



ALUMINIUM

FOR THE PERFECT FINISH

THE PREMIER SOURCE FOR SOLAR GROUND MOUNTING SYSTEM



INSTALLATION GUIDE FOR SOLAR GROUND MOUNTING SYSTEM

CHARACTERISTICS OF ALUMINIUM

- » Non corrosive
- » Lightweight yet durable
- » Non-magnetic
- » Good heat and electrical conductor
- » Alloy formability
- » Machinability
- » Recyclability

THE ECO-FRIENDLY METAL

Aluminium is one of the top green metals that is widely used in many industries. This eco-friendly metal is the most recyclable industrial metal that does not lose its mechanical and physical characteristics. Of course, aluminium can be recycled infinite times! The world has produced 1 billion tons of aluminium in the last 100 years and the world still consumes 75% of what's been produced in the last century. Why? Aluminium is a recyclable metal and requires only 5% of the energy required in the original Aluminium Production from its raw state.

ALUMINIUM IS THE MATERIAL FOR THE FUTURE!





SWISSTEK SOLAR GROUND MOUNTING SYSTEM

As a reliable Solar Ground Mounting System Manufacturer, Swisstek provides a diverse line of Ground Mount solutions to meet your requirements. All our Ground Mount products are made of High-Quality Aluminium alloys with excellent system performance and reliability. With our team's extensive knowledge in the industry, we consider real-life usage ensuring all products are made to stringent international standards. What makes our ground mounts the best choice in the market? We utilize only high-end Aluminium alloys & materials that have a resistance against corrosion. Meanwhile you enjoy our long-lasting components, you also benefit from the competitive pricing on our ground mount system.

OUR CERTIFICATIONS

At Swisstek Aluminium we use superior quality Aluminium billets which are then processed to produce value added Aluminium products to meet the highest quality standards both locally and internationally.



SWISSTEK SOLAR GROUND MOUNTING SYSTEM SPECIFICATIONS & FEATURES



SPECIFICATIONS

- » **Material** - Aluminium 6005-T5 (For structure)
Stainless Steel 304 (For fasteners)
- » **Mounting types** - Portrait and landscape ground mounting structures for PV array
- » **Applicable sites** - Open ground
- » **Wind load** - Up to 60 m/s
- » **Ground clearance** - Customized
- » **Warranty** - 10 years

FEATURES

- » T-clamp provides easy connection
- » Fast installation
- » Wide spans between legs, minimizing the requirement of rafter and anchors
- » Withstand for high winds
- » Verified with finite element analysis and fail test

SWISSTEK SOLAR GROUND MOUNTING PROFILE DETAILS



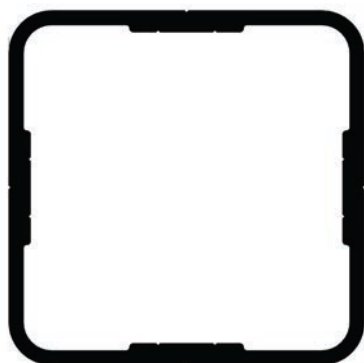
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 Linear Weight - 0.687 kg/m



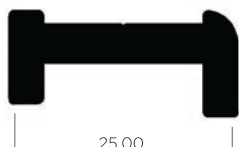
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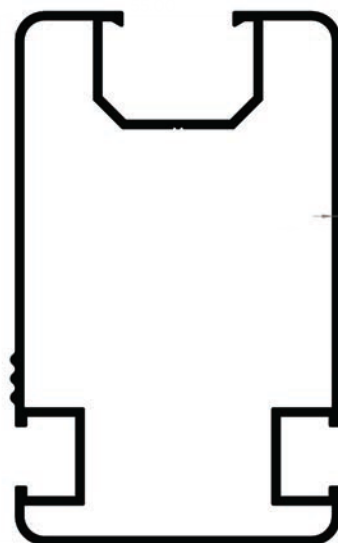
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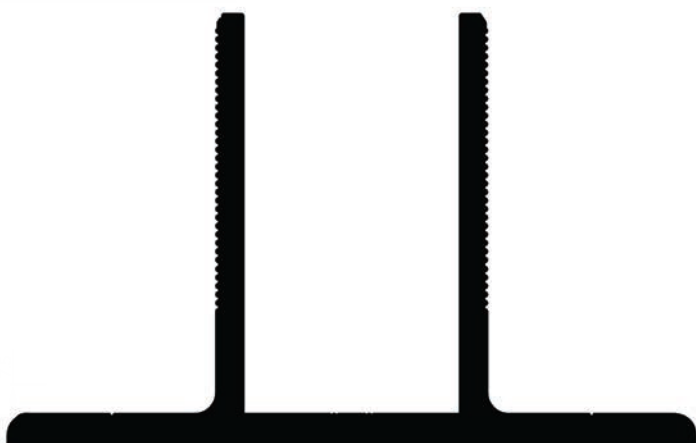
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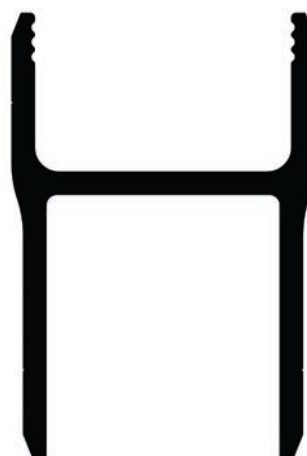
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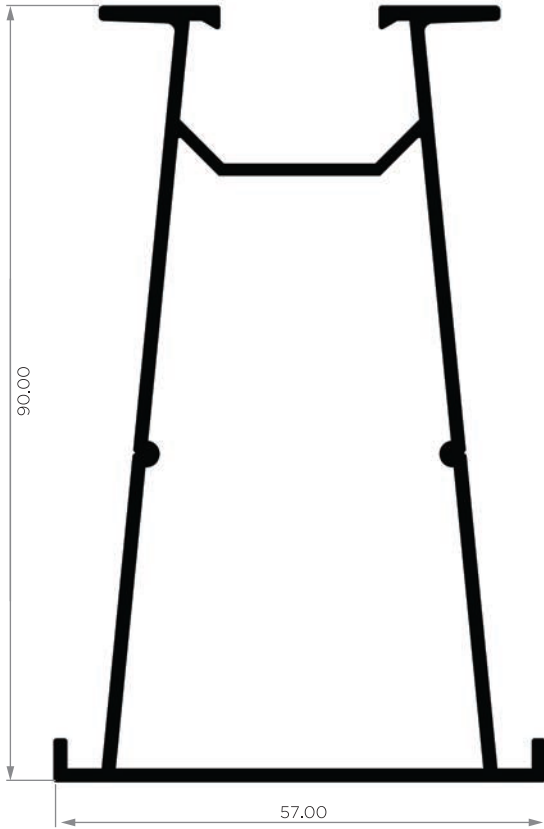
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 Linear Weight - 1.509 kg/m



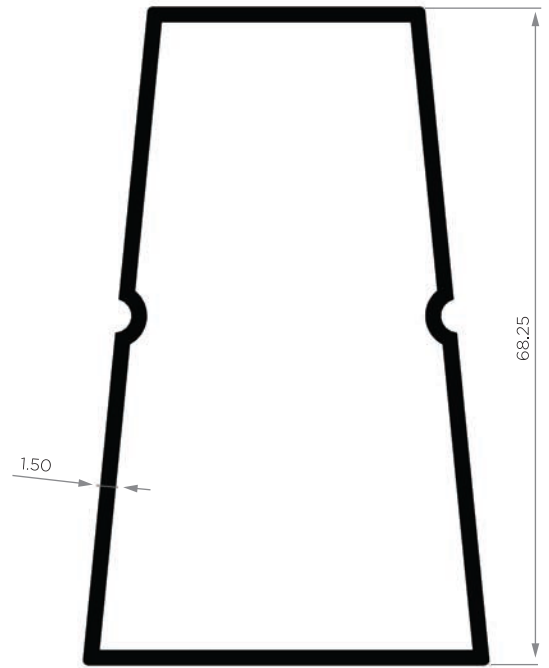
Profile Code - GS 1001
 Linear Weight - 6.351 kg/m



Profile Code - GS 1006
 Linear Weight - 3.239 kg/m



Profile Code - GS 1010
 Linear Weight - 1.238 kg/m



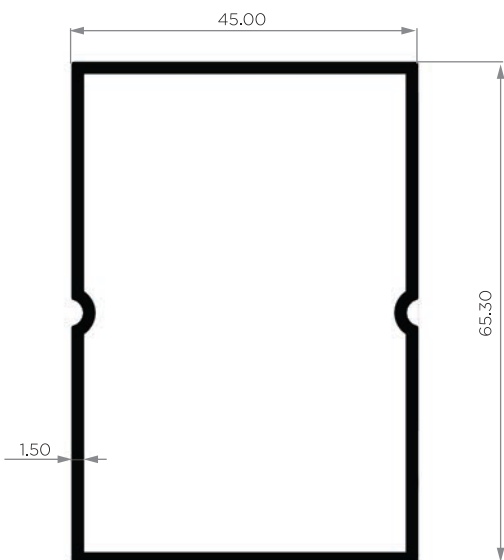
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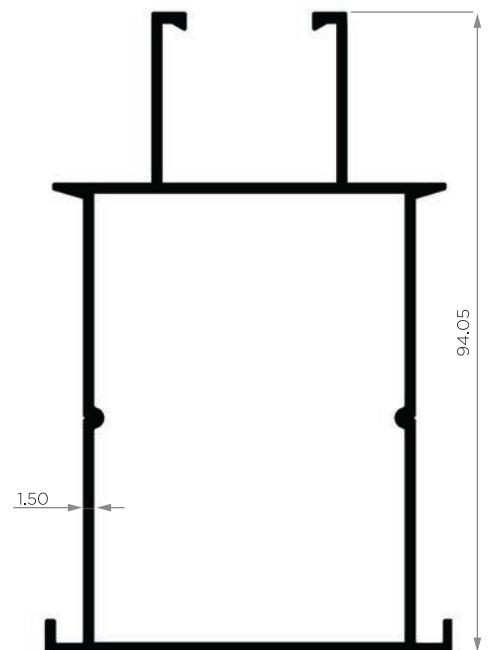
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 Linear Weight - 0.284 kg/m



Profile Code - SM 5505
 Linear Weight - 0.399 kg/m



Profile Code - GS 1009
 Linear Weight - 0.879 kg/m



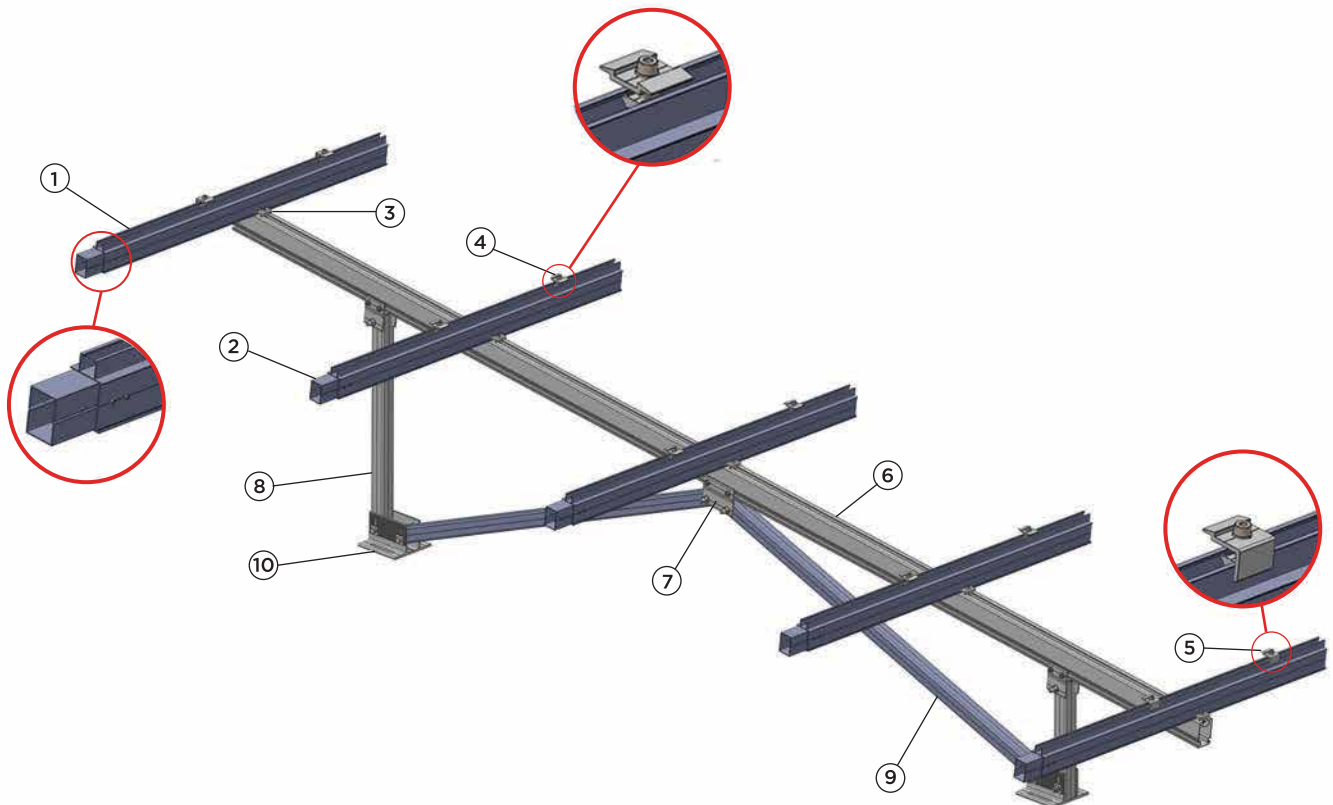
Profile Code - GS 1008
 Linear Weight - 1.314 kg/m

OVERVIEW OF LANDSCAPE GROUND MOUNTING SYSTEM

TECHNICAL INFORMATION

PV module orientation	-	Landscape	01.	SGM Landscape Purlin
Installation site	-	Open field	02.	SGM Landscape Purlin Connector
Wind load	-	Up to 60m/s	03.	SGM Rail Clamp
Applicable module	-	With frame/frame less	04.	T Clamp
Foundation	-	Concrete/Ground screw	05.	Angle Clamp
Structural material	-	6005-T5	06.	SGM Rafter
Surface finish	-	Natural Anodized (customizable)	07.	SGM Top Base
Fastener material	-	Stainless Steel 304	08.	SGM Front Leg
Main material	-	100% Anodized Aluminum	09.	SGM Diagonal Beam
Warranty	-	Ten years warranty	10.	SGM Bottom Base

LANDSCAPE



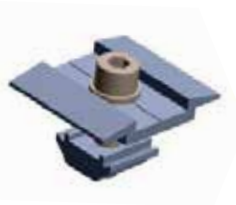
COMPONENT DETAILS



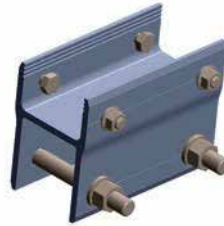
Angle Clamp
Bolt 25mm - 50mm



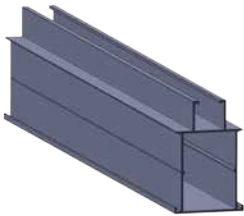
SGM Holding Top Base
Length - 80mm
M8x25 - 4 pcs
M12x90 - 1 pc



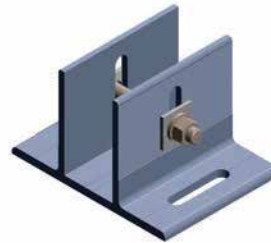
T Clamp
Bolt 25mm - 50mm



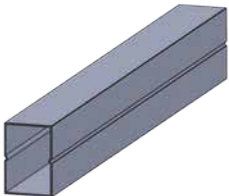
SGM Holding Top Base
Length - 130mm
M8x25 - 4 pcs
M12x90 - 2 pcs



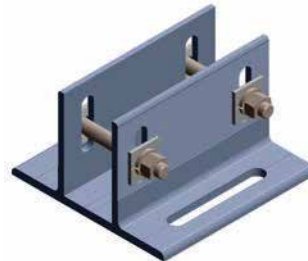
SGM Landscape Purlin
Length - Custom



SGM Bottom Base
Foot Piece - Single
Length - 120mm
M12x90 - 1pc
Aluminium Wave Washer - 2pcs



SGM Landscape Purlin Connector
Length - 150mm
M6.3x25mm - 8 pcs



SGM Bottom Base
Foot Piece - Double
Length - 160mm
M12x90 - 2pcs
Aluminium Wave Washer - 4pcs



SGM Railing Clamp
Bolt M8x25



SGM Diagonal Beam
Length - Custom



Rafter
Length - Custom



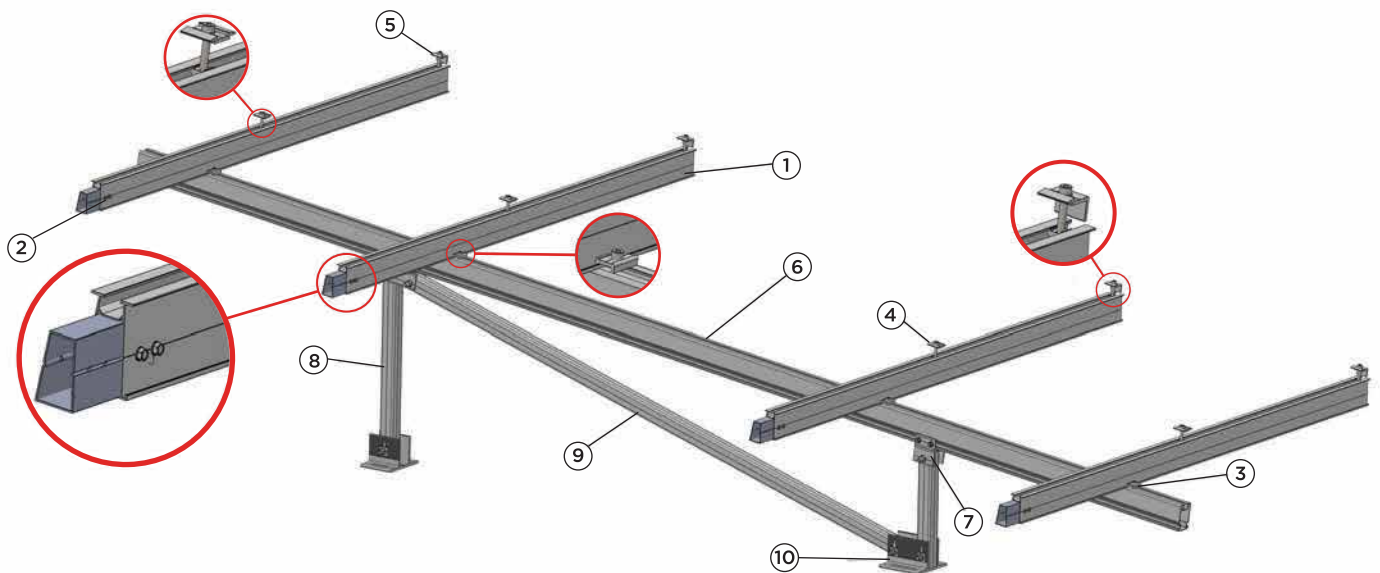
SGM Leg (Front/back)
Length - Custom

OVERVIEW OF PORTRAIT GROUND MOUNTING SYSTEM

TECHNICAL INFORMATION

»» PV module orientation	-	Portrait	01. SGM Portrait Purlin
»» Installation site	-	Open field	02. SGM Portrait Purlin Connector
»» Wind load	-	Up to 60m/s	03. SGM Rail Clamp
»» Applicable module	-	With frame/frame less	04. T Clamp
»» Foundation	-	Concrete/Ground screw	05. Angle Clamp
»» Structural material	-	6005-T5	06. SGM Rafter
»» Surface finish	-	Natural Anodized (customizable)	07. SGM Holding Top Base
»» Main material	-	100% Anodized Aluminum	08. SGM Front Leg
»» Warranty	-	Ten years warranty	09. SGM Diagonal Beam
			10. SGM Bottom Base

PORTRAIT



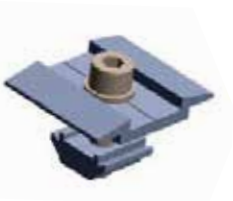
COMPONENT DETAILS



Angle Clamp
Bolt 25mm - 50mm



SGM Holding Top Base
Length - 80mm
M8x25 - 4 pcs
M12x90 - 1 pc



T Clamp
Bolt 25mm - 50mm



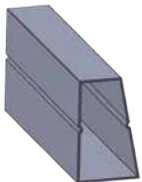
SGM Holding Top Base
Length - 130mm
M8x25 - 4 pcs
M12x90 - 2 pcs



SGM Portrait Purlin
Length - Custom



SGM Bottom Base
Foot Piece - Single
Length - 120mm
M12x90 - 1pc
Aluminium Wave Washer - 2pcs



SGM Portrait Purlin Connector
Length - 150mm
M6.3x25mm - 8 pcs



SGM Bottom Base
Foot Piece - Double
Length - 160mm
M12x90 - 2pcs
Aluminium Wave Washer - 4pcs



SGM Railing Clamp
Bolt M8x25



SGM Diagonal Beam
Length - Custom



Rafter
Length - Custom



SGM Leg (Front/back)
Length - Custom



INSTALLATION MANUAL

SAFETY INSTRUCTIONS

- » Use of Personal Protective equipment (PPE) during the installation is a must.
- » Keep the presence of second party to help in the event of an accident throughout the installation process.
- » Do not remove any safety devices.
- » Keep a copy of the installation guide throughout the installation process.
- » Comply with the local safety regulations.
- » Intended to be used by individuals with sufficient technical skills for the task.
- » Installer should have the knowledge of the use of hand tools, Power tools and measuring devices.
- » Keep the precaution notes to assist in the assembly process to keep the attention for certain operations during the assembly process which could cause serious personal injuries or/and damage the components.

GENERAL INSTRUCTIONS

- » Make sure the installation instructions and safety instruction are read and understood by the installer.
- » Make sure the installation is carried out by the personals with specialist technical knowledge and basics of mechanical engineering.
- » Do not remove any safety devices.
- » Keep a copy of the installation guide throughout the installation process.
- » Comply with the local safety regulations.
- » Intended to be used by individuals with sufficient technical skills for the task.
- » Installer should have the knowledge of the use of hand tools, Power tools and measuring devices.
- » Keep the precaution notes to assist in the assembly process to keep the attention for certain operations during the assembly process which could cause serious personal injuries or/and damage the components.

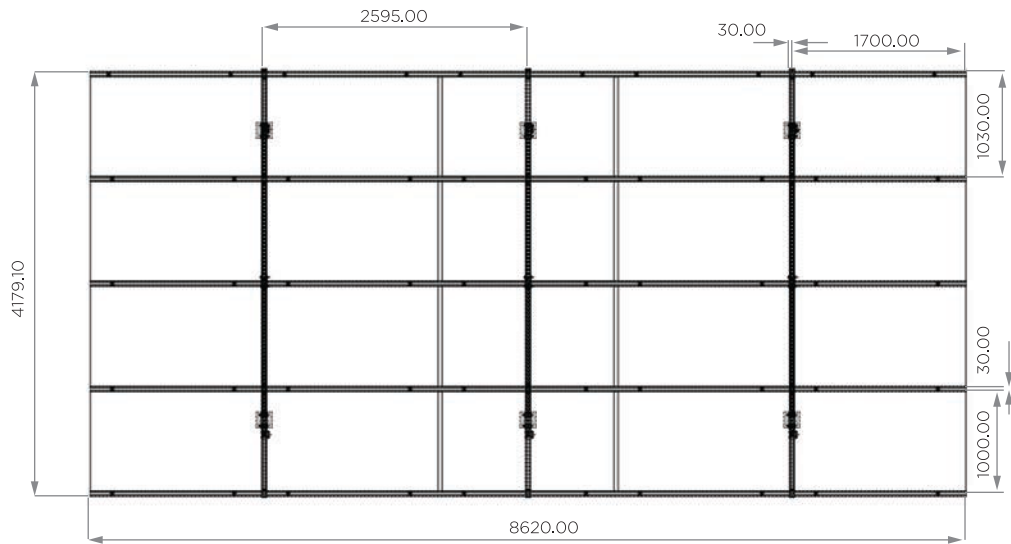
WARRANTY

Swisstek provides a warranty of 10 years for the service life for all Aluminium materials used.

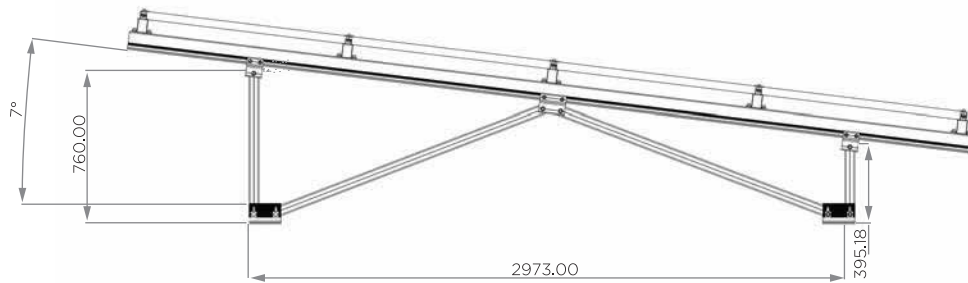
LAYOUT PLANNING

A general layout drawing is provided for all the systems before delivery.

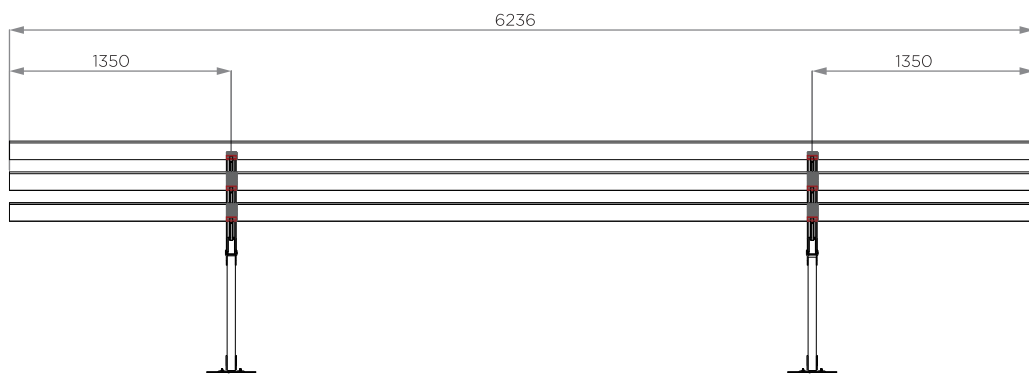
Following drawings shows an example of the layout drawing for typical landscape PV array.



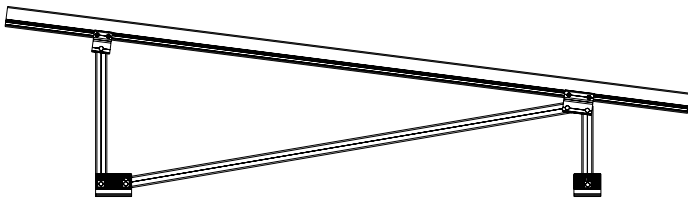
Landscape front view solar panel



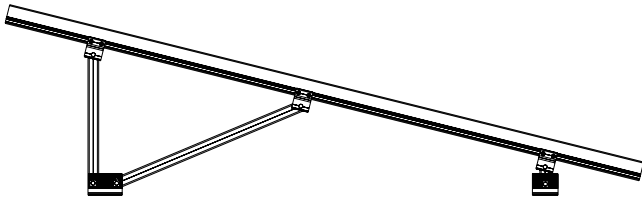
Landscape front side solar panel



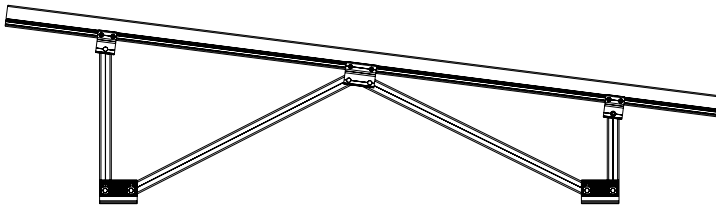
INSTALLATION TYPES



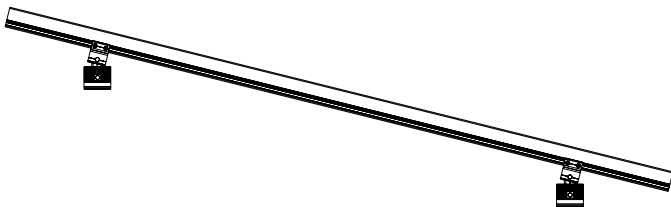
'N' Type
Fit for over 600 mm



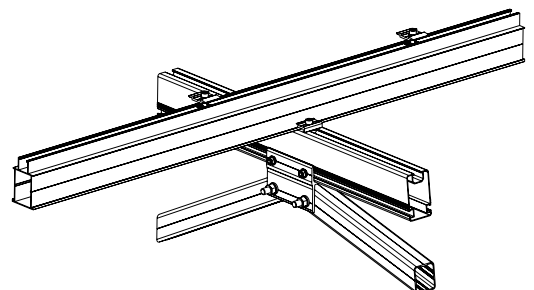
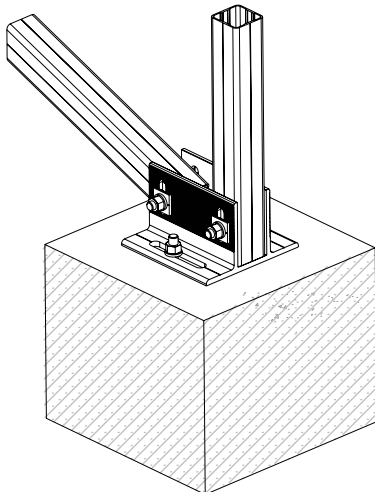
'A' Type
Fit for height of 300 mm less



'W' Type
Fit for long placement



'Non-foot' Type
Fit for hill



Ground Mounting System

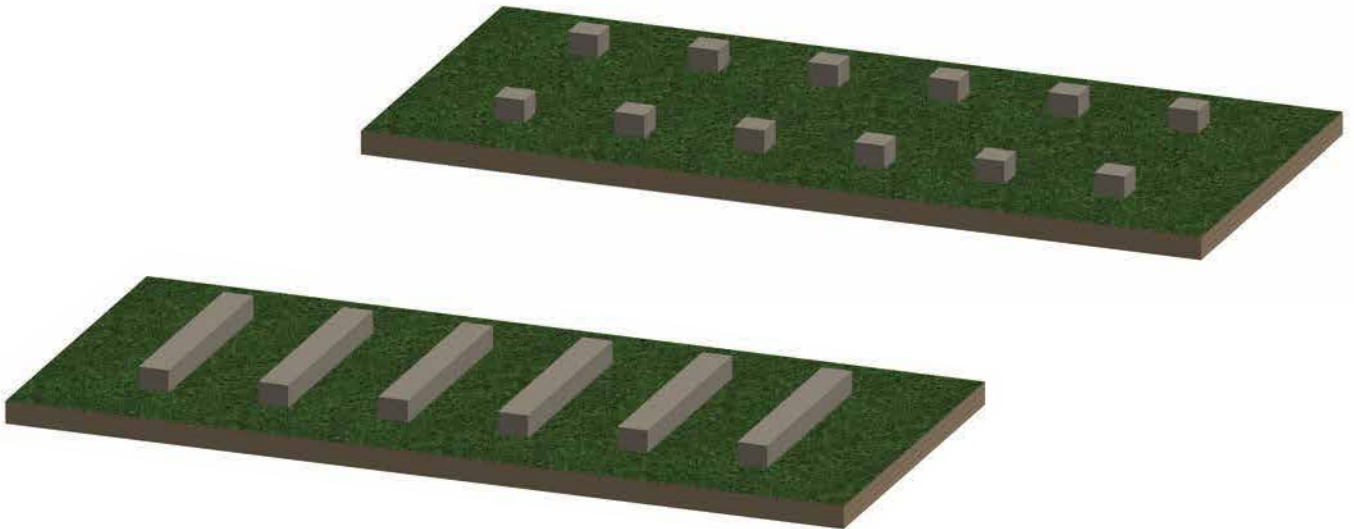
FOUNDATION

There are two main options for swisstek solar ground mounting system.

1. Concrete foundation
2. Ground screw piling

CONCRETE FOUNDATION

In most of the cases concrete foundation would be ideal. Consult a structural engineer to determine exact type & size of the foundation by observing the land location and soil status.



GROUND SCREW PILING

Use ground screw piles with the consultation of a structural engineer with soil test reports. Product is attached for the reference.



INSTALLATION TOOLS

Allen Key for M8 Bolt



Coach Wrench
(for M10-M12 Hex Bolts)



Power Tool



Torque Wrench



Drill Bit for Power Tool
(5mm)



Tape Measure



Power Tool Bit For Hex Bolt
M10 and M12



Rope



Rubber Hammer

INSTALLATION STEPS

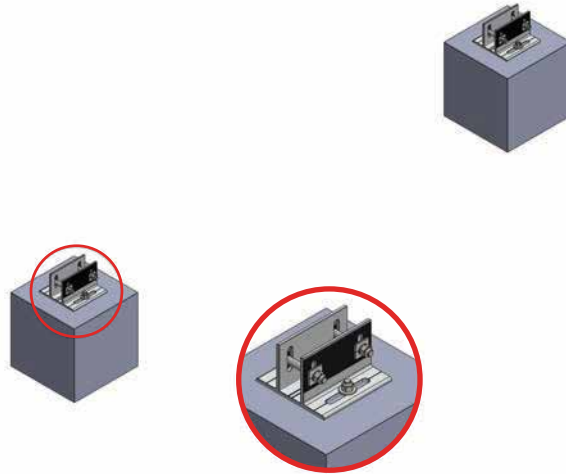
Step 1 - Insert SGM holding top base (80mm and/or 130mm) in to the rail of SGM rafter.



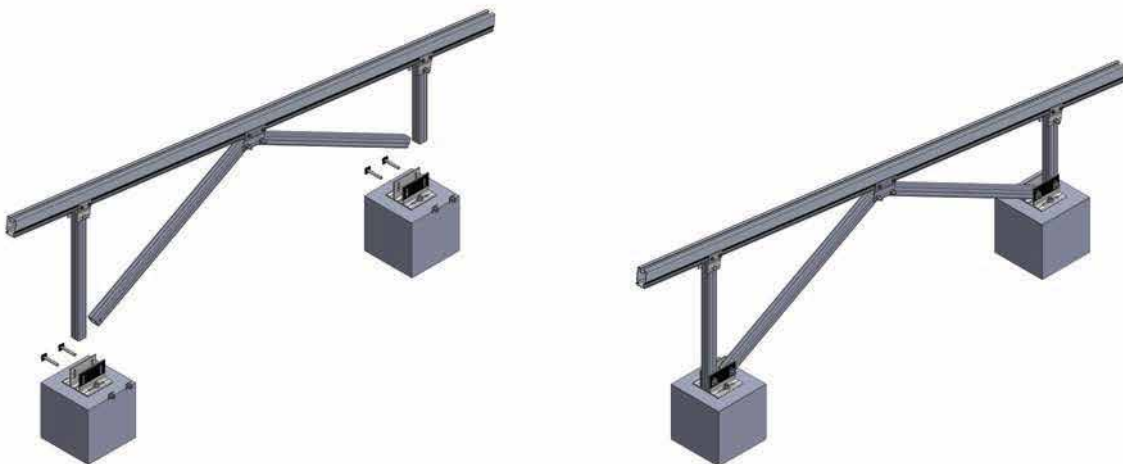
Step 2 - Fix the legs and SGM diagonal beam to the SGM holding top base.
Adjust the SGM holding top bases according to the given measurements along the rafter.



Step 3 - Fix the SGM bottom base on the foundation according to the given drawing measurements.

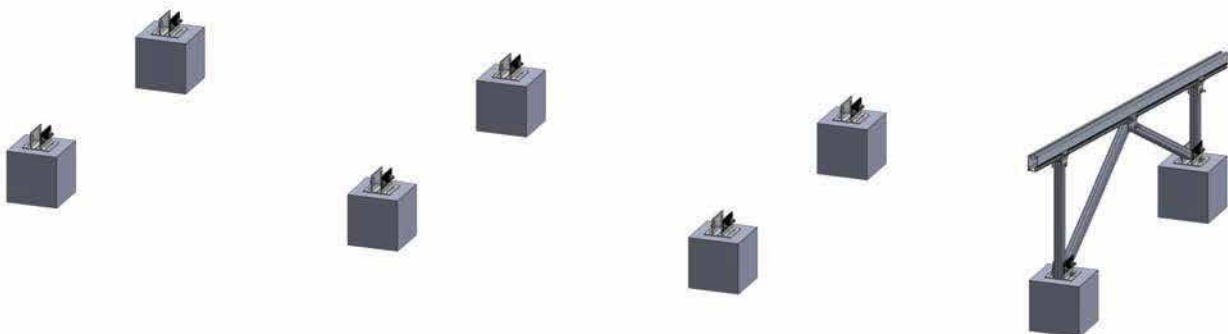


Step 4 - Fix the assembled SGM rafter assembly on the SGM bottom base.



Step 5 - Crosscheck the dimensions with the drawings.

Step 6 - If the measurements are correct repeat Step 3. along the foundation.



Step 7 - Repeat Step 4



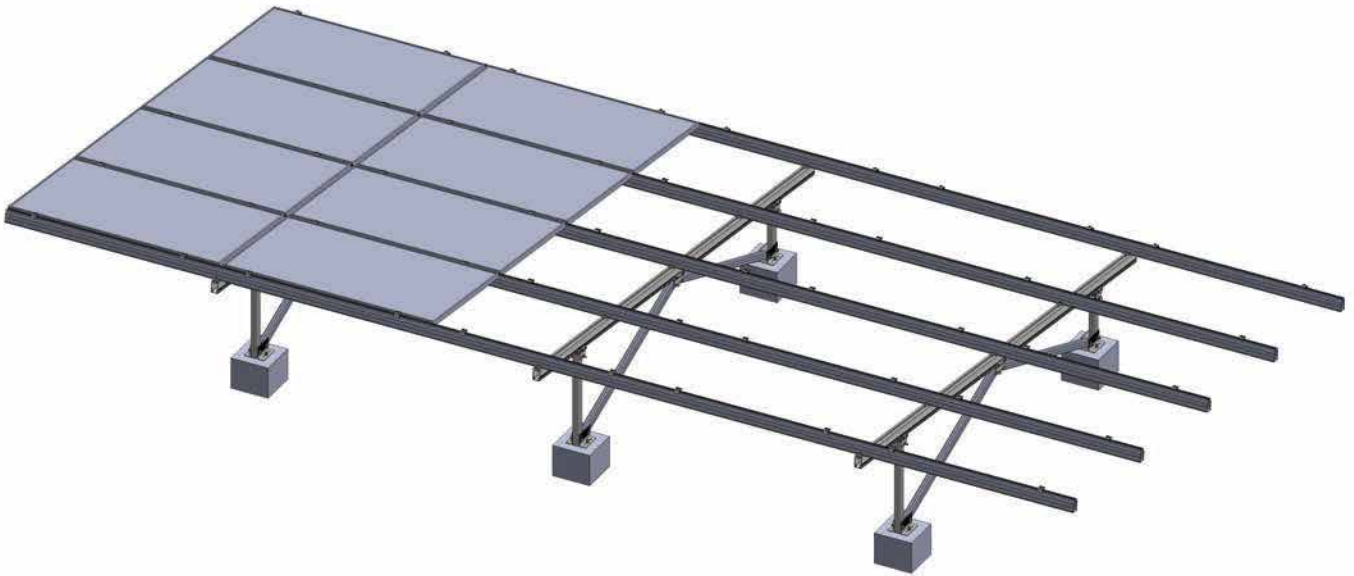
Step 8 - Place SGM purlins over the rafters according to the given measurements.



Step 9 - Insert SGM angle clamps in the edge purlins and SGM T clamps in the middle purlins.



Step 10 - Place the Solar panel on the purlins and fix it with SGM angle clamp and/or SGM T clamp.

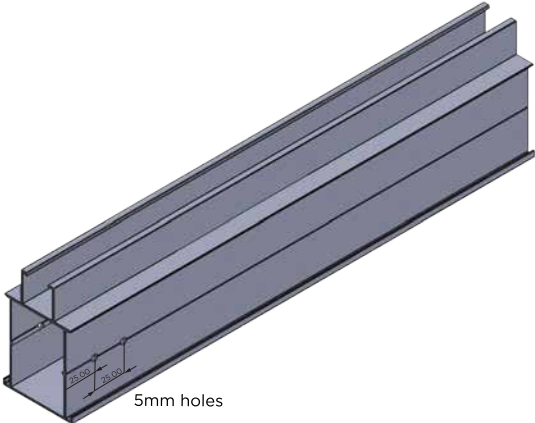


Step 11 - Repeat the step until structure is covered with solar panels.

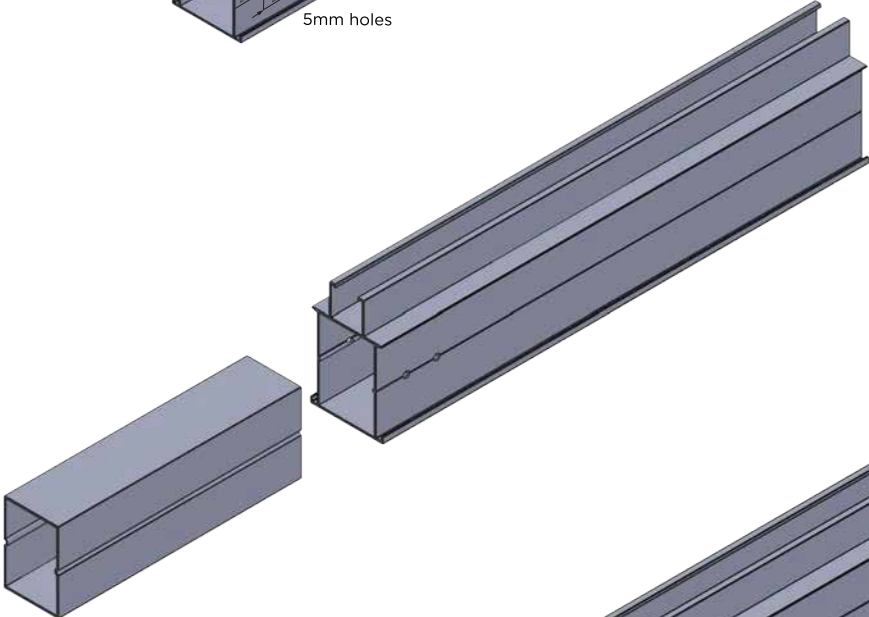


CONNECTION OF TWO PURLINS

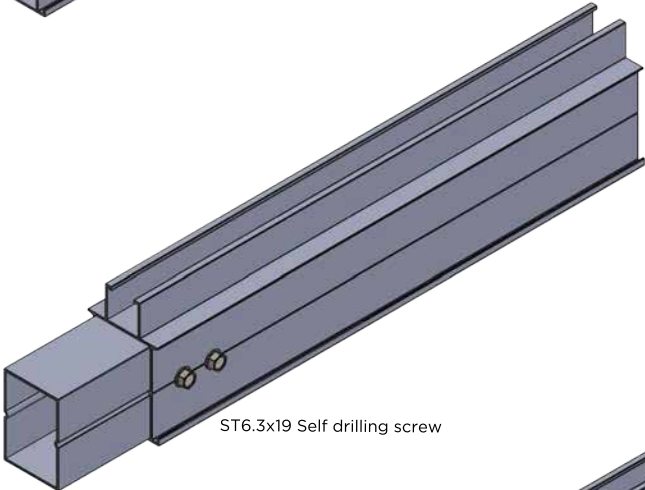
STEP 1



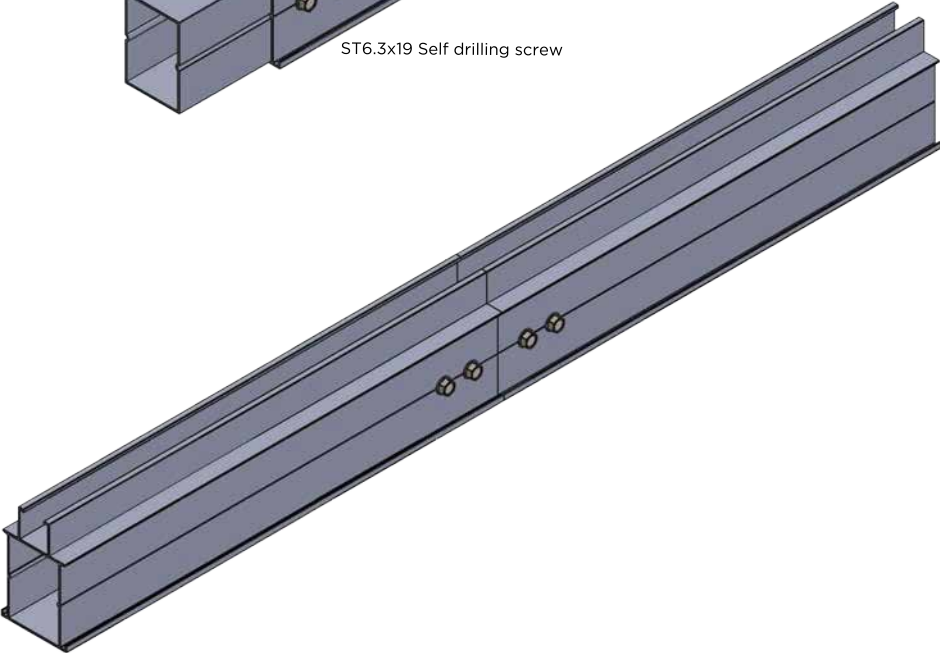
STEP 2



STEP 3



STEP 4





ALUMINIUM
FOR THE PERFECT FINISH

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