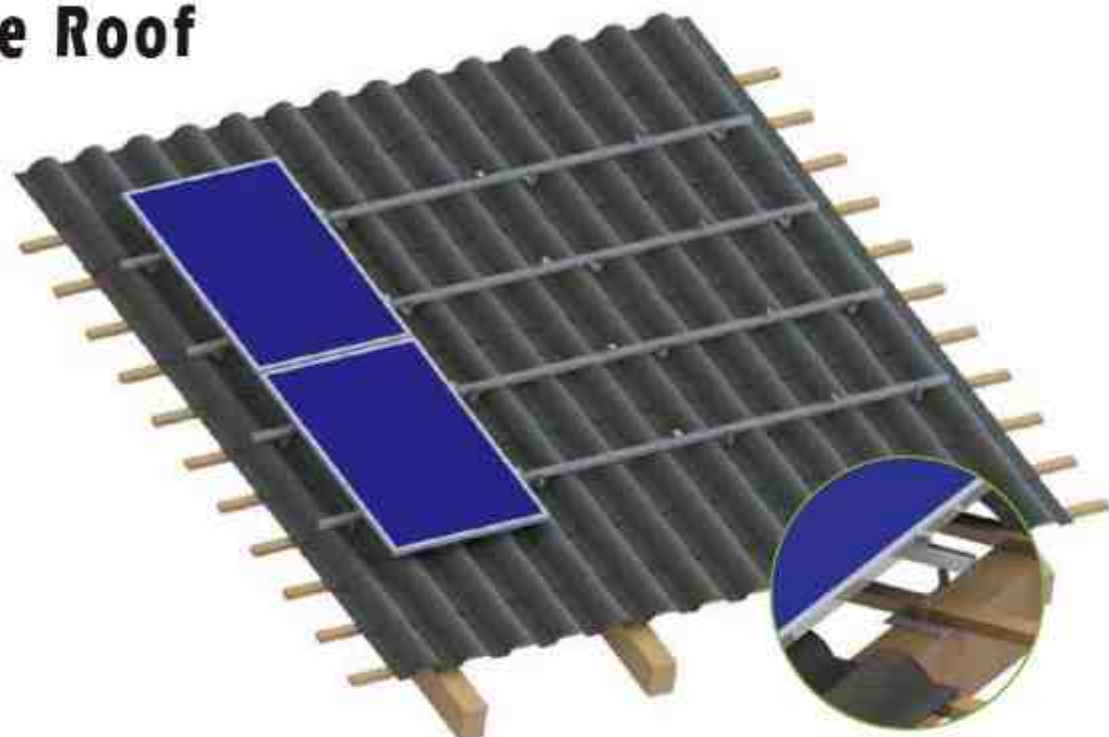




SOLAR POWER SYSTEM



Tile Roof



CR 1# Rail KS-CR1-XXX



Application:

Pitched roof with tiles

Fastening:

Roof hooks onto rafters

Roof Pitch:

Up to 60°

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

Layers of Rails:

Single/double layer, cross rail installation

Advantages:

Low fitting costs

Every size of module array possible

For all common rafter distances

CR 1# Rail Splice Kit KS-CR1-SP



Tile Roof Hook 1# KS-HK-R01

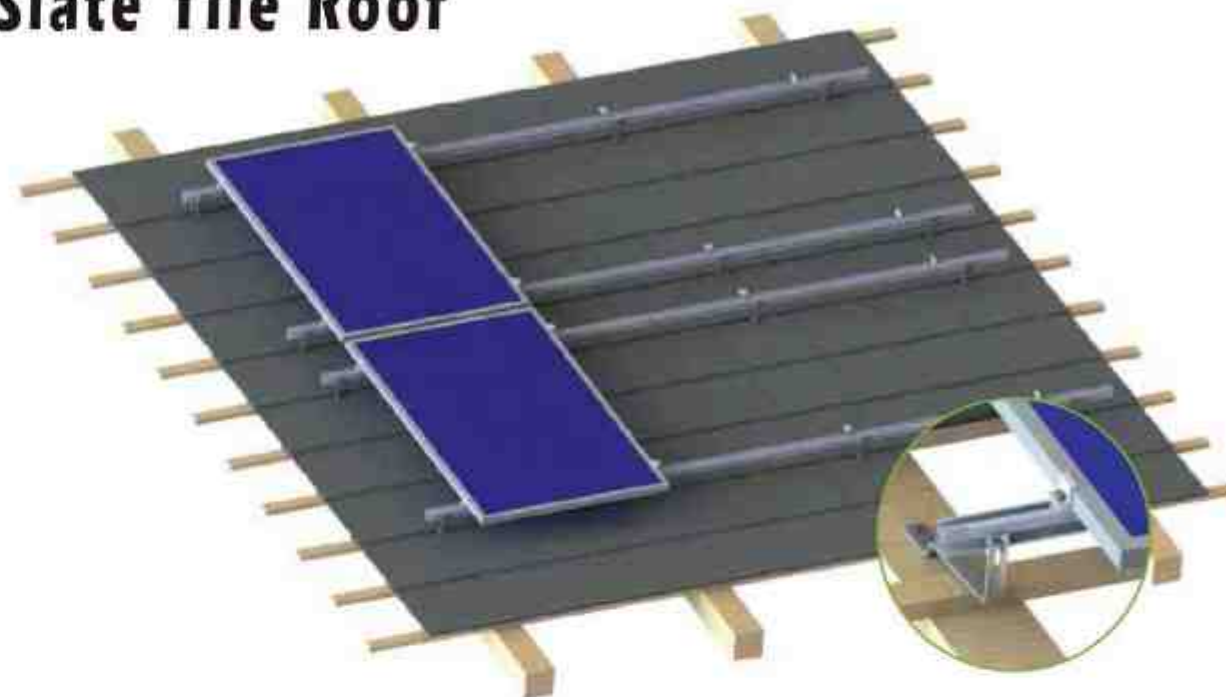


Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Slate Tile Roof



CR3# Rail KS-CR3-XXX



Application:

Pitched roof with tiles

Fastening:

Roof hooks onto rafters

Roof Pitch:

Up to 60°

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

Layers of Rails:

Single/double layer, cross rail installation

Advantages:

Low fitting costs

Every size of module array possible

For all common rafter distances

CR 1# Rail Splice Kit KS-CR1-SP



Slate Tile Roof Hook 1# KS-HK-F01

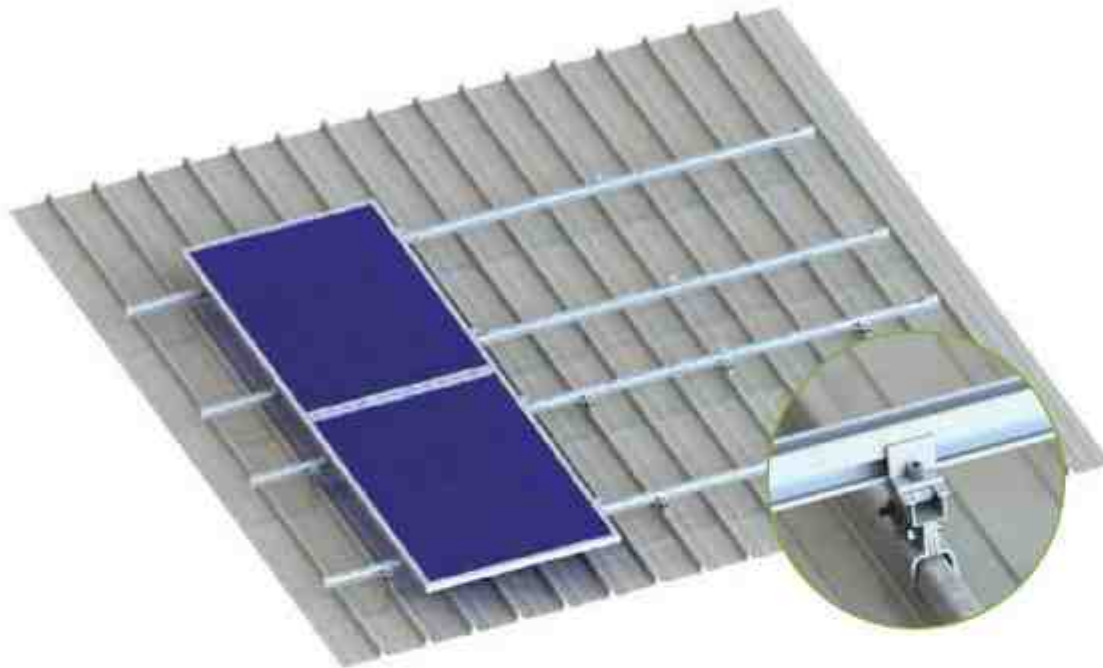


Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Standing Seam Roof



CR3# Rail KS-CR3-XXX



CR Rail Clamp KS-CRC-2AN

Klip-lok Hook #9 KS-HK-S09



Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Application:

Standing Seam Roof

Fastening:

Roof hooks on Standing Seam Rib

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

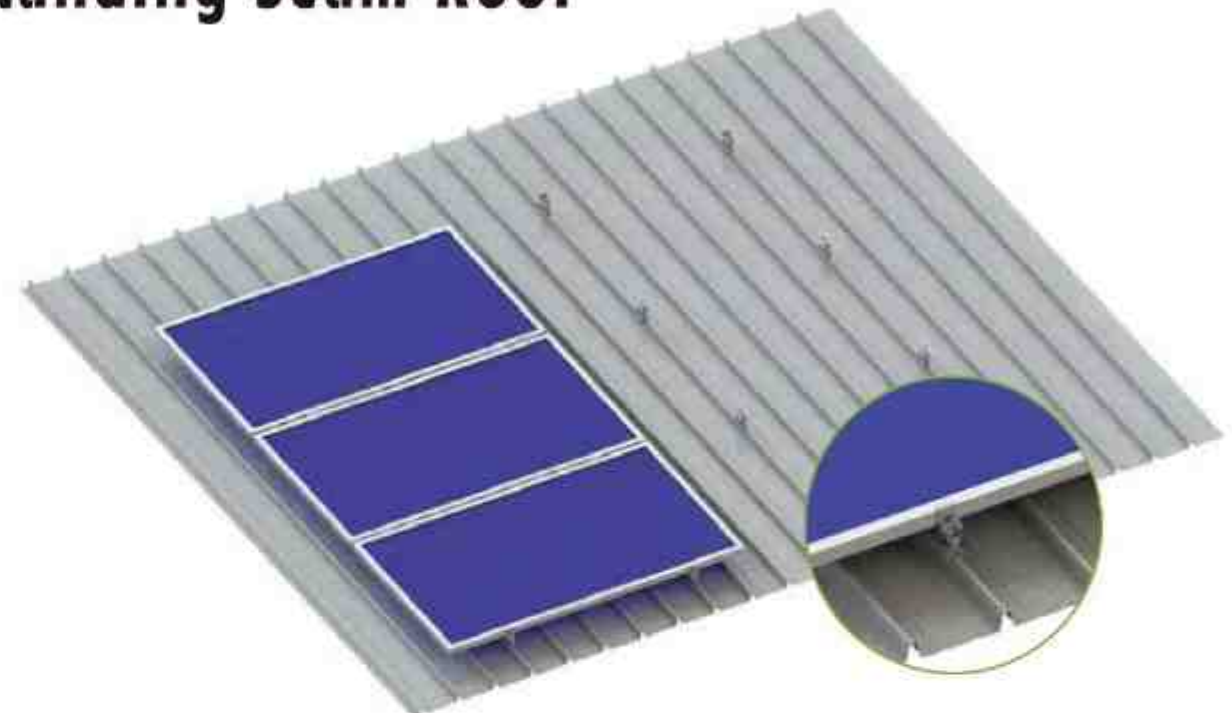
Layers of Rails:

Single/double layer, cross rail installation

Advantages:

Low fitting costs
Every size of module array possible
For all common rafter distances

Standing Seam Roof



Standing Seam Hook #10 KS-HK-S10

Standing Seam Hook #4 KS-HK-S04



Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Application:

Standing Seam Roof

Fastening:

Roof hooks on Standing Seam Rib

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

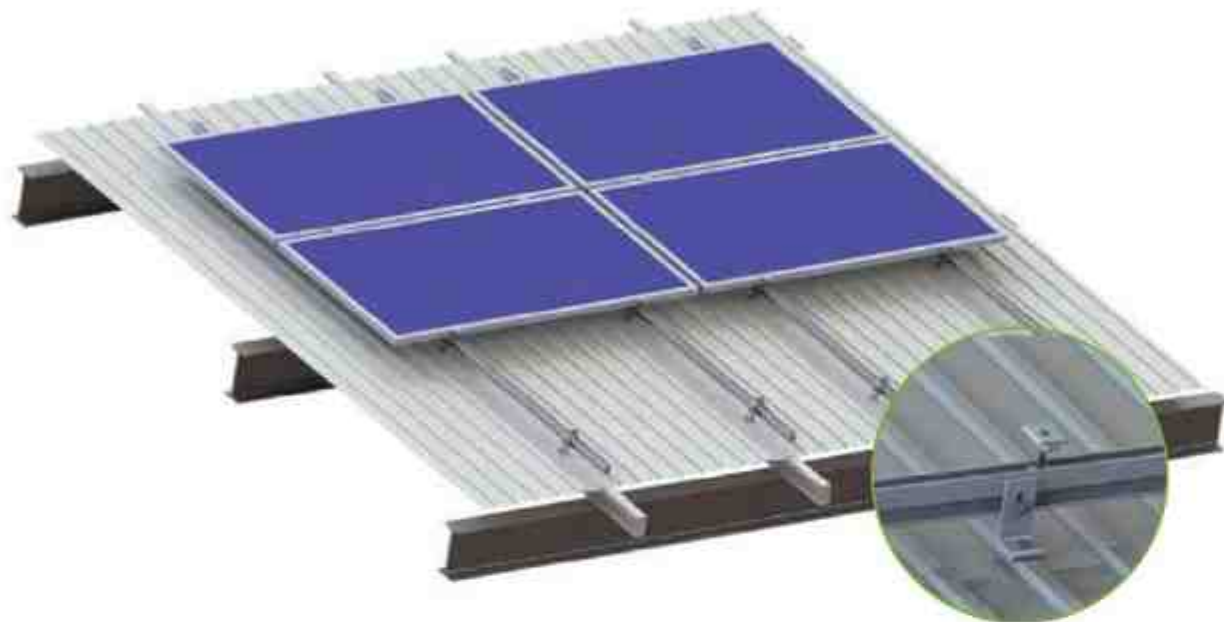
Layers of Rails:

Single layer

Advantages:

Low fitting costs
Every size of module array possible
For all common rafter distances

Tin Metal Roof



CR 1# Rail KS-CR1-XXX



CR Rail Splice Kit KS-CR1-SP

Tin Interface Kit L feet 1# Type
KS-HK-L01-ZS80



Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Application:
Trapezoidal and corrugated sheet metal

Fastening:
Riveted or screwed onto raised corrugations

Module Type:
Framed and frameless modules

Module orientation:
Landscape/portrait

Layers of Rails:
Single/double layer, cross rail installation

Advantages:
Low fitting costs
Every size of module array possible
Height adjustable via elongated hole in the sheet metal bracket.

Tin Metal Roof



CR3# Rail KS-CR3-XXX



CR 1# Rail Splice Kit KS-CR1-SP

Hanger Bolt Hook #2 KS-HK-L02



Middle Clamp KS-IC2-F40

End Clamp KS-EC2-F40



Application:
Trapezoidal and corrugated sheet metal

Fastening:
Hanger bolts onto rafters

Module Type:
Framed and frameless modules

Module orientation:
Landscape/portrait

Layers of Rails:
Single/double layer, cross rail installation

Advantages:
Low fitting costs
Height adjustable
Suitable for large distances between rafters

Trapezoidal Metal Roof



Universal Trapezoid
Roof Hook 1#
KS-HK-CU01

CR 3# Rail KS-CR3-XXX



CR 1# Rail Splice Kit KS-CR1-SP



Middle Clamp KS-IC2-F40



CR 1# Rail Clamp KS-CRC-2AN



End Clamp KS-EC2-F40



Application:
Trapezoidal and corrugated sheet metal

Fastening:
Riveted or screwed onto raised corrugations

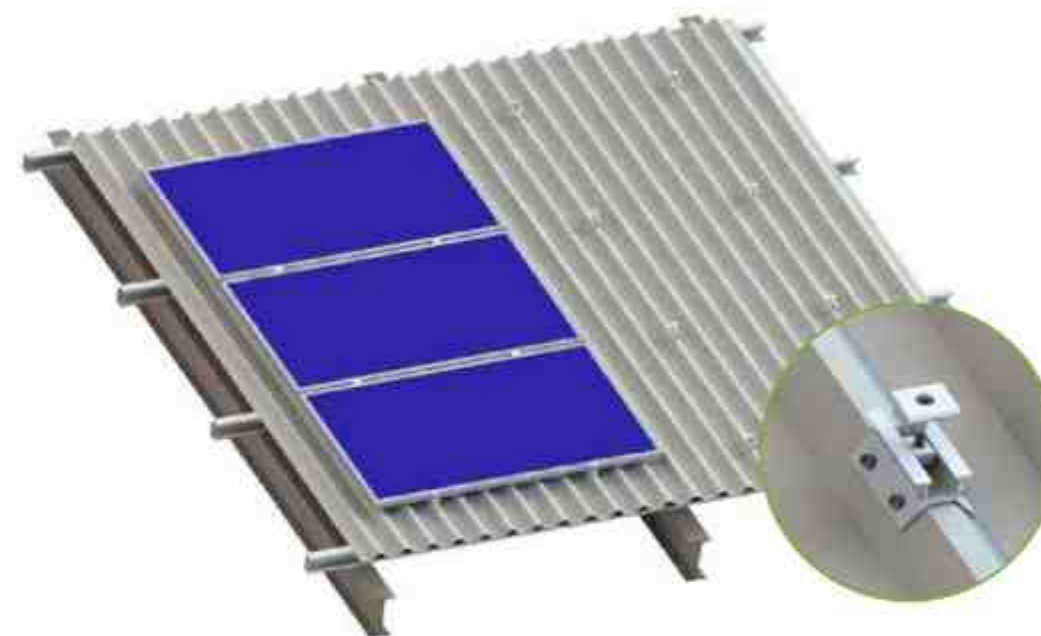
Module Type:
Framed and frameless modules

Module orientation:
Landscape/portrait

Layers of Rails:
Single layer

Advantages:
Low fitting costs
Every size of module array possible
With rail / railless solution
Height adjustable via elongated hole in the sheet metal bracket

Trapezoidal Metal Roof



Aluminum Trapezoid Roof Hook 7#
KS-HK-T07N-01



Middle Clamp KS-IC2-F40



End Clamp KS-EC2-F40



Application:
Trapezoidal and corrugated sheet metal

Fastening:
Riveted or screwed onto raised corrugations

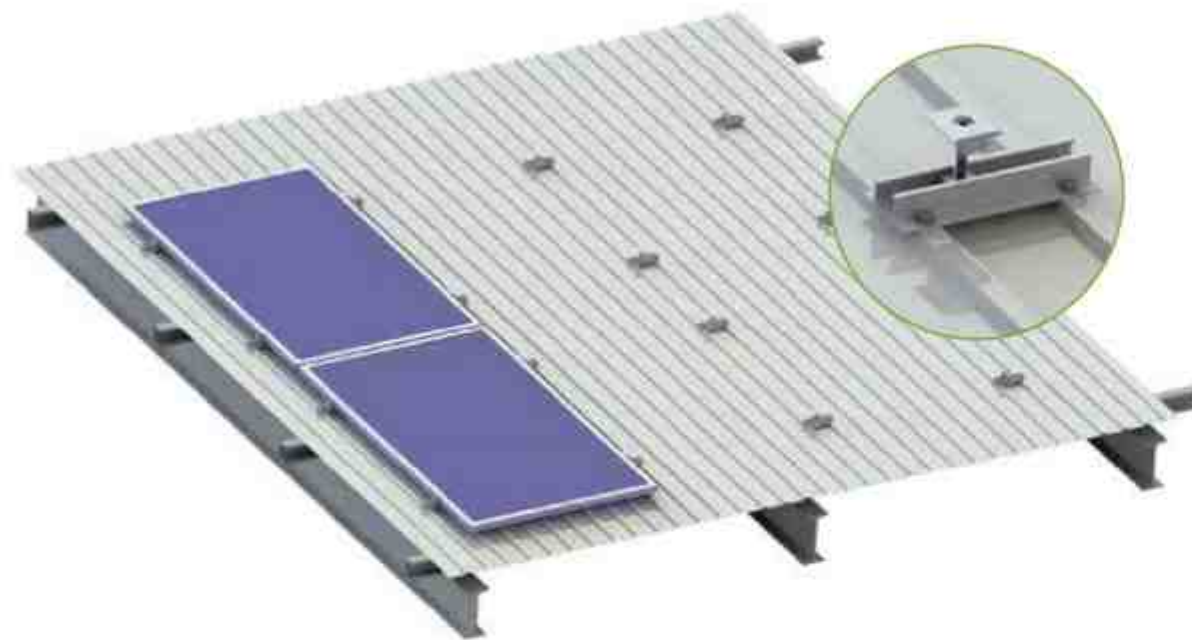
Module Type:
Framed and frameless modules

Module orientation:
Landscape/portrait

Layers of Rails:
Single layer

Advantages:
Low material / Low fitting costs
Every size of module array possible
With rail / railless solution
Quick mounting

Tin Metal Roof—UR Solution



UR Rail KS-UR2-XXX



CR 1#Rail Splice Kit KS-CR1-SP

End Clamp KS-EC2-F40



Middle Clamp KS-IC2-F40

Application:

Trapezoidal and corrugated sheet metal

Fastening:

Riveted or screwed onto raised corrugations

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

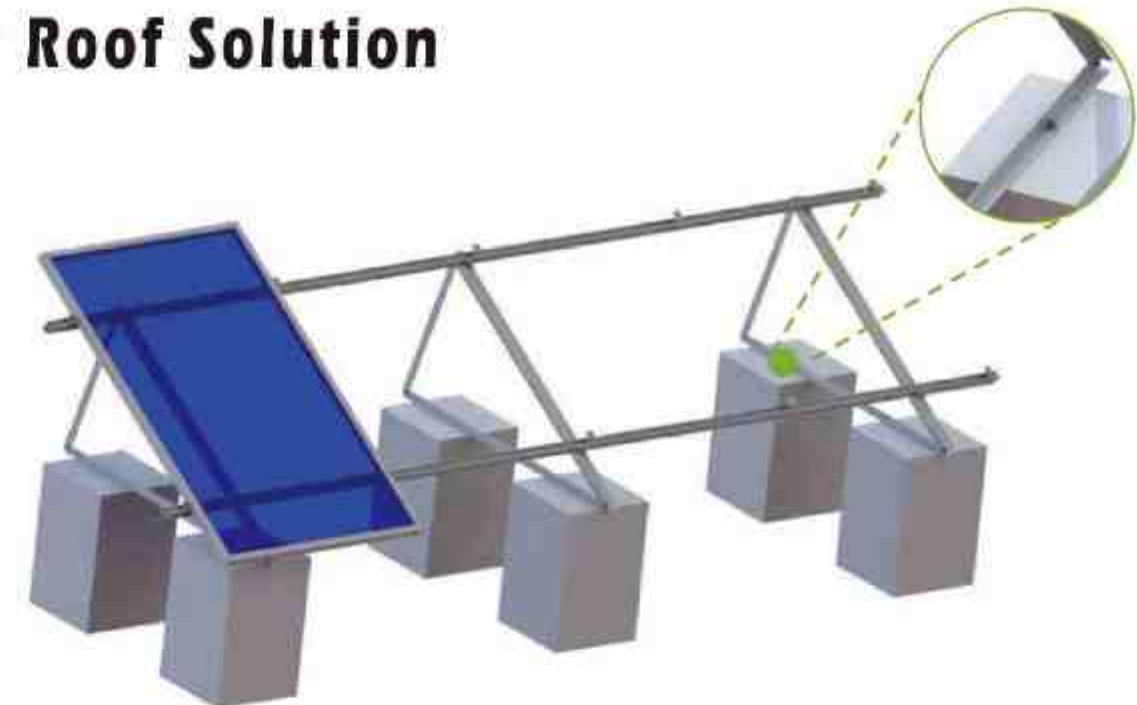
Layers of Rails:

Single layer

Advantages:

Low material / Low fitting costs
Every size of module array possible
No Rails necessary
Quick mounting

Flat Roof Solution



CR 1#Rail KS-CR1-XXX

CR 1#Rail Splice Kit KS-CR1-SP



Triangle Bracket 1# KS-TR10-XX

CR 1#Rail Clamp with flange nut
KS-CRC-01



End Clamp KS-EC2-F40



Middle Clamp KS-IC2-F40



Application:

Cements Roof / Metal Roof

Fastening:

Riveted or screwed onto raised corrugations, or mounted onto the Concrete block

Tilt angle:

Up to 60 degrees

Module Type:

Framed and frameless modules

Module orientation:

Landscape/portrait

Layers of Rails:

Single layer

Advantages:

Highly pre-assembly, easy installation
Perfect also for small systems of 1,2,4 or 8 modules
Fixed angle, adjustable angle both available

Note:

Load bearing reserve of the roof has to be checked prior to installation

Adjustable Tilt Solution



Ballasted Tilt Solution



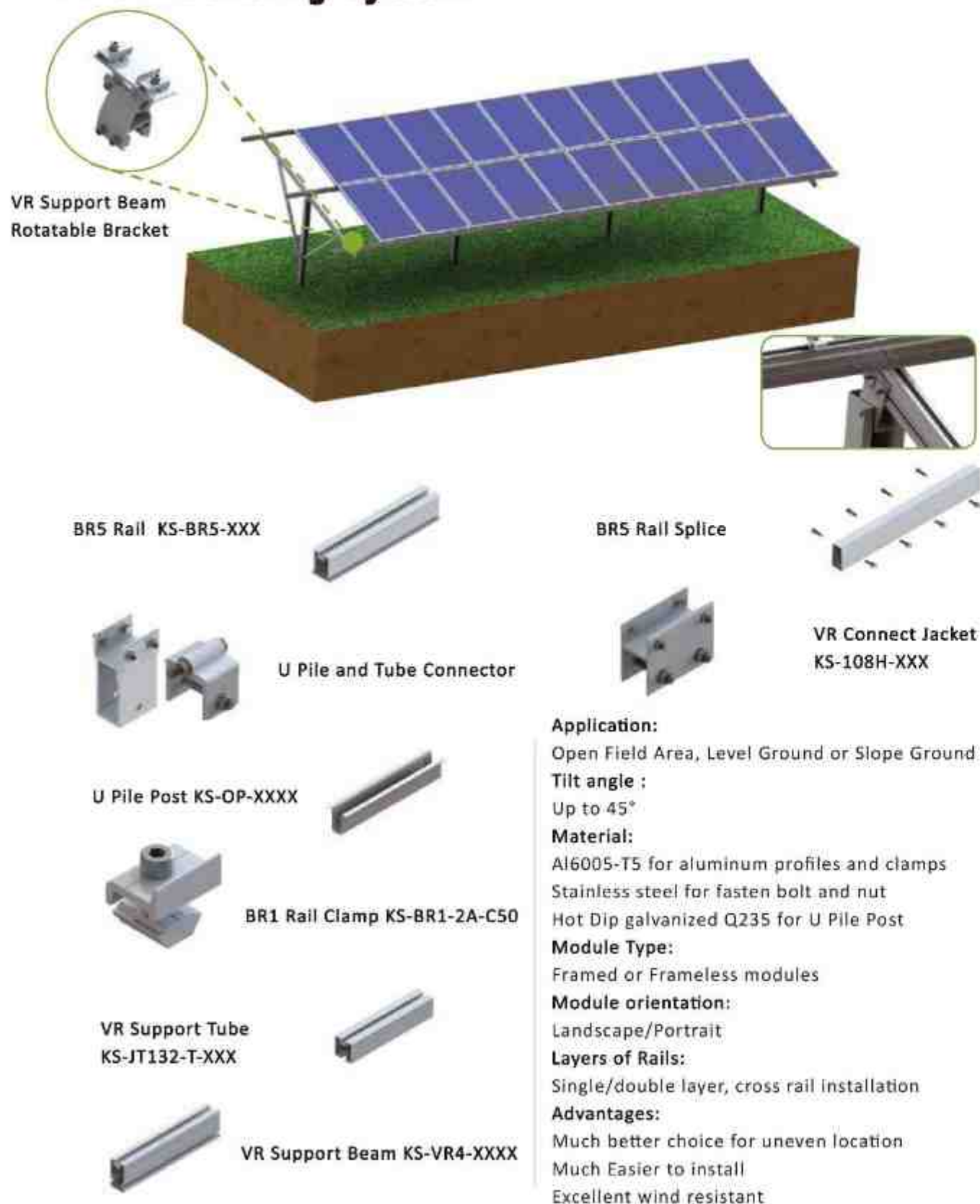
Aluminum ground mounting system—Concrete foundation



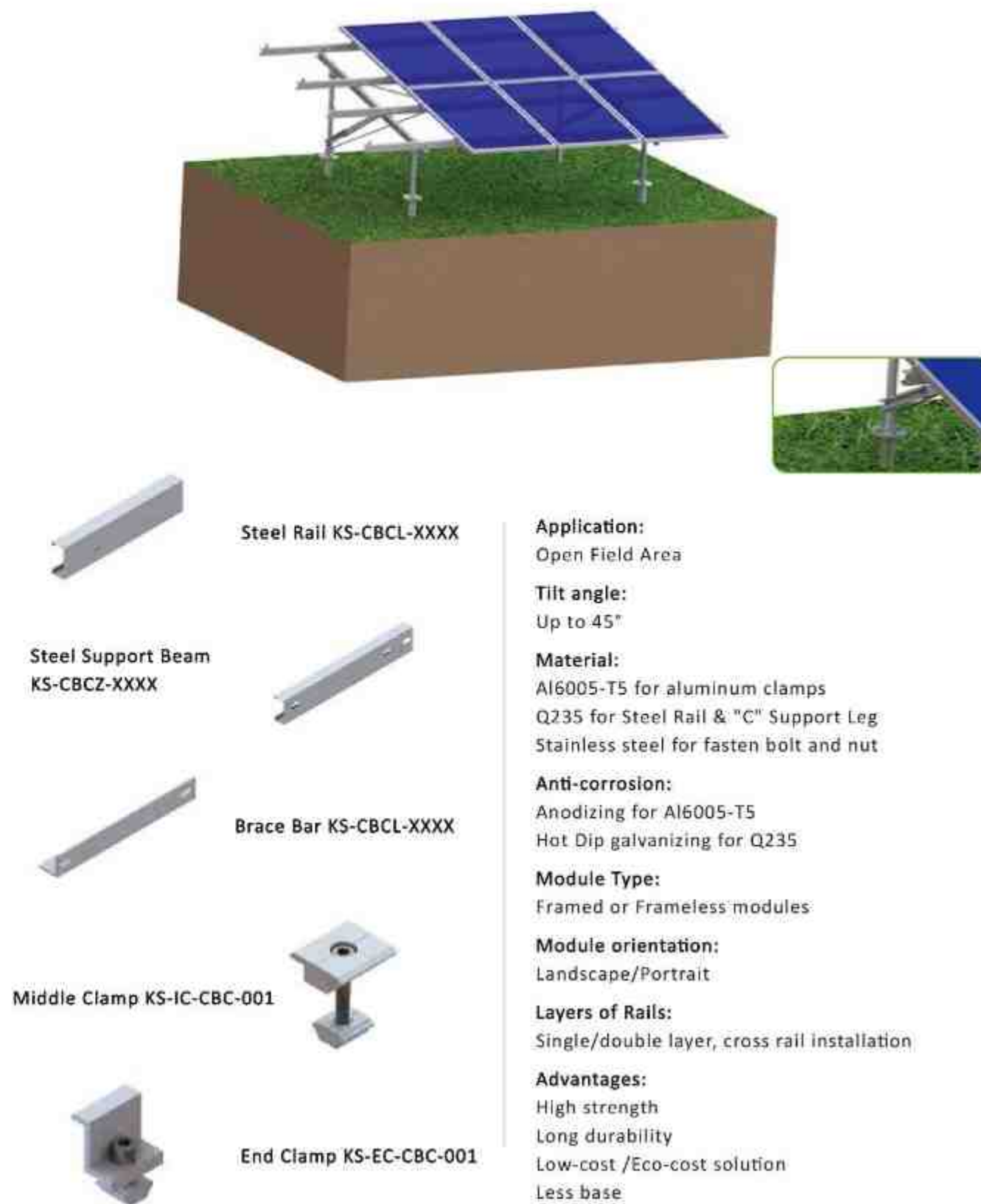
Aluminum ground mounting system—ground screw foundation



Ground mounting system —Pile Mounting System



Ground mounting system —Steel Mounting System



Ground mounting system —Carport Solution



Carport Rail ---BR3 Rail KS-BR3-XXXX



Carport Rail Splice Kit KS-BR3-SP

Carport Rail Clamp KS-BR1-2AN-C35



Middle Clamp KS-CIC15-F40

End Clamp KS-CEC15-F40



Carport Support Beam KS-VR3-XXXX

Application:
Open Field Area, or Super Mall Parking Area

Tilt angle:
Up to 20° or Customized tilt angle

Ground Clearance:
Over 2000mm

Module Type:
Framed and frameless modules

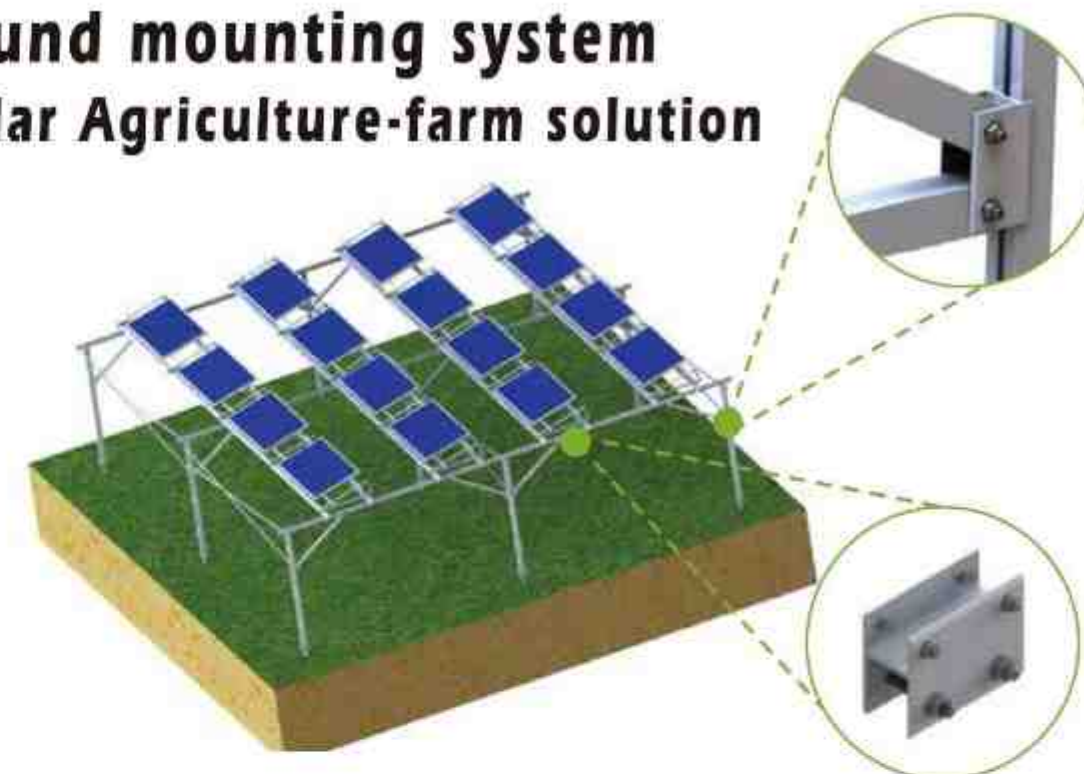
Module orientation:
Landscape/portrait

Layers of Rails:
Single/double layer, cross rail installation

Economic layout:
3 rows of modules with vertical assembly
6 rows of modules with horizontal assembly

Advantages:
Simple structure with high strength
Corrosion-resistant aluminum construction (anodized aluminum alloy)
The customized solution makes good utilization of ground and sunshine resources.
Save installation time and labor cost on site

Ground mounting system —Solar Agriculture-farm solution



VR Connect Jacket
KS-108H-XXX

VR Support Tube KS-JT132-T-XXXX



VR Support Beam KS-VR4-XXXX



Support Tube Connect Jacket
KS-UL-80



Support Beam Connect Jacket
KS-85H100-NP-AN



Middle Clamp KS-IC2-F40



End Clamp KS-EC2-F40



Application:
Open Field Area, Above the planting land

Tilt angle:
Up to 30° or Customized tilt angle

Ground Clearance:
Over 1800mm

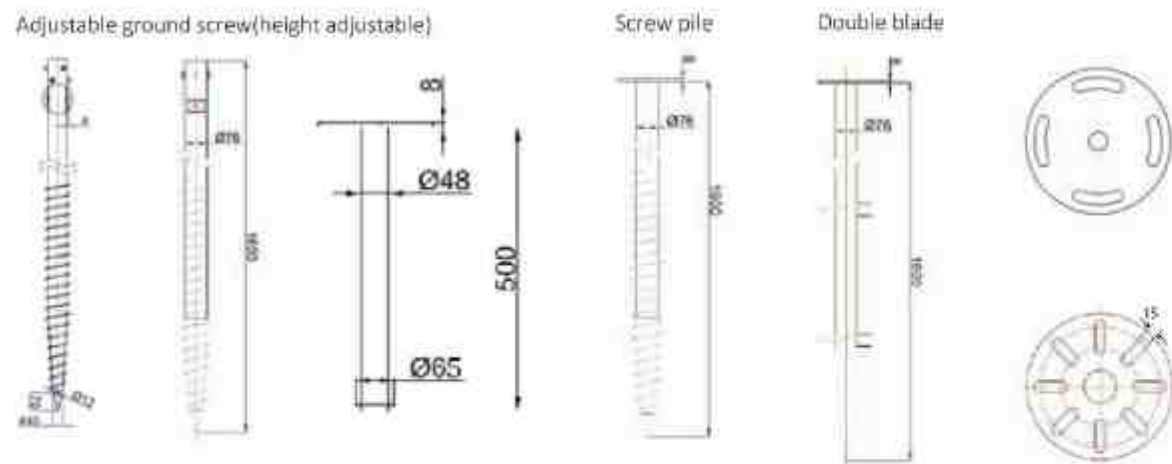
Module Type:
Framed and frameless modules

Module orientation:
Landscape/portrait

Layers of Rails:
Single/double layer, cross rail installation

Advantages:
Dual-use of land improve the economic benefit
A solution with adjustable tilt angle, to increase the sunshine amount
A solution with enough space, benefits to the machine work
Pre-assembled components, to save the installation time and cost

Ground Screw



The most appropriate foundation for solar project installed on open ground.
Featured with high anti-corrosion, high strength, short delivery time,
very competitive prices.



Clay soil (screw pile)

Sandy soil (double blade)

Ground Screw Load Capability									
Item No.	Dia. of Tube (mm)	Dia. of Flange (mm)	Thickness of Tube (mm)	200mm above ground, Pulling force (KN)					
				Clay Soil N Value			Sandy Soil N Value		
				3	5	10	3	5	10
KS-F76-T3-1600	76	200	3	11.49	19.08	38.06	4.47	7.38	14.66
KS-F76-T3-1800	76	200	3	12.92	21.47	42.83	4.9	8.1	16.09
KS-F76-T3-2000	76	200	3	14.36	23.86	47.61	5.33	8.81	17.52
KS-22F76-T3-1600	76	220	3	11.49	19.08	38.06	4.47	7.38	14.66
KS-22F76-T3-1800	76	220	3	12.92	21.47	42.83	4.9	8.1	16.09
KS-22F76-T3-2000	76	220	3	14.36	23.86	47.61	5.33	8.81	17.52

Notes:

- ★ The value of the ground screw is the experimental value.
- ★ While installation condition changes, the data of ground screw change.

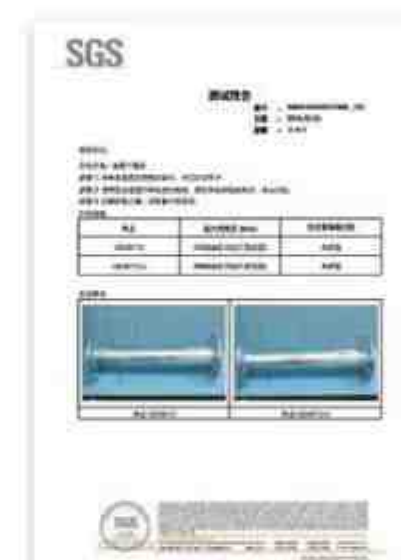


Torque test for ground screw

SGS test of flange torsion

SGS test of tube

SGS test of torsion of adjustable ground screw



Components List

Photo	Item No	Name	Description	Packing
Roof Part---Rail				
	KS-CR1-length	CR Rail	Spec: 28*50mm Customized Length Material: Al 6005-T5	8pcs/bundle 512pcs/pallet
	KS-CR3-length	CR3 Rail	Spec: 28*45mm Customized Length Material: Al 6005-T5	8pcs/bundle 512pcs/pallet
	KS-CR1-SP	CR Rail Splice Kit	Spec:150mm Connect two pieces CR Rail Material: Al6005-T5 & A2-70	50pcs/box 4boxes/CTN
	KS-CR1-SP-01	CR Rail Splice Kit with Ground Washer	Spec:150mm Connect two pieces CR Rail with Ground Washer	50pcs/box 4boxes/CTN
	KS-IC2-F_	Middle Clamp	Middle Clamp Spec: 31/35/40/46/50 Pre-assembly	120pcs/box 4boxes/CTN
	KS-EC2-F_	End Clamp	End Clamp Spec: 31/35/40/46/50 Pre-assembly	120pcs/box 4boxes/CTN
	KS-CIC15-F_	Inter Clamp	Inter Clamp Spec: 31/35/40/46/50 Pre-assembly	120pcs/box 4boxes/CTN
	KS-CEC15-F_	End Clamp	End Clamp Spec: 31/35/40/46/50 Pre-assembly	120pcs/box 4boxes/CTN
	KS-TIC-03A	Thin Film Middle Clamp Kits	Aluminum & Rubber Pad Socket Head Screw Pre-assembly	80pcs/box 4boxes/CTN
	KS-TEC-03A	Thin Film End Clamp Kits	Aluminum & Rubber Pad Socket Head Screw Pre-assembly	80pcs/box 4boxes/CTN
	KS-CRC-2AN	CR Rail Clamp	Rail Clamp with C nut Socket head screw Pre-assembly	120pcs/box 4boxes/CTN

	KS-CRC-01	CR Rail Clamp	Rail Clamp with Flange nut Socket head screw Pre-assembly	120pcs/box 4boxes/CTN
Standing Seam Hook				
	KS-HK-503	Standing Seam Roof Hook 3#	Zambelli-Rib Roof Al6005-T5, A2-70 Pre-assembly	30pcs/box 4boxes/CTN
	KS-HK-504	Standing Seam Roof Hook 4#	Bulter-Roof Al6005-T5, A2-70 Pre-assembly	30pcs/box 4boxes/CTN
	KS-HK-507	Standing Seam Roof Hook 7#	Length: 50mm Al6005, A2-70 Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-508	Standing Seam Roof Hook 8#	Klip-lok 406 Roof Al6005, A2-70 Pre-assembly	30pcs/box 4boxes/CTN
	KS-HK-509	Standing Seam Roof Hook 9#	Klip-lok 700 Roof Al6005, A2-70 Pre-assembly	25pcs/box 4boxes/CTN
	KS-HK-509-06	Standing Seam Roof Hook 9# A Type	Standing Seam Hook 9# with big flange	15pcs/box 4boxes/CTN
	KS-HK-510	Standing Seam Roof Hook 10#	Length: 50mm Al6005, A2-70 Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-512	Standing Seam Roof Hook 12#	Length: 80mm Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-520	Standing Seam Roof Hook 20#	Bulter-Roof Al6005-T5, A2-70 Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-521	Standing Seam Roof Hook 21#	Long Line Roof Stainless Steel, Length:110mm Pre-assembly	10pcs/box 4boxes/CTN

Tin Roof Hook

	KS-HK-T01	88 T Metal Roof Hook	88 T Metal Roof hook Self-tapping Bolt st6.3*80	10pcs/box 4boxes/CTN
	KS-HK-CU01	Universal trapezoid Metal Roof Hook 1#	Aluminum Parts & Stainless Steel Self-tapping bolt st6.3*25 & Rubber Pad, Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-T07N-01	Trapezoid Metal Roof Hook 7#	Aluminum Roof Hook & Self-tapping bolt st6.3*25 & Rubber Pad Tin Roof	180pcs/CTN
	KS-HK-C01	Trapezoid metal roof hook 1#	Spec: 100mm Material: Stainless Steel 4*st6.3*25 Self-tapping screw & Rubber pad	25pcs/box 4boxes/CTN
	KS-HK-C02	Trapezoid metal roof hook 1#	Spec: 100mm Material: Stainless Steel 4*st6.3*25 Self-tapping screw & Rubber pad	25pcs/box 4boxes/CTN
	KS-HK-L01	Tin Interface Kit 1#Type	L feet & Rubber Pad Wood Bolt st6.3*80 Pre-assembly	60pcs/box 4boxes/CTN
	KS-HK-L02	Tin Interface Kit 2#	L feet & Rubber Pad Hanger Bolt Hook 2#, M10*200 Tin Roof Pre-assembly	20pcs/box 4boxes/CTN
	KS-HK-L06	Tin Interface Kit 6#	L feet & Rubber Pad Hanger Bolt Hook 6#, M10*300 Tin Roof Pre-assembly	20pcs/box 4boxes/CTN
	KS-UR2-120	U Type Rail	Aluminum U Type Rail 2x Wood Bolt st6.3*80 Slate Tile & Tin Roof	50pcs/box 4boxes/CTN

Tile Roof Hook

	KS-HK-R01	Tile Roof Hook 1#	Roman Tile Roof Stainless Steel Hook 3x Wood Bolt st6.3*80	10pcs/box 4boxes/CTN
	KS-HK-R02	Tile Roof Hook 2#		10pcs/box 4boxes/CTN
	KS-HK-R03	Adjustable tile roof hook 3#		10pcs/box 4boxes/CTN



KS-HK-R04

Tile roof hook
4#

Roman Tile Roof
Stainless Steel Hook
3x Wood Bolt st6.3*80

10pcs/box
4boxes/CTN



KS-HK-F01

Slate roof hook
1#

Slate Roof
Stainless Steel Hook
3x wood Bolt st6.3*80

20pcs/box
4boxes/CTN



KS-HK-F04

Slate roof hook
4#

20pcs/box
4boxes/CTN

Tilt Bracket



KS-AJ-FL

Adjustable front
leg

Anodized Al6005-T5
2x Wood Bolt st6.3*80
Pre-assembly

20pcs/box
4boxes/CTN



KS-AJ-RL01

Adjustable rear
leg
10/15Deg

Anodized Al6005-T5
2x Wood Bolt st6.3*80
Adjusted solution can adjust the angle
anti-slip & anti-out design

24pcs/CTN

KS-AJ-RL02

Adjustable rear
leg
15/30Deg

16pcs/CTN

KS-AJ-RL03

Adjustable rear
leg
30/60Deg

Package on
request



KS-TR10-01

Fix Triangle
Bracket 10Deg

Anodized Al6005-T5
Pre-assembly

380pcs/pallet

KS-TR30-01

Fix Triangle
Bracket
30DegType

Anodized Al6005-T5
Pre-assembly

380pcs/pallet

KS-TR45-01

Fix Triangle
Bracket 45Deg

Anodized Al6005-T5
Pre-assembly

380pcs/pallet



KS-TR-AJ-01

Adjustable
triangle bracket
1#

Anodized Al6005-T5
2x Wood Bolt st6.3*80
Adjusted solution can adjust the angle
10-15 deg
Pre-assembly

380pcs/pallet

KS-TR-AJ-02

Adjustable
triangle bracket
2#

Anodized Al6005-T5
2x Wood Bolt st6.3*80
Adjusted solution can adjust the angle
20-30 deg
Pre-assembly

380pcs/pallet

	KS-KTR15-1800	Fix Triangle Bracket For Horizontal placement	No need more rail Eco-solution Pre-assembly	100pcs/pallet
Grounding Accessories				
	KS-TEC-03A KS-BR1-GC	Thin Film End Clamp Kits Grounding Clip 1#	Stainless Steel Plate	1000pcs/box 4boxes/CTN
	KS-BR2-GC	Grounding Clip 2#	Stainless Steel Plate	1000pcs/box 4boxes/CTN
	KS-BR-GL	Grounding Lug	Stainless Steel Plate Aluminum Lay-in Lug Fasten Pre-assembly	200pcs/box 4boxes/CTN
	KS-BJ-03	Bonding Jumper	Braided Copper Wire Stainless Steel Plate & Socket Head Screw Pre-assembly	200pcs/box 4boxes/CTN
Accessories				
	KS-CC-01	Cable Clip	SUS 304 For 2pcs OD3~5mm Cable line	500pcs/box 4boxes/CTN
	KS-SC-01	Cable Tie	SUS 304 Black Plastic appearance	100pcs/bag
	KS-2AN-01	C Nut	Aluminum 6005-T5 Clean Anodized M8 Threaded Hole	1000pcs/box 4boxes/CTN
	KS-F-SW8	Spring Washer	Spring Washer, M8 Stainless Steel A2-70	Package on request
	KS-F-13DW8	Lock washer	Lock washer OD13 Stainless Steel A2-70	
	KS-F-8DW8	Lock washer	Lock washer OD8 Stainless Steel A2-70	
	KS-FA-WSD -M10200	Hanger Bolt	Stainless Steel Hanger Bolt M10*200	

	KS-FA-WSD -M10300	Hanger Bolt Assembly	Stainless Steel Hanger Bolt & 3 flange nuts M10*300	Package on request
	KS-FA-S245	Hex Screw	Stainless Steel A2-70	
	KS-FA-S290	Hex Screw		
	KS-FA-S2140	Hex Screw		
	KS-F-S825	Socket head Screw	Stainless Steel A2-70	
	KS-F-S845	Socket head Screw		
	KS-F-S850	Socket head Screw		
	KS-F -ZST6025-A2	Self-tapping bolt	Stainless Steel St6.3*25	
	KS-F -ZST6350-A1-01	Self-tapping bolt	Stainless Steel St6.3*50	
	KS-F -ZST6375-01	Self-tapping bolt	Stainless Steel St6.3*75	
	KS-F -ZST6380-A1	Self-tapping bolt	Stainless Steel St6.3*80	
	KS-F-ST6380	Wood Bolt	Stainless Steel St6.3*80	
Ground Part--Rail				
	KS-BR1-length	BR1 Support Rail	Customized Length Aluminum 6005-T5 W50*H115	168pcs/pallet
	KS-BR3-length	BR3 Carport Support Rail	Customized Length Aluminum 6005-T5 W80*H180	70pcs/pallet
	KS-BR5-length	BR5 Support Rail	Customized Length Aluminum 6005-T5 W50*H80	192pcs/pallet
	KS-BR7-length	BR7 Support Rail	Customized Length Aluminum 6005-T5 W50*H115	168pcs/pallet

	KS-BR13-length	BR13 Support Rail	Customized Length Aluminum 6005-T5 W56*H95	120pcs/pallet
	KS-BR14-length	BR14 Support Rail	Customized Length Aluminum 6005-T5 W75*H90	150pcs/pallet
	KS-BR19-length	BR19 Support Rail	Customized Length Aluminum 6005-T5 W67*H76	165pcs/pallet
	KS-BR1-SP	BR1 Support Rail Splice Kit	Spec:400mm Connect two pieces BR1 Rail Material: Al6005-T5 & A2-70	20pcs/CTN
	KS-BR3-SP	Carport Support Rail Splice Kit	Spec: 500mm Connect two pieces BR3 Rail Material: Al6005-T5 & A2-70	8pcs/CTN
	KS-BR5-SP	BR5 Support Rail Splice Kit	Spec:400mm Connect two pieces BR5 Rail Material: Al6005-T5 & A2-70	20pcs/CTN
	KS-BR7-SP	BR7 Support Rail Splice Kit	Spec:400mm Connect two pieces BR7 Rail Material: Al6005-T5 & A2-70	20pcs/CTN
	KS-BR9-SP	BR9 Support Rail Splice Kit	Spec:400mm Connect two pieces BR9 Rail Material: Al6005-T5 & A2-70	12pcs/CTN
	KS-BR13-SP	BR13 Support Rail Splice Kit	Spec:400mm Connect two pieces BR13 Rail Material: Al6005-T5 & A2-70	20pcs/CTN
	KS-BR14-SP	BR14 Support Rail Splice Kit	Spec:400mm Connect two pieces BR14 Rail Material: Al6005-T5 & A2-70	15pcs/CTN
	KS-BR19-SP	BR19 Support Rail Splice Kit	Spec:400mm Connect two pieces BR19 Rail Material: Al6005-T5 & A2-70	15pcs/CTN
Support Beam				
	KS-TEC-03A	VR Support Beam	Customized Length Aluminum 6005-T5 W50*H95	Package on request

	KS-VR3-length	Carport Support Beam	Customized Length Aluminum 6005-T5 W80*H160	Package on request
	KS-VR4-length	VR4 Support Beam	Customized Length Aluminum 6005-T5 W50*H90	
	KS-VR6-length	VR6 Support Beam	Customized Length Aluminum 6005-T5 W50*75	
Support Tube				
	KS-TEC-03A KS-AG-T-length	AG Support Tube	Customized Length Aluminum 6005-T5 W50*H60	Package on request
	KS-CT-length	Carport Support Tube	Customized Length Aluminum 6005-T5 W80*H90	
	KS-AG6-T-length	AG6 Support Tube	Customized Length Aluminum 6005-T5 W50*H60	
	KS-JT132-T	Support Tube 1 #	Customized Length Aluminum 6005-T5 W50*H50	
	KS-JT133-T	Support Tube 2 #	Customized Length Aluminum 6005-T5 50*60	
Support Accessories				
	KS-BR1-2AN-C50	BR Rail Clamp Splice	BR Rail Clamp with C nut Socket head screw Pre-assembly	120pcs/box 4boxes/CTN
	KS-BR14-2AN-C50	BR14 Rail Clamp Splice	BR14 Rail Clamp with C nut Socket head screw Pre-assembly	120pcs/box 4boxes/CTN
	KS-108H-100	H type connector	Connected Support beam on support Tube Aluminum 6005-T5	Package on request
	KS-108H-140	H type connector	Connected Support beam on support Tube Aluminum 6005-T5	

Warranty & Certificate



Project Case

Site: Miyagi, Japan
Capacity: 14.0MW
Heavy Snow & Slope Hill
Approached the Audit by the
Tohoku Economic Ministry



12 Years Product Warranty / 25 Years Life Time

Site: South Korea
Capacity: 3000.0KW



12 Years Product Warranty / 25 Years Life Time

Project Case



Project Case



Project Case



Project Case



Project Case

Site: South Korea
Capacity: 10.0MW



12 Years Product Warranty / 25 Years Life Time

Site: Dubai, UAE
Capacity: 1000.0KW



12 Years Product Warranty / 25 Years Life Time

Project Case

