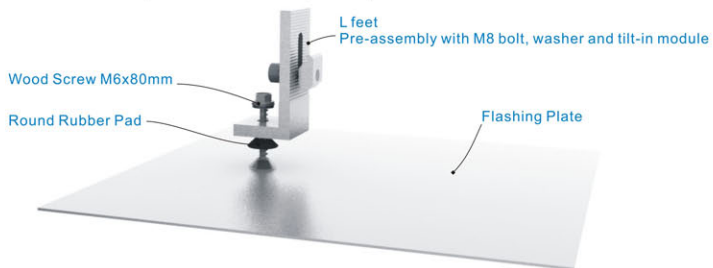
COMPONENTS

Flashing Hook

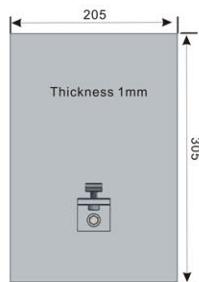
Item No.	Description
GR-FK-01	Shingle Roof Flashing Hook, 305x305x1mm
GR-FK-02	Shingle Roof Flashing Hook, 305x205x1mm

Features

- All-in-one waterproof flashing and mount to anchor photovoltaic racking systems
- Made of all aluminum and includes stainless steel hardware
- Installs seamlessly and saves labor by not needing to cut away any roofing
- Fit with in most composition and wood shingle roof systems

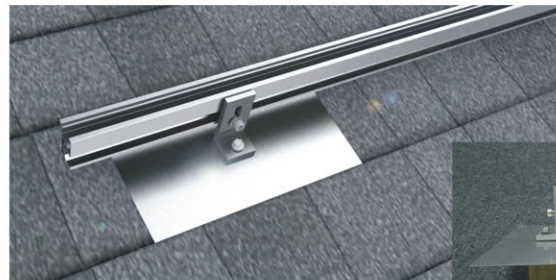


GR-FK-01



GR-FK-02

Pictures



Waterproof Test





COMPONENTS

Accessories

Framed Clamp

GR-A-IC	Framed Module Inter Clamp
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Color Anodized (Customized)

GR-A-EC30	Framed Module End Clamp 30
GR-A-EC35	Framed Module End Clamp 35
GR-A-EC40	Framed Module End Clamp 40
GR-A-EC46	Framed Module End Clamp 46
GR-A-EC50	Framed Module End Clamp 50
GR-A-EC57	Framed Module End Clamp 57



Color Anodized (Customized)

Tilt-in Module

GR-A-TM01	Tilt-in Module, -Width 20mm, M8 threaded hole
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Color Anodized (Customized)



Inter Clamp
(Clean Anodized)



End Clamp
(Clean Anodized)



Tilt-in Module
(Clean Anodized)

COMPONENTS

Fastener

Socket Head Screw-----Stainless Steel A2-70

GR-F-S820	Socket Head Screw M8x20
GR-F-S825	Socket Head Screw M8x25
GR-F-S828	Socket Head Screw M8x28
GR-F-S830	Socket Head Screw M8x30
GR-F-S835	Socket Head Screw M8x35
GR-F-S840	Socket Head Screw M8x40
GR-F-S845	Socket Head Screw M8x45
GR-F-S850	Socket Head Screw M8x50
GR-F-S855	Socket Head Screw M8x55
GR-F-S860	Socket Head Screw M8x60
GR-F-S865	Socket Head Screw M8x65
GR-F-S870	Socket Head Screw M8x70



Nut-----Stainless Steel A2-70

GR-F-N108	Hexagon Nut, M8
GR-F-N208	Flange Nut With Locking Teeth, M8
GR-F-N210	Flange Nut With Locking Teeth, M10
GR-F-N212	Flange Nut With Locking Teeth, M12



Washer-----Stainless Steel A2-70

GR-F-W108	Spring Washer, M8
GR-F-W208	Lock Washer, M8, OD13
GR-F-W308	Lock Washer, M8, OD18



Self-tapping Screw-----Stainless Steel 410

GR-F-T625	Self-tapping Screw, St6.3x25
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COMPONENTS

Screws and Accessories

Wood Screw

GR-F-W680	Galvanized Wood Screw, S16.3x80 With Pad
GR-F-W808	Galvanized Wood Screw, M8x80 With Pad
GR-F-W010	Galvanized Wood Screw, M10x100 With Pad



Hanger Bolt

GR-F-H020	Hanger Bolt M10x200 -Stainless Steel A2-70
GR-F-H220	Hanger Bolt M12x200 -Stainless Steel A2-70
GR-F-H230	Hanger Bolt M12x300 -Stainless Steel A2-70



Hanger Bolt Assembly

Features

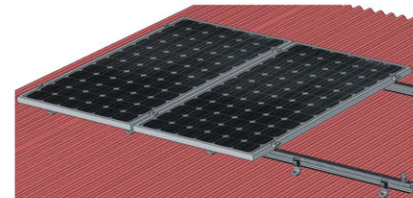
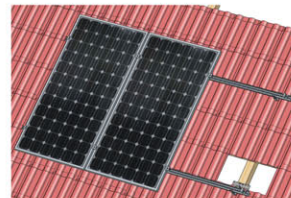
- Material: A2-70 bolt
- Include 3 pcs Flange Nuts & Rubber Pad & Hanger Bolt
- Pre-assembly

GR-FA-H020	Hanger Bolt Assembly M10x200
GR-FA-H220	Hanger Bolt Assembly M12x200
GR-FA-H230	Hanger Bolt Assembly M12x300



PROJECT EXAMPLE

Framed Module Project



Solar Panels Size: 1580*808*46mm or 1585*826*46mm	Rail GR-R-	Roof Hook GR-IK-01 (Tile) GR-IK-05 (Tin)	Inter Clamp GR-IC-F46	End Clamp GR-EC-F46	Rail Splice GR-R-SP
Tile Roof 3 Panels	2560mm 2 pcs	6	4	4	2
Tile Roof 4 Panels	3405mm 2 pcs	6	6	4	2
Tin Roof 3 Panels	2560mm 2 pcs	10	4	4	2
Tin Roof 4 Panels	3405mm 2 pcs	10	6	4	2

Note: The above planning is applicable to the low snow loads and normal wind loads.

Frameless Module Project



Solar Panels Size: 1200*600*6.8mm	GS Rail Top Floor	GS Rail Bottom Floor	Thin Film Inter Clamp	Thin Film End Clamp	Rails Cross-Connector	Roof Hook 1#
	GR-R-2560	GR-R-2560	GR-IC-L80	GR-EC-L80	GR-CC-40	GR-IK-01
Tile Roof 8 Panels Array 4x2	2560mm 4 pcs	2560mm 2 pcs	80mm 12 pcs	80mm 8 pcs	40mm 8 pcs	Thickness 5mm 6 pcs

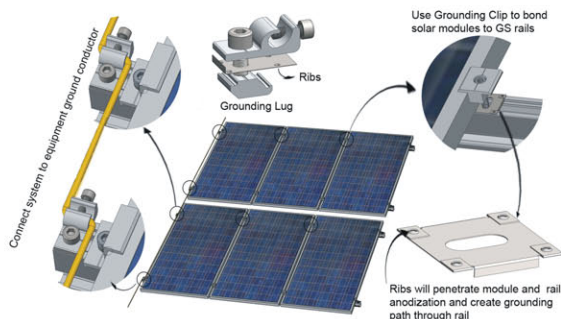
Note: The above planning is applicable to the low snow loads and normal wind loads.



GRACE SOLAR GROUNDING SYSTEM

GROUNDING

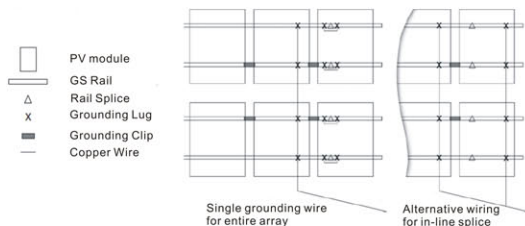
Grace Solar Grounding Product can be used to bond solar modules to the aluminum rails and the aluminum rails to ground, so that the entire solar system is grounded and safe; Grounding products include the stainless steel grounding clip and aluminum grounding lug, which are all designed to comply with the requirement of AS5033, UL467 for bonding or grounding systems.



BENEFITS

- **Easy install:** Grace Solar Grounding Products are designed to fit the features of Grace Rail perfectly. It is the most popular solution for solar system grounding and not more running ground wire to every PV module.
- **High Standard:** Grace Solar Grounding Products can meet the AS5033 and UL467 requirement for bonding and grounding system.
- **Excellent Performance:** The special design features stainless steel rib that pierce into anodized aluminum, providing a gas tight connection which prevents oxidation and get a excellent grounding preformance.

PLANNING LAYOUT



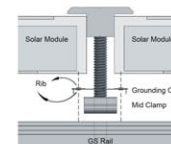
COMPONENT

Grounding Clip

Features

- Material: SUS304
- Special rib both surface to pierce the aluminum anodization
- Cooperated with Mid Clamp to install on the GS Rail

Item No.	Description
GR-G-GC	Grounding Clip



Grounding Lug

Item No.	Description
GR-G-GL	Grounding Lug

Features

- Material: Al6005-T5 lay-in lug & Stainless Steel Clip & A2-70 bolt
- High Pre-assembly
- Connect system to equipment ground conductor



GR-G-CGL	Copper Grounding Lug
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Features

- Material: Copper lay-in lug & Stainless Steel Clip & A2-70 bolt
- High Pre-assembly
- Connect system to equipment ground conductor
- Excellent electric conductivity





GRACE SOLAR TILT RACKING SYSTEM

TILT SYSTEM

Grace solar tilt racking system has been developed to mount the modules tilt a certain angle on a flat roof or ground. This system can be a fixed or adjustable angle solution as 10-15 deg, 15-30 deg and 30-60 deg for your requirement. The special extruded aluminum rail, the tilt-in module, the clamp kit and the various legs can be pre-assembly and make the installation easy and quick to save your labor cost and time. The customized length can eliminate the weld and cut onsite to keep the high anticorrosive performance, the structure strength and the appearance.

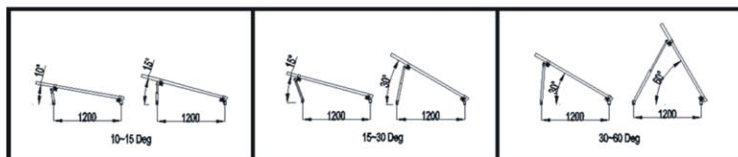
TECHNICAL INFORMATION

Install site: Low profile roof, flat roof or ground
Tilt Angle: 10-60deg
Building Height: 20m
Max Wind Speed: <60m/s
Snow Load: <1.4KN/m²
Standard: AS/NZS 1170 and other international Standard
Material: High Class Aluminum alloy A16005-T5 & Stainless steel 304
Anticorrosive: Anodized
Color: Natural and Customized
Warranty: Ten years warranty and twenty years service life

BENEFITS

- Easy to install. The tilt-in module can be put into the extruded rail from the any location and can be high pre-assembly with the clamp and leg to minimize the time and cost of installation.
- Offer unmatched durability: with all structural components comprised of high class stainless steel and anodized aluminum alloy, it is designed for twenty years service life and backed by ten years warranty.
- Stand up to extreme weather. The grace solar roof tilt racking system is designed to stand up to the extreme weather complied with the AS/NZS 1170 and other international structure load standard by the skilled engineer. The main support components also have been test to guaranty its structure and load-carrying capacity.
- Provide broad installation flexibility. These systems accommodate most commercially available framed solar panels and diverse roof types, and they can scale easily from small to large, multi-megawatt installations.

ASSEMBLY FIGURE



Adjustable Tilt System



Triangle Fixed Tilt System

COMPONENTS

Adjustable Tilt System

Item No.	Description	Package
GR-AD-FL	Adjustable Front Leg	80PCS/CTN

Features

- Material: Al6005-T5 & A2-70 bolt
- High Pre-assembly
- Color of Al can be customized



GR-AD-FL
(Clean Anodized)



Color Anodized (Customized)

Item No.	Description	Package
GR-AD-RL10/15	Adjustable Rear Leg 10-15 deg	35PCS/CTN
GR-AD-RL15/30	Adjustable Rear Leg 15-30 deg	25PCS/CTN
GR-AD-RL30/60	Adjustable Rear Leg 30-60 deg	28PCS/CTN

Features

- Material: Al6005-T5 & A2-70 bolt
- High Pre-assembly
- Color of Al can be customized



GR-AD-RL10/15



Color Anodized (Customized)



GR-AD-RL15/30

(Clean Anodized)

GR-AD-RL30/60

COMPONENTS

TRIANGLE Fixed Tilt System

Features

- Material: Al6005-T5 & A2-70 bolt
- Color of Al can be customized

Item No.	Description
GR-FT-S10	Triangle Support Rack 10deg



GR-FT10-TS

GR-FT-S20	Triangle Support Rack 20deg
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GR-FT20-TS

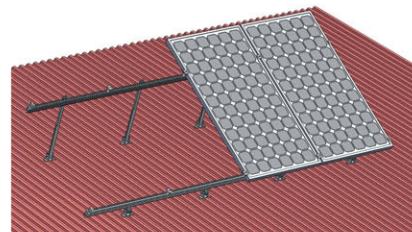
GR-FT-S30	Triangle Support Rack 30deg
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GR-FT30-TS

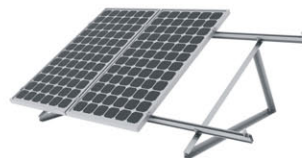
PROJECT EXAMPLE

Adjustable Tilt System



Solar Panels Size: 1580*808*46mm or 1585*826*46mm	Rail GR-R-	Front Leg GR-AD-FL	Front Leg GR-AD-RL	Inter Clamp GR-IC-F46	End Clamp GR-EC-F46	Rail Splice GR-R-SP
Adjustable 10/15 4 Panels install	3405mm 2 pcs	4	4	6	4	2
Adjustable 15/30 4 Panels install	3405mm 2 pcs	4	4	6	4	2
Adjustable 30/60 4 Panels install	3405mm 2 pcs	4	4	6	4	2

TRIANGLE Fixed Tilt System



Solar Panels Size: 1580*808*46mm or 1585*826*46mm	Rail GR-R-	Triangle Support 30deg GR-FT30-TS	Inter Clamp GR-IC-F46	End Clamp GR-EC-F46	Rail Splice GR-R-SP
Fixed 30deg 3 Panels install	2560mm 2 pcs	2	4	4	2
Fixed 30deg 4 Panels install	3405mm 2 pcs	3	6	4	2



GRACE SOLAR BALLASTED MOUNTING SYSTEM

BALLASTED MOUNTING

Grace Solar Ballasted Mounting System is a grace highly engineered solution that secures the array without damaging the flat roof. It is compatible with the usual framed photovoltaic modules and typically does not require roof penetrations. Made from lightweight and strong aluminum construction, the Grace solar ballasted solution will arrive pre-assembled and pre-cut to prevent corrosion and save your labor cost and installation time.



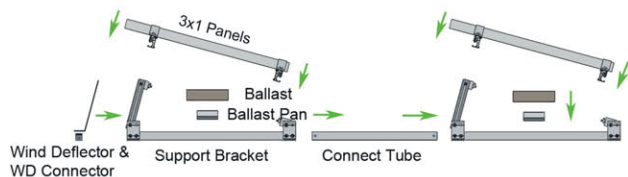
TECHNICAL INFORMATION

Install site: Flat Roof
Tilt Angle: 5deg, 10deg, 15deg, 20deg
Module Orientation: Landscape
Building Height: <20m
Max Wind Speed: <60m/s
Snow Load: <1.4KN/m²
Distributed weight: 10~25Kg/m²
Standard: AS/NZS 1170 and other international Standard
Material: High Class Aluminum alloy & Stainless steel 304
Color: Natural or Customized
Anticorrosive: anodized aluminum & stainless steel
Warranty: Ten years warranty and twenty years service life

BENEFITS

- Easy to install. The pre-assembly support bracket can be connected easily with the rail to mount the framed solar panels. No prior training or staging is required but a detailed installation instruction. Ease of installation means lower project cost.
- Offer unmatched durability: with all structural components comprised of high class stainless steel and anodized aluminum alloy, it is designed for twenty years service life and backed by ten years warranty.
- Stand up to extreme weather. The Grace Solar Ballasted Mounting system is designed to stand up to the extreme weather complied with the AS/NZ 1170 and other international structure load standard by the skilled engineer. The main support components also have been test to guaranty its structure and load-carrying capacity.
- Provide broad installation flexibility. These systems accommodate most commercially available framed solar panels and diverse roof types, and they can scale easily from small to large, multi-megawatt installations.

ASSEMBLY FIGURE



COMPONENTS

Ballasted Support Bracket

Features

- Material: Al6005-T5
- High Class Anodized Aluminum
- High Pre-Assembly

Item No.	Description
GR-BM5-SB	Ballasted Support Bracket for 5deg
GR-BM10-SB	Ballasted Support Bracket for 10deg
GR-BM15-SB	Ballasted Support Bracket for 15deg
GR-BM20-SB	Ballasted Support Bracket for 20deg



GR-BM15-SB

Connect Tube

Features

- Material: Al6005-T5
- High Class Anodized Aluminum

Item No.	Description
GR-CT40-	Connect Tube



GR-CT40-

Ballast Pan

Features

- Material: Al5052-H24
- Aluminum Sheet Metal

Item No.	Description
GR-BP-200	Ballast Pan width 200mm



GR-BP-200

Wind Deflector and WD Connector

Features

- Material: Al5052-H24 & SUS304
- Sheet Metal

Item No.	Description
GR-WD15-760	Wind Deflector 760mm for 15 deg
GR-WD20-760	Wind Deflector 760mm for 20 deg



GR-WD15-760

GR-WD20-760

GR-BM-DC	WD Connector
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GR-BM-DC



GROUND MOUNTING SYSTEM

Ground Array

Grace solar Ground Mount System is applicable to be the photovoltaic array system on the open field. This system is designed to be steady and safely complied with the structural mechanics and construction acts.

For the difference foundation solutions, such as concrete with pre-buried bolt, direct buried and ground screw, the system can be modified to be installed. Its material, include the hot galvanized steel and anodized aluminum alloy, is all have high anti-corrosive for using outdoor.

According to the practical requirement, The system could be planned and customized on the factory to eliminate the welding and cut onsite to save your time and money.



TECHNICAL INFORMATION

Install site: Open ground

Tilt Angle: 10-60deg

System Height: <2.5m

Max Wind Speed: <60m/s

Snow Load: <1.4KN/m²

Standard: AS/NZS 1170 and other international Standard

Material: Aluminum alloy Al6005-T5 & Stainless steel 304 & Hot galvanized steel

Anticorrosive: Anodized & Hot galvanized

Color: Natural or Optional

Warranty: Ten years warranty and up twenty years service life

BENEFITS

- Easy to install. Planning and machining on the factory to save your time on install site.
- Steady and Safe. Design and check the structure according to the structural mechanics and construction acts.
- Excellent Service Life. For outdoor using, the material selected all have a high class anti-corrosion protection.
- Flexible Application. The ground array can be planned from kilo-watt to mega-watt.

FOUNDATION SOLUTION



Concrete Foundation
(Pre-buried Bolt)



Directly Buried



Ground Screw

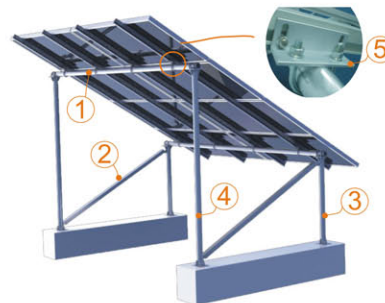
COMPONENTS

Integrated Type Ground Mounting

Features

- Material and finish: Hot galvanized steel Q235
- The Leg welded to be integral reduce the install step
- Foundation option: a. Concrete b. Ground Screw

Item No.	Description.
GR-CP-60/	Cross Pipe OD60
GR-AS-40/1820	Angle Steel Brace 1820mm with accessory
GR-GM-FL985	Front Leg 985mm with U bolt
GR-GM-BL1990	Back Leg 1990mm with U bolt



Concrete Foundation with Pre-buried Bolt

Item No.	Description
GR-GM-SK	Angle Splice for cross pipe and rail

Features

- Material: Al6005-T5 & A2-70 bolt
- High pre-assembly with the tilt-in module
- Cooperate with the U bolt to connect the pipe OD60mm with the Rail



1. GR-CP-60



2. GR-AS-40/1820



3. GR-GM-FL985

4. GR-GM-BL1990



5. GR-GM-SK



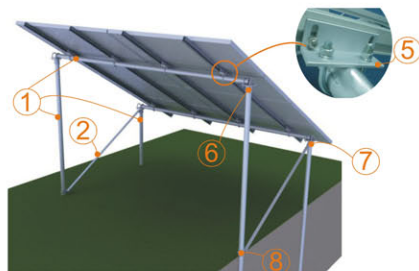
COMPONENTS

Cap Type Ground Mounting

Features

- Material and finish: Hot galvanized steel Q235
- The steel cap is applied flexibly on various condition
- Foundation option: a. Concrete b. Ground Screw c. Directly Buried

Item No.	Description.
GR-GM-C01	Steel Cap 1# for Pipe OD60
GR-GM-C02	Steel Cap 2# for Pipe OD60
GR-GM-C03	Steel Cap 3# for Pipe OD60



Directly Buried



6. GR-GM-C01



7. GR-GM-C02



8. GR-GM-C03

Accessories

GR-FA-UB60	U bolt kit M12x76, galvanized
GR-FA-GS01	Ground Screw OD68*T2*1000, galvanized Fixed by set screw
GR-FA-GS02	Ground Screw OD68*T2*1000, galvanized Weld with flange plate



PROJECT EXAMPLE

Project Information

Solar Panels Size:	1580*808*46mm	Flood Height:	600mm
Tilt Angle:	30 Deg	Wind Speed:	Normal
Unit Array:	4*2 (8 pcs panels)	4*3 (12 pcs panels)	

Solution 1

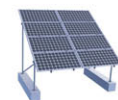
Product Item	Spec.	Qty	
		Array 4*2	Array 4*3
GR-R-3405	3405mm	4pcs	6pcs
GR-IC-F46	46mm	12pcs	18pcs
GR-EC-F46	46mm	8pcs	12pcs
GR-GM-SK	50*6*140mm	8pcs	12pcs
GR-GM-FL985	985mm	2pcs	2pcs
GR-GM-BL1990	1990mm	2pcs	2pcs
GR-AS-40/1820	1820mm	2pcs	2pcs
GR-CP-60/3200	3200mm	2pcs	X
GR-CP-60/4800	4800mm	X	2pcs

Foundation Option 1: Concrete

Please consult with the local engineer to decide the size

Foundation Option 2: Ground Screw

GR-FA-GS02	OD68*1000	4pcs	4pcs
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Concrete Foundation



Ground Screw Foundation

Solution 2

Product Item	Spec.	Qty	
		Array 4*2	Array 4*3
GR-R-3405	3405mm	4pcs	6pcs
GR-IC-F46	46mm	12pcs	18pcs
GR-EC-F46	46mm	8pcs	12pcs
GR-GM-SK	50*6*140mm	8pcs	12pcs
GR-GM-C01	1#	2pcs	2pcs
GR-GM-C02	2#	2pcs	2pcs
GR-GM-C03	3#	2pcs	2pcs
GR-FA-UB60	M12x76	8pcs	8pcs
GR-CP-60/1985	1985mm	2pcs	2pcs
GR-CP-60/2990	2990mm	2pcs	2pcs
GR-AS-40/1820	1820mm	2pcs	2pcs
GR-CP-60/3200	3200mm	2pcs	X
GR-CP-60/4800	4800mm	X	2pcs



Directly Buried



Ground Screw Foundation

Note: The above is suitable for the directly buried solution.

Foundation Option 2: Ground Screw

GR-FA-GS01	OD68*1000	4pcs	4pcs
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Note: The front and back leg can be shorted 500mm.



POLE MOUNTING SYSTEM

POLE MOUNT SOLUTIONS



Full Figure

Grace Solar Pole Mount System is applied to install the solar panels on a single pole. According to different conditions, there are several kinds of solutions for your choice.

Grace solar pole mount system is attached importance to the safety and duration. The systems have been calculated complied with the structural mechanics and tested strictly. Its material surface of the parts, such as steel and aluminum, are all finished to get a great anti-corrosion for at least twenty years of outdoor use.



Detail Figure

TECHNICAL INFORMATION

Install site: Open ground

Tilt Angle: 10°-60deg

System Height: <5m

Max Wind Speed: <60m/s

Snow Load: <1.4KN/m²

Standard: AS/NZS 1170 and other international Standard

Material: High Class Aluminum alloy Al6005-T5& Stainless steel 304 & Hot galvanized steel

Color: Natural or optional

Anticorrosive: Anodized aluminum & Hot galvanized

Warranty: Ten years warranty and twenty years service life

BENEFITS

- Easy to install. The tilt-in module can be put into the extruded rail from the any location and can be high pre-assembly with the clamp to minimize the time and cost of installation. The high integrated support structure just need a few bolts to fasten together.
- Offer unmatched durability: with all structural components comprised of high class stainless steel, anodized aluminum alloy and the double anticorrosive finish for the steel pipe and cap, it is designed for twenty years service life and backed by ten years warranty.
- Stand up to extreme weather. The grace solar ground mount system is designed to stand up to the extreme weather complied with the AS/NZS 1170 and other international structure load standard by the skilled engineer. The main support components also have been test to guaranty its structure and load-carrying capacity.
- Provide broad installation flexibility. These systems accommodate most commercially available framed solar panels and diverse foundation solution, and they can scale easily from small to large, multi-megawatt installations.

COMPONENTS

POLE MOUNT 2#

Features

- Material: Hot galvanized steel Q235
- High integrated to reduce the bolt
- Install area of modules: up to 3.2 m² (wind speed<45m/s)
- Foundation: concrete with pre-buried bolt

Item No.	Description
GR-PM02-01	Pole support for 2 pcs module (1580x808mm) - Pole OD89x1490mm x 1pc - Beam 50x900mm x 1pc - Adjustable bar x 1pc - Accessories and Fastens

Note: the length of the Beam and Pole can be customized for different conditions



POLE MOUNT 6#

Features

- Material: Hot galvanized steel Q235
- High integrated to reduce the bolt
- Install area of modules: up to 8.3 m² (wind speed<45m/s)
- Foundation: concrete with pre-buried bolt

Item No.	Description
GR-PM06-01	Pole support for 6 pcs module (1580x808mm) - Pole OD140x1490mm x1pc - Beam 80x1300mm x 1pc - Purlin C100x2600mm x 2pcs - Adjustable bar x 1pcs - Accessories and Fastens

Note: the length of the Pole, Beam and Purlin can be customized for different conditions



COMPONENTS

POLE MOUNT 8#

Features

- Material: Hot galvanized steel Q235
- High integrated to reduce the bolt
- Install area of modules: up to 11.5 m² (wind speed<45m/s)
- Foundation: concrete with pre-buried bolt

Item No.	Description
GR-PM08-01	Pole support for 8 pcs module (1580x808mm) - Pole OD165x1490mm x 1pc - Beam 100x1800mm x 1pc - Purlin C100x2600mm x 3 pcs - Adjustable bar x 1pc - Accessories and fastens

Note: the length of the Pole, Beam and Purlin can be customized for different conditions



PROJECT EXAMPLE

Project Information

Solar Panels Size:	1580*808*46mm	Pole Height:	1500mm
Tilt Angle:	10~60 Deg	Wind Speed:	<45m/s
Foundtaion:	Concrete with pre-buried bolt		
Array 1#	1*2 (2 pcs panels)		
Array 2#	3*2 (6 pcs panels)		
Array 3#	4*2 (8 pcs panels)		

Array 1#

Product Item	Spec.	Qty
GR-R-1700	1700mm	1x2
GR-IC-F46	46mm	2pcs
GR-EC-F46	46mm	2pcs
GR-PM02-01	46mm	4pcs
GR-PM02-01	1500mm	1pcs

Array 2#

Product Item	Spec.	Qty
GR-R-2560	2560mm	3x2
GR-IC-F46	46mm	4pcs
GR-EC-F46	46mm	8pcs
GR-PM02-01	46mm	8pcs
GR-PM02-01	1500mm	1pcs

Array 3#

Product Item	Spec.	Qty
GR-R-3405	3405mm	4x2
GR-IC-F46	46mm	4pcs
GR-EC-F46	46mm	12pcs
GR-PM02-01	46mm	8pcs
GR-PM02-01	1500mm	1pcs

