Alumil SOLAR

H2300 - AS360
AS370

TECHNICAL MANUAL

Version:05.23

Assembly Instructions

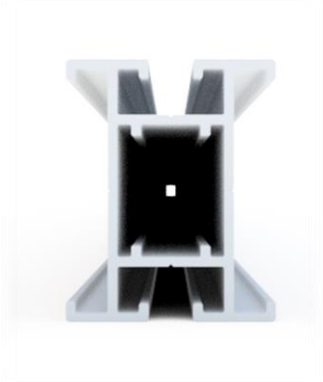
❖ CONTENTS

A. MATERIAL LIST

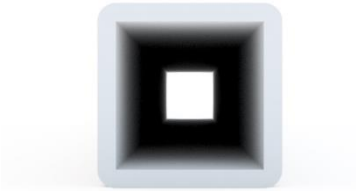
1. Accessories

AS360
(EX-8962360200 - EX-8962360400)

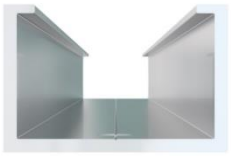
AS370
(EX-8962370000)



PROFILE H2216



CORE FOR H2216 PROFILE
(EX-8962200200)

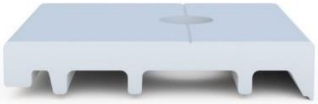


PROFILE H2308

2. Fasteners & other accessories.

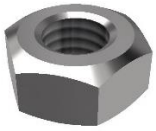
➢ Accessories needed to mount the profiles

HEXAGON BOLT ISO4017/DIN933 M8x30 A2 INOX
(EX-7622803001)

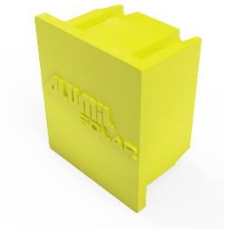


CLAMP FOR H2401 PROFILE
(EX- 8962406000)

DIN 7504-K SELF DRILLING SCREW 5,5x19 A2 INOX
(EX-7626701901)



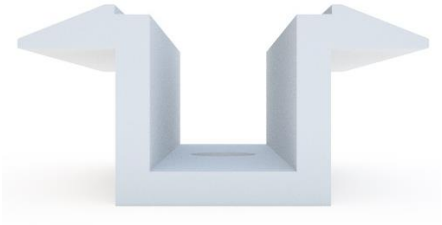
NUT M8 DIN934 A2 INOX
(EX-7628008101)



CAP FOR H2216 PROFILE-YELLOW
(EX- 8962216040)

SERRATED LOCK WASHER DIN6798-A M8 A2 INOX
(EX-7627300801)

➢ Accessories needed to mount PV panels to the structure



MID CLAMP PANEL
(EX-8960180200)

END CLAMP LENGTH : X mm*
**Height of end clamp depends on the thickness of the PV panel*

SERRATED LOCK WASHER DIN6798-A M8 A2 INOX
(EX-7627300801)

T-SLOT NUT M8 ALUMINUM
(EX-8968008103)

ALLEN BOLT M8x'LENGTH*'
**Length of allen bolt depends on the thickness of the PV panel*

Panel thickness (mm)	***End clamp***	***Allen bolt***
50	*EX-8960330100*	*EX-7629085001*
46	*EX-8960430100*	*EX-7629084501*
42	*EX-8960340100*	*EX-7629084001*
40	*EX-8960440100*	*EX-7629084001*
38	*EX-8960720100*	*EX-7629084001*
35	*EX-8960450100*	*EX-7629083501*
34	*EX-8960460100*	*EX-7629083001*
32	*EX-8960621100*	*EX-7629083001*
30	*EX-8960630100*	*EX-7629083001*

3. Tooling set

Spirit Level (2m)

String Line

Stell Tape Measure (50 -100m)

Spanners Sockets (Metric)

Tap screw adaptor

Torque Wrench

Screw Rivet Tool

Power Driver & Bits
Impact Driver

Suitable Angular Measuring Device

Health & Safety

It is the installer's responsibility that their personnel ensure that safe working practices as required by the site specific contract are adopted and achieved at all times.
No operation should cause danger to employer, employee, contractor, sub-contractor or any member of the public.

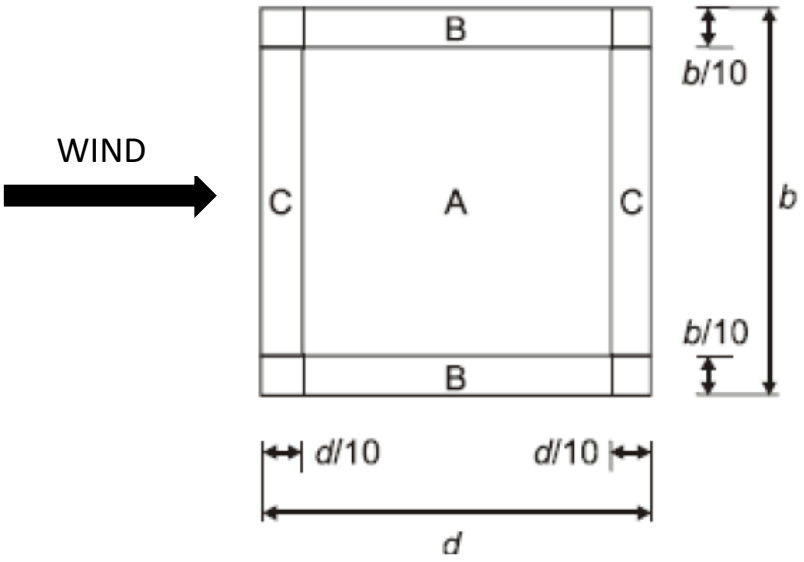
4. Nut's torques

The table below represents the specific torques that should be used for fastening the screws and nut's, according to size (i.e. M8 or M10) and aluminum's finishing (i.e. mill finished or anodized).

SCREW TIGHTENING TORQUES (MILL FINISHED PROFILES)		
M10	**M8**	**M8 Allen**
T=40-45 Nm	T=25 Nm	T = 9 - 10Nm (for thin film panels) T =12-15 Nm (for poly panels)
SCREW TIGHTENING TORQUES (ANODISED PROFILES)		
M10	**M8**	**M8 Allen**
T=50 Nm	T=25-30 Nm	T = 9 –11 Nm (for thin film panels) T =14–17 Nm (for poly panels)

5. Safety zones

Safety distances of 10% roofs length should be kept from all edges of the roofs.
Installation of PV panels at zones B & C should be avoided since wind forces are very high at those zones.



B. ASSEMBLY INSTRUCTIONS FOR AS360

1. AS360 (Portrait)

➢ Placing triangle on roof.

To place the profiles on the roof according to the X and Y dimensions, please follow these steps:

Review the roof plan and layout to determine the location and orientation of the profiles.

Use a tape measure or other measuring tool to mark the appropriate X and Y coordinates on the roof where the profiles are to be placed.

Use a chalk line or other straight-edge tool to mark a straight line on the roof along the X dimension where the profile is to be placed.

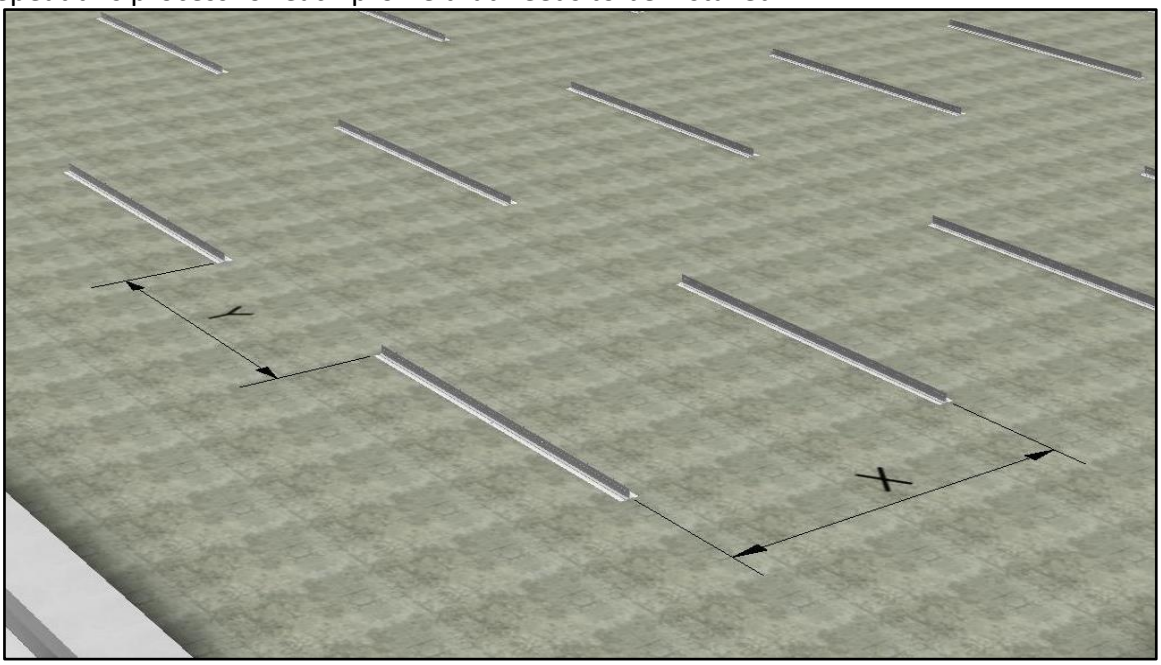
Repeat this process for the Y dimension to mark a straight line where the profile is to be placed perpendicular to the X dimension line.

Use a level to ensure that the marked lines are straight and level in both directions.

Place the profile onto the marked location on the roof, ensuring that it is properly aligned with the X and Y dimensions.

Secure the profile onto the roof using appropriate mounting hardware, such as screws or bolts, according to the manufacturer's instructions.

Repeat this process for each profile that needs to be installed.



X = Distance of horizontal according to order

Y = Distance of vertical profiles according to order.

Use a drill to make holes in the foundation according to the measurements indicated in the foundation study.

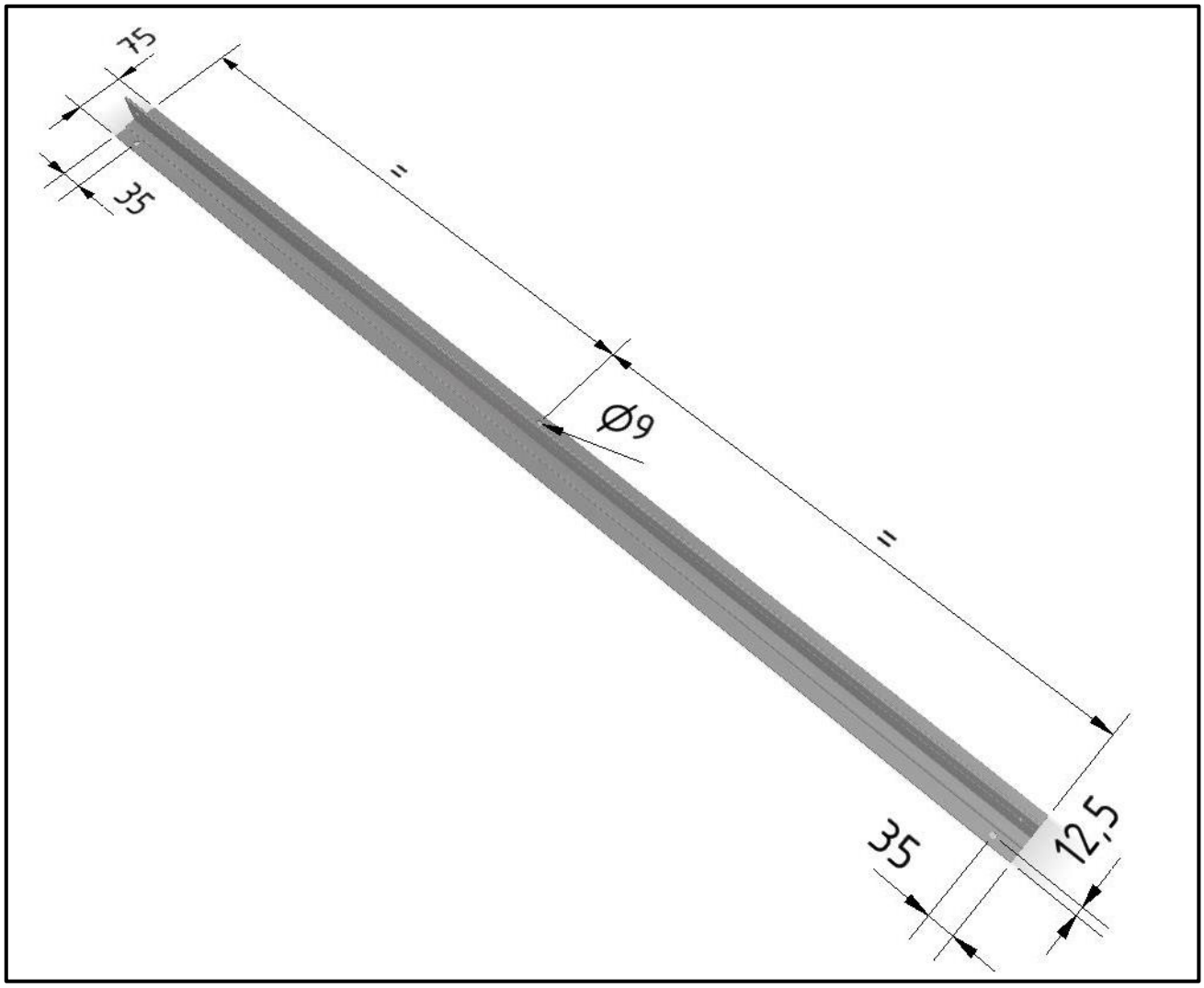
Install anchors or bolts into the holes to secure the connection profile to the foundation.

Mount the connection profile onto the anchors or bolts and secure it with nuts and washers.

Use a level to ensure that the profile is straight and level in both directions.

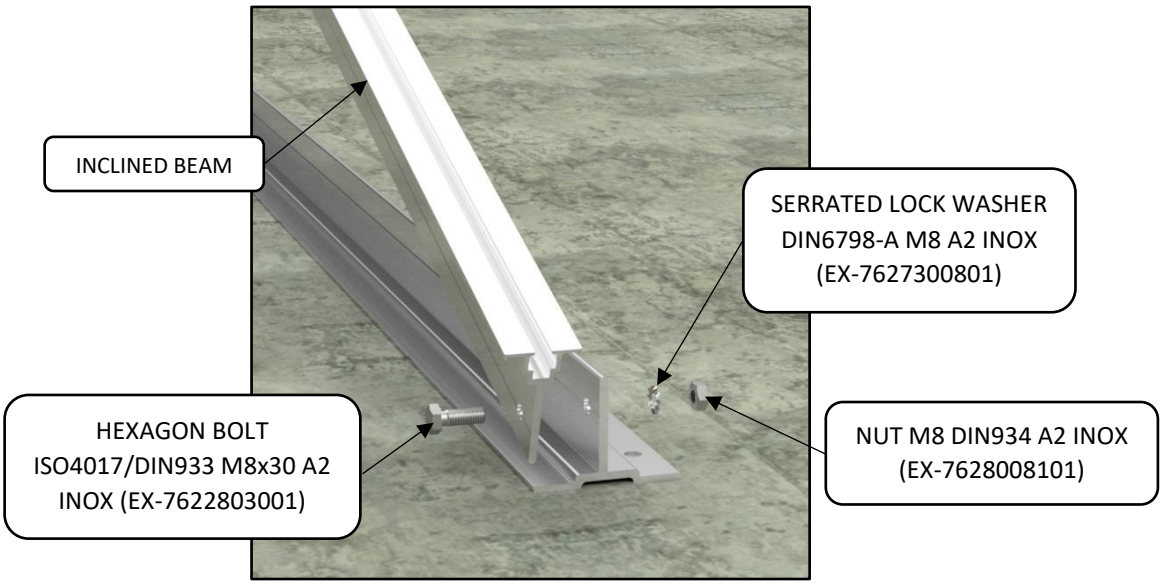
Tighten the nuts to secure the connection profile to the foundation.

Each profile has 3 holes for adequate mounting structure.

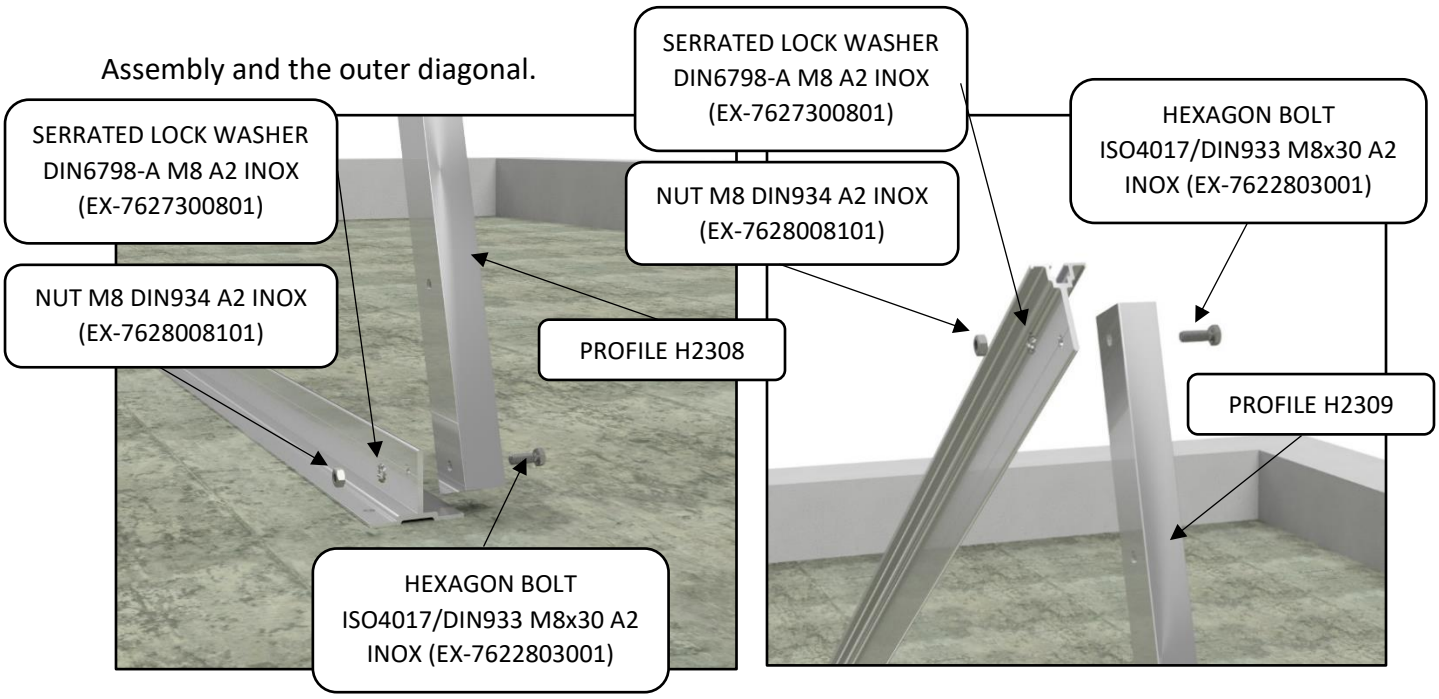


➢ Placing inclined beam and outer diagonal on base

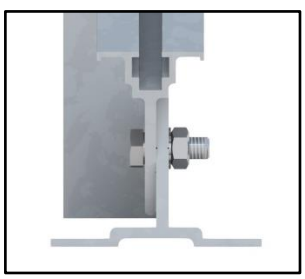
Assembly the connecting profile with inclined beam as shown in drawing.

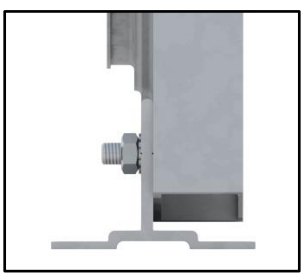


Assembly and the outer diagonal.

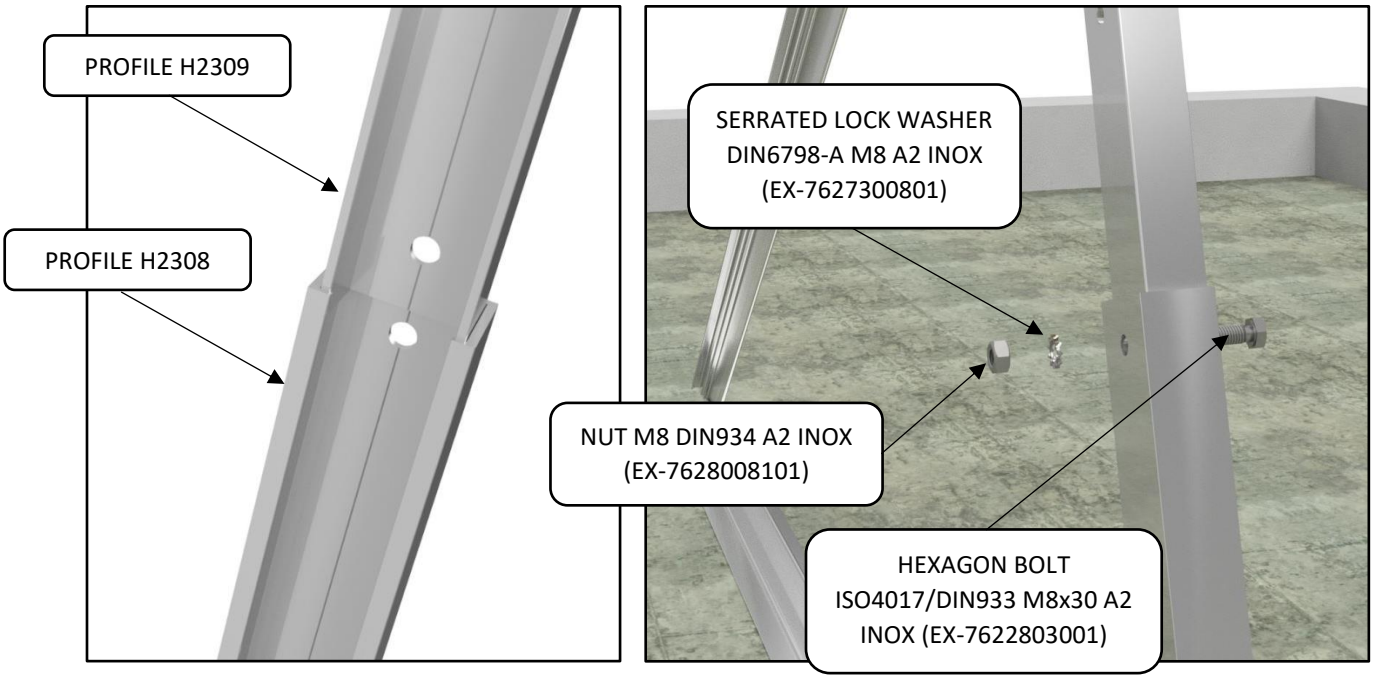


ATTENTION: Install the inclined and the diagonal in the right side.

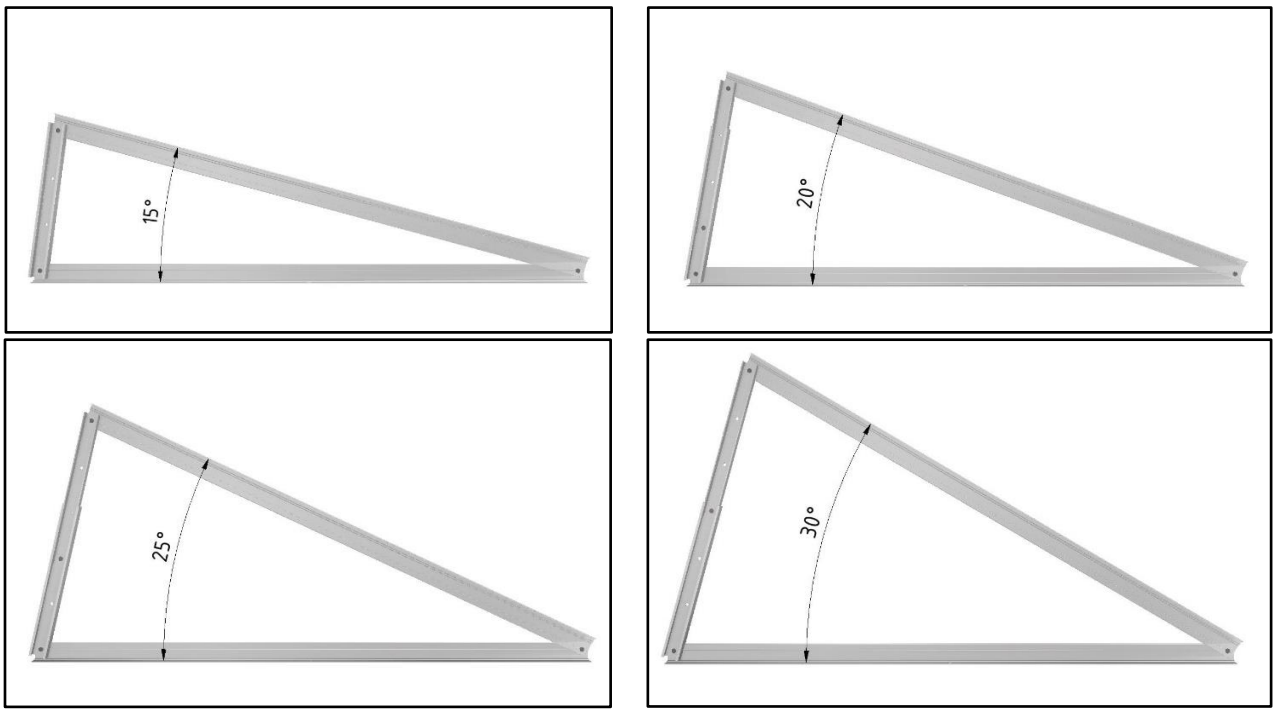




The diagonal is made of two telescoping pieces and the mounting is made according to the desired angle. The position of the bottom hole of the upper diagonal determines the slope of mount.

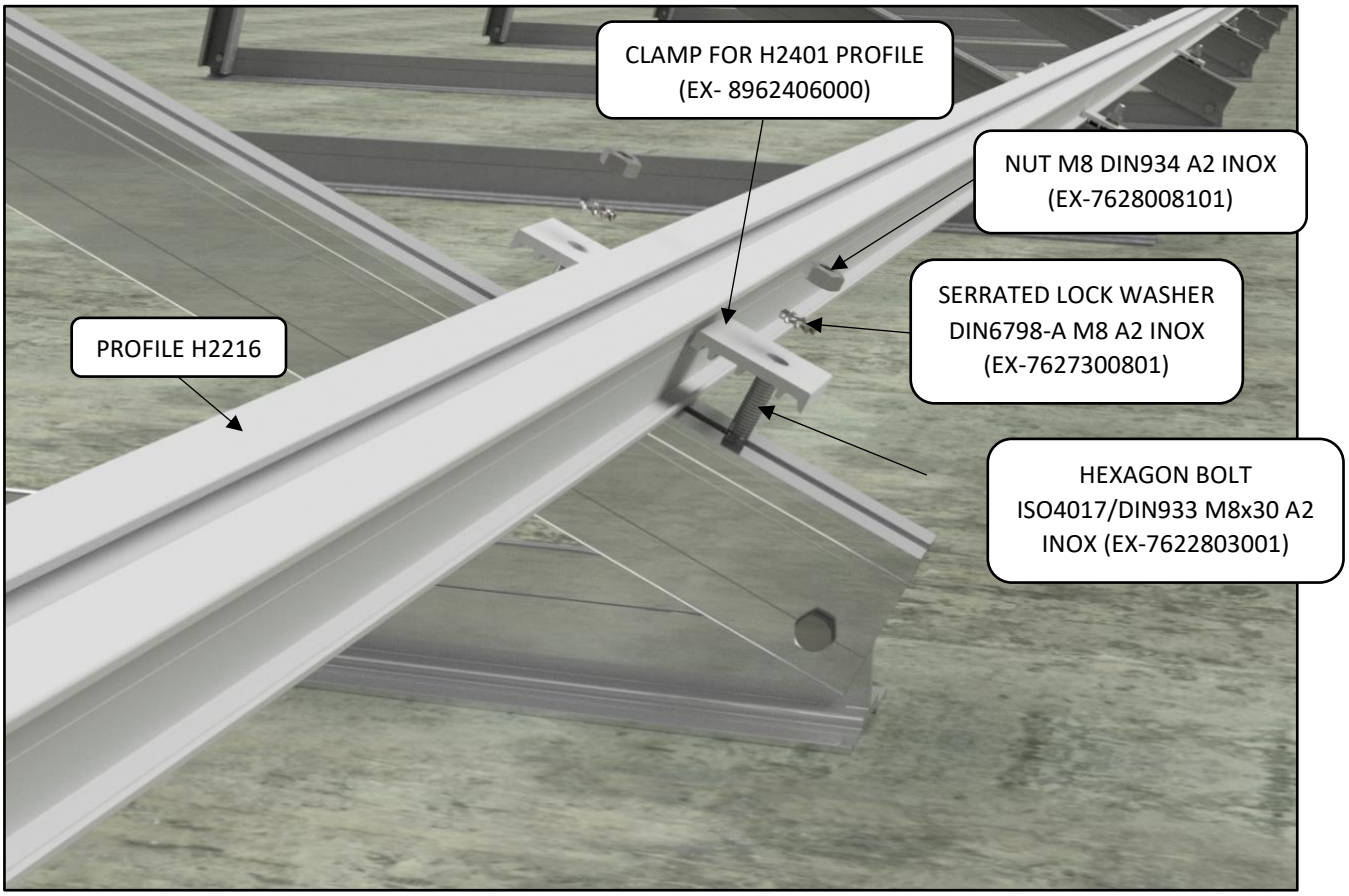


Angle position



➢ Placing H2216 on triangle AS360

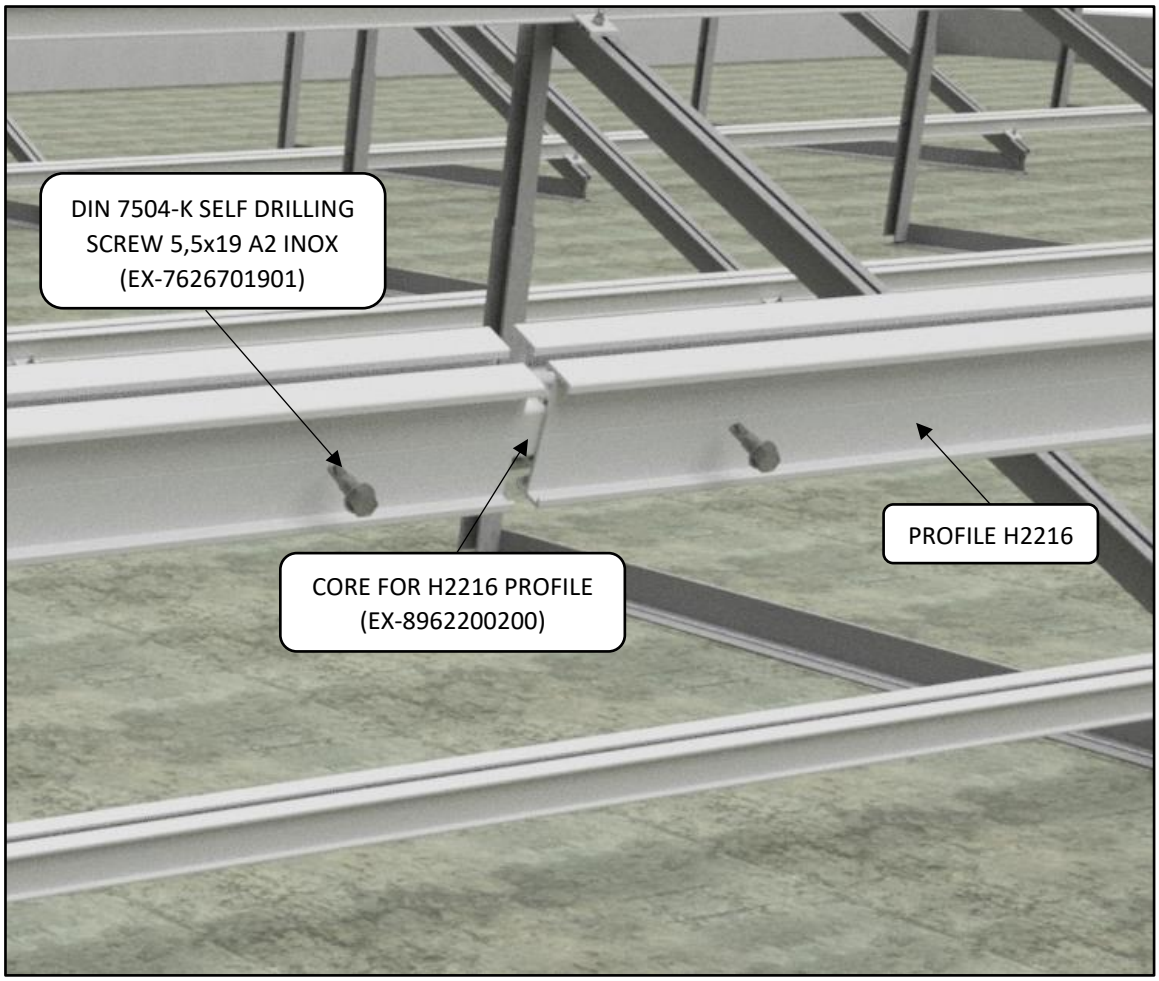
Place the purlins at the appropriate distances, according to the manufacturer of the PV module.

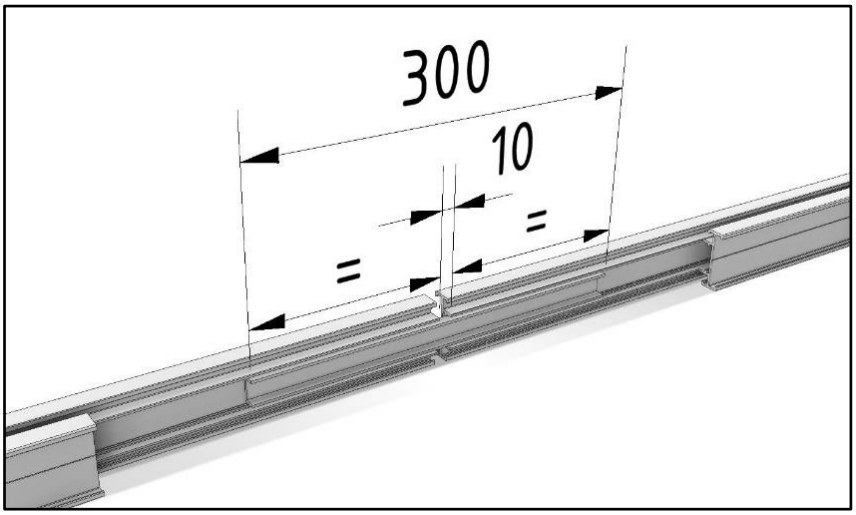


➢ Placing core in profile H2216

After bases installation, are placed. In their meeting point, the connection should be done with the help of core accessory. Core is used to connect two identical profiles, while helping in the absorption of thermal expansions due to temperature changes.

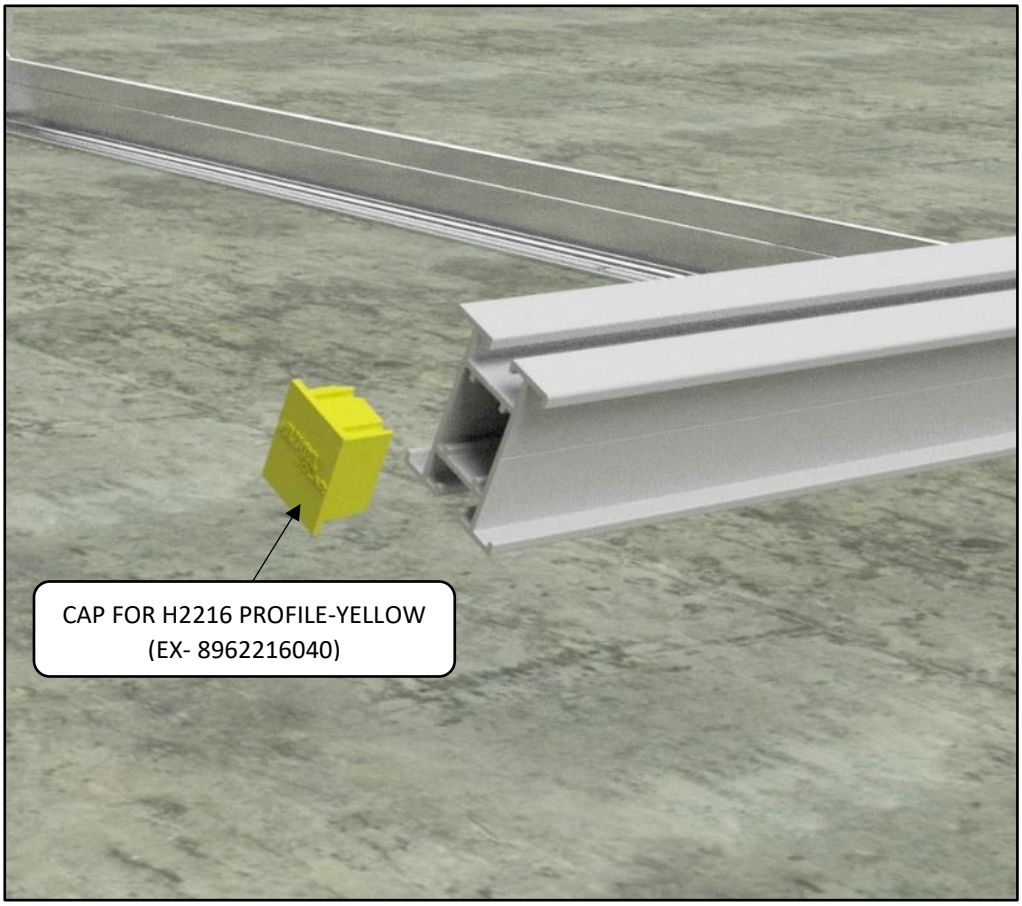
Place the core in the 2 successive profiles and mount with 2 self-drilling screw.





➢ Placing cap on profile H2216

Install the yellow plastic caps at the end of the rails, with four caps for one side of the table and four caps for the other side.

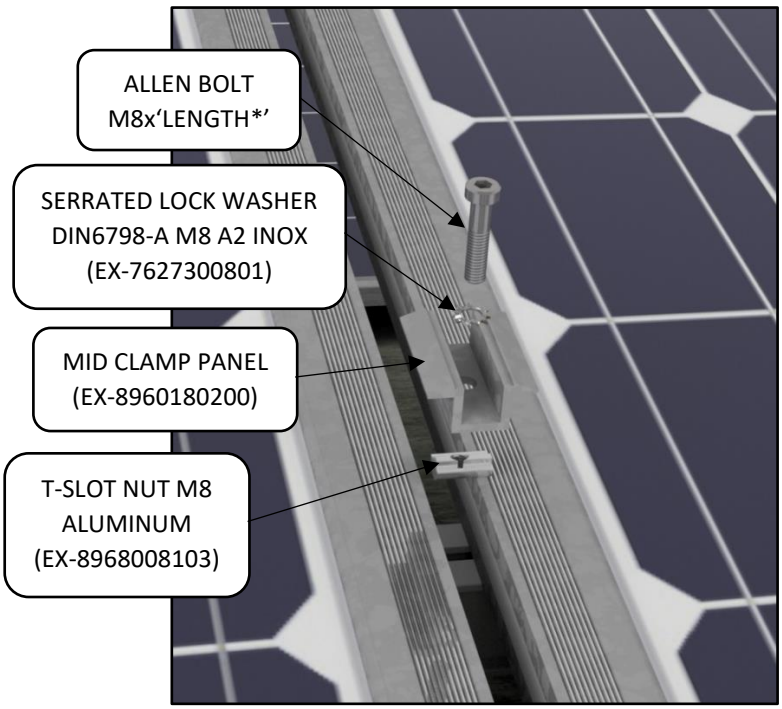


➢ Mounting panel on profile H2216

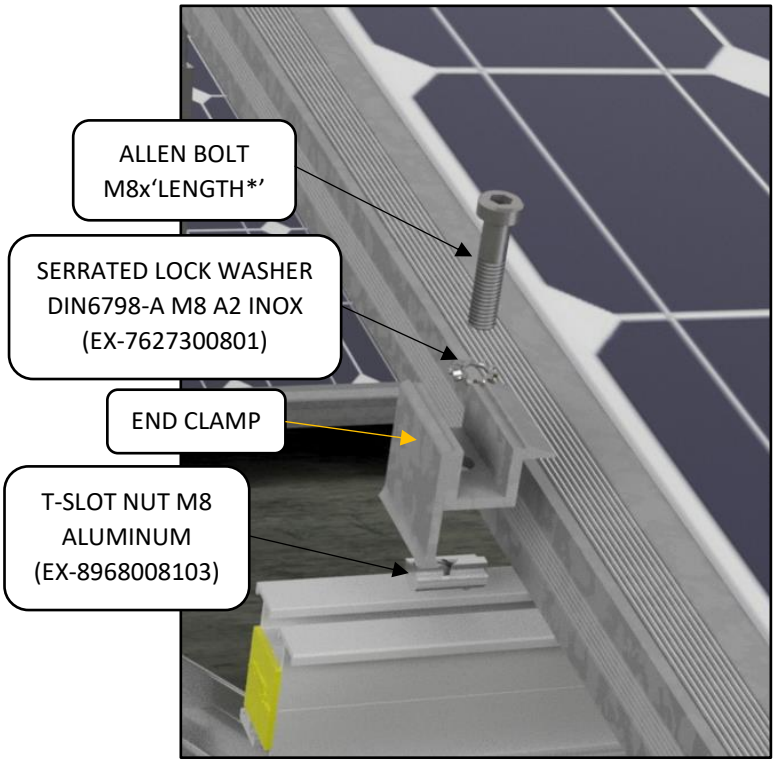
The process for fixing the photovoltaic (PV) modules with clamps after fixing the purlins is as follows:

1. Gather all necessary tools and materials, including the PV modules, clamps, and any other necessary hardware.
2. Locate the purlins that have already been fixed in place.
3. Place the clamps loosely on the purlins, making sure that they are spaced evenly and positioned in a way that allows them to be used to secure the PV modules.
4. Begin with the placement of the PV modules on the purlins. Start by positioning the end clamps at the start and end of a line, and then place the middle clamps at all other locations along the line.
5. Secure each PV module in place by tightening the clamps, making sure that each module is securely fastened to the purlins.
6. Repeat the process of placing and securing PV modules along each line, making sure that each module is properly aligned and that all clamps are tightened securely.
7. Inspect the entire installation to make sure that all components are securely attached and that there are no gaps or other issues.

Mount the edge panels onto the purlins using an End Clamp, an M8 Allen Bolt of specified length, a M8 Grover, and a T-Slot Aluminum Nut.

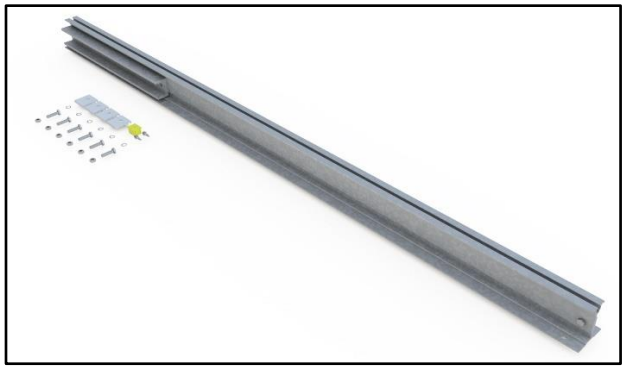


To mount two intermediate panels on the purlins, use a Mid Clamp, an M8 Allen Bolt of specified length, a M8 Grover, and a T-Slot Aluminum Nut.

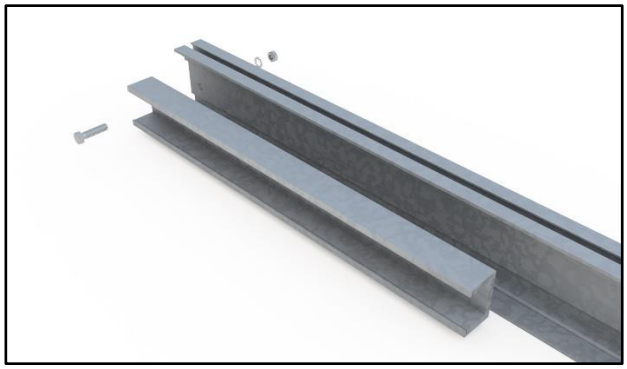


The series also provided in a pre-assembled form. In this case the packaging of a triangle - base includes all the required assembly materials. To install follow these six simple steps.

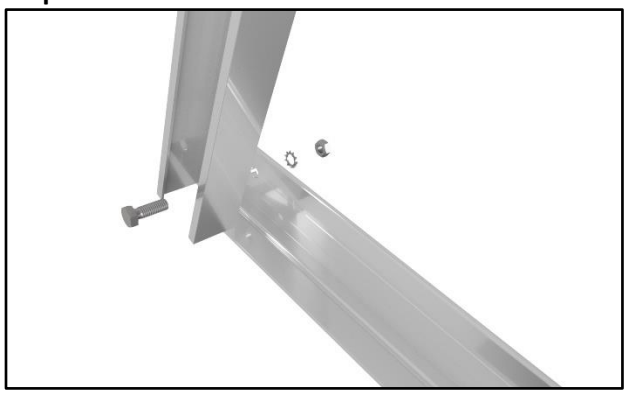
Step:1



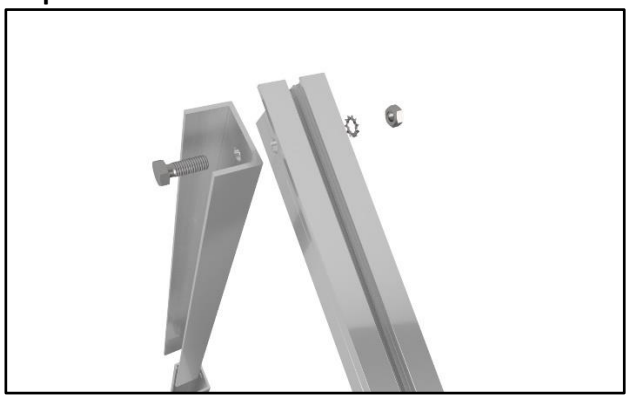
Step:2



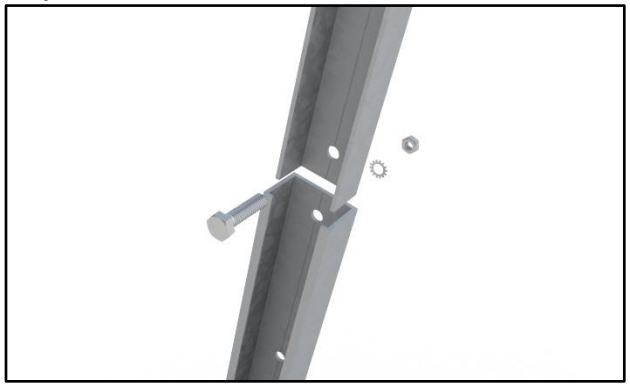
Step:3



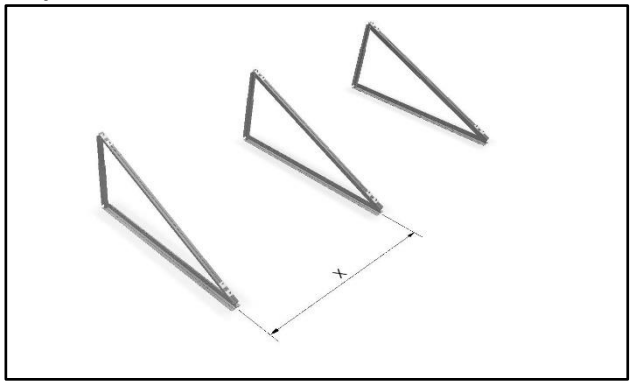
Step:4



Step:5



Step:6



A complete installation with AS360 mounting system for vertical orientation.

2. AS360 (Landscape)

➢ Placing triangle on roof.

To place the profiles on the roof according to the X and Y dimensions, please follow these steps:

Review the roof plan and layout to determine the location and orientation of the profiles.

Use a tape measure or other measuring tool to mark the appropriate X and Y coordinates on the roof where the profiles are to be placed.

Use a chalk line or other straight-edge tool to mark a straight line on the roof along the X dimension where the profile is to be placed.

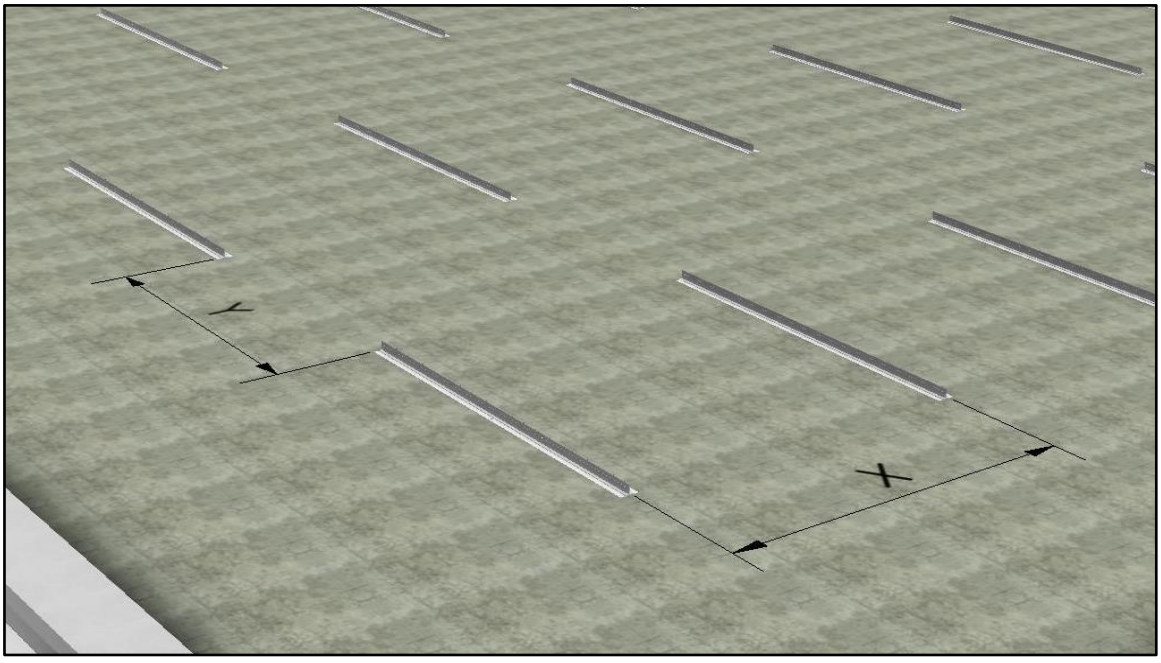
Repeat this process for the Y dimension to mark a straight line where the profile is to be placed perpendicular to the X dimension line.

Use a level to ensure that the marked lines are straight and level in both directions.

Place the profile onto the marked location on the roof, ensuring that it is properly aligned with the X and Y dimensions.

Secure the profile onto the roof using appropriate mounting hardware, such as screws or bolts, according to the manufacturer's instructions.

Repeat this process for each profile that needs to be installed.



X = Distance of horizontal according to order

Y = Distance of vertical profiles according to order.

Use a drill to make holes in the foundation according to the measurements indicated in the foundation study.

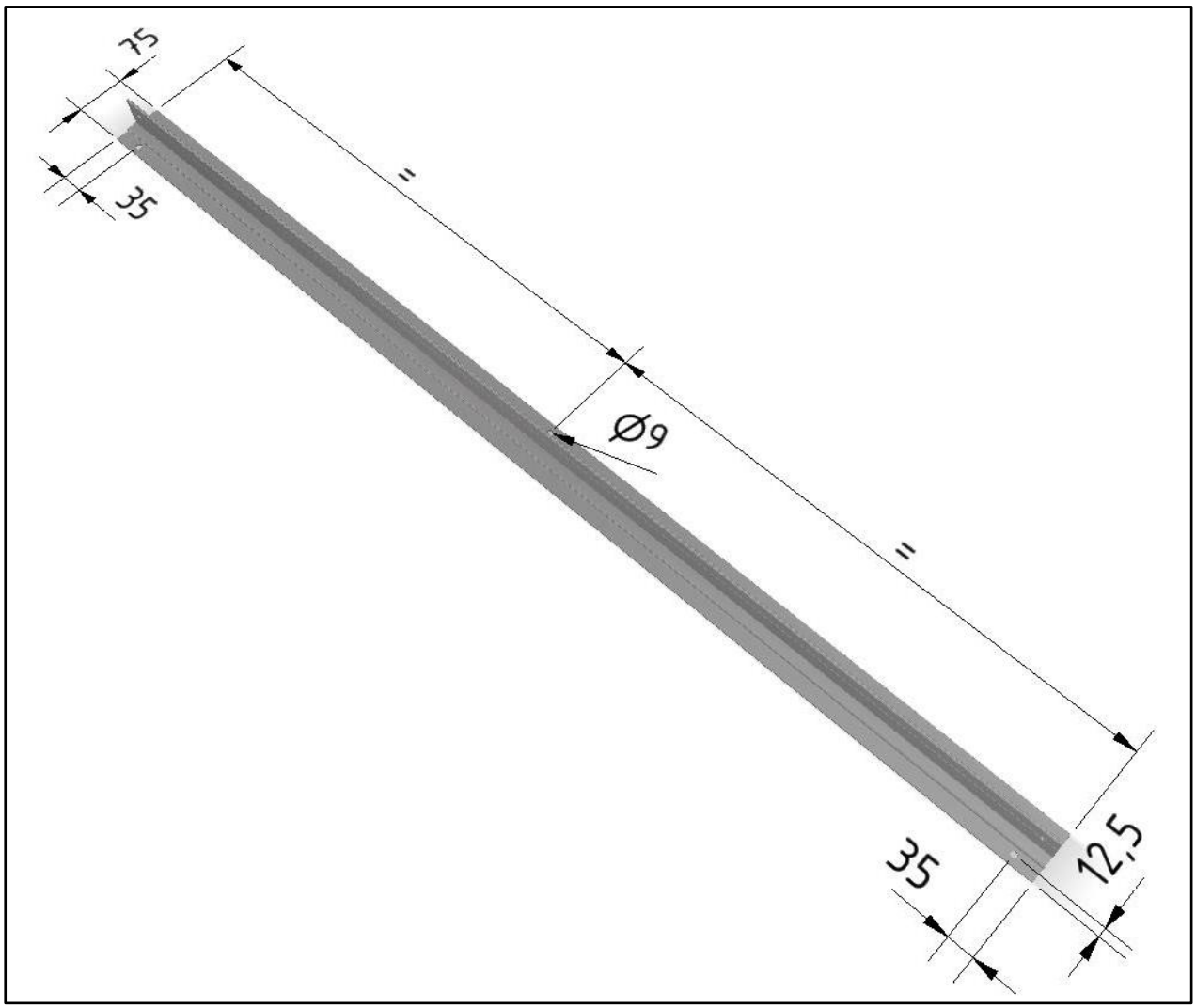
Install anchors or bolts into the holes to secure the connection profile to the foundation.

Mount the connection profile onto the anchors or bolts and secure it with nuts and washers.

Use a level to ensure that the profile is straight and level in both directions.

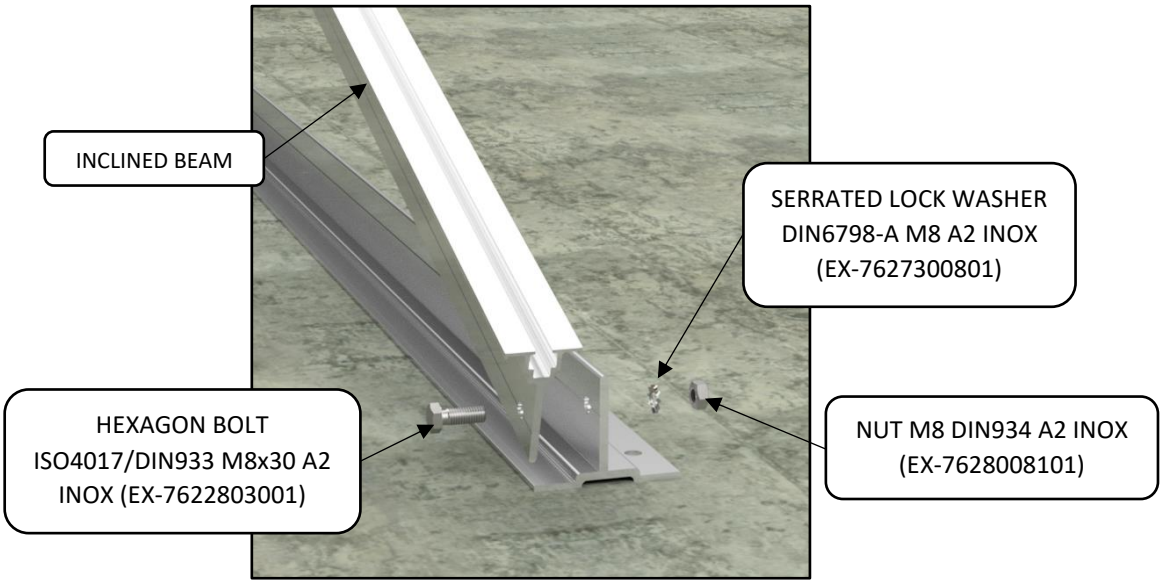
Tighten the nuts to secure the connection profile to the foundation.

Each profile has 3 holes for adequate mounting structure.

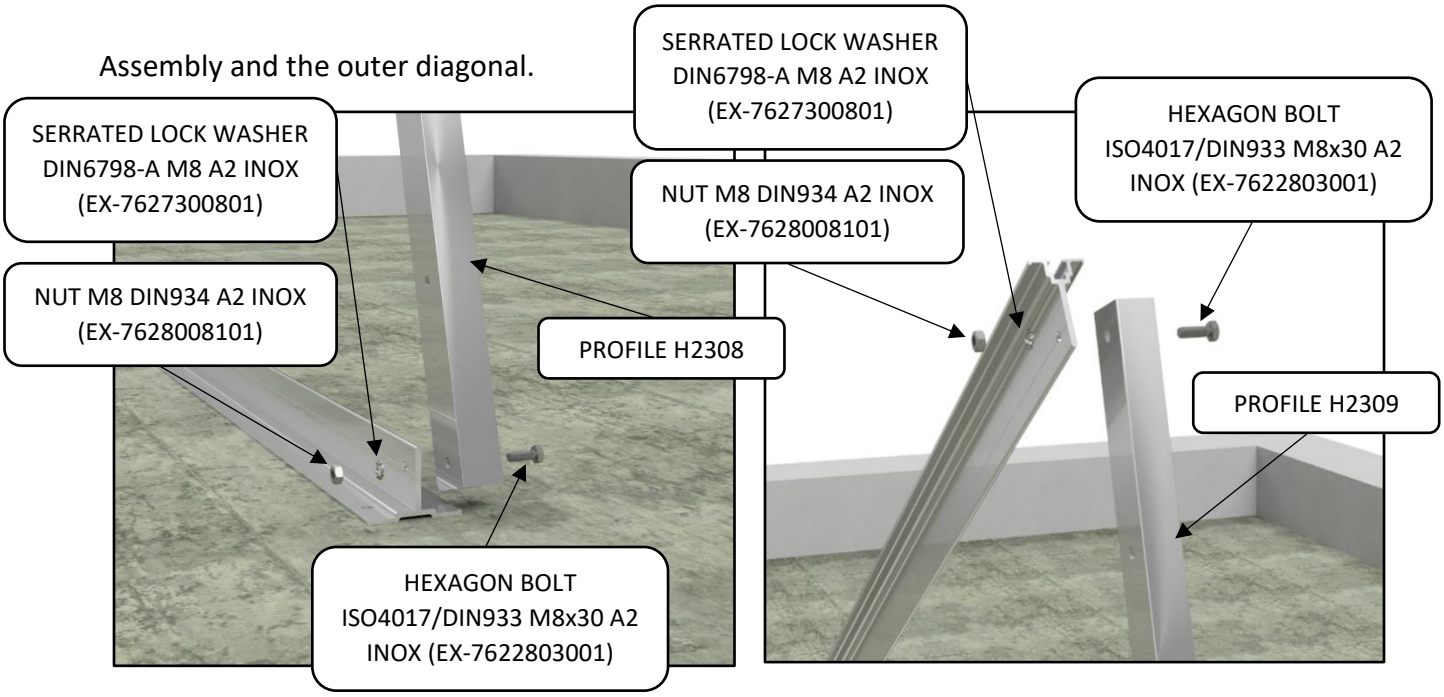


➢ Placing inclined beam and outer diagonal on base

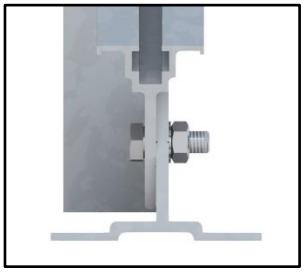
Assembly the connecting profile with inclined beam as shown in drawing.

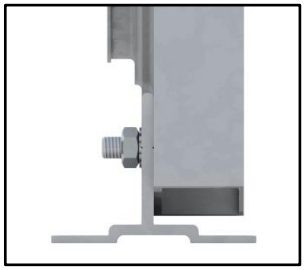


Assembly and the outer diagonal.

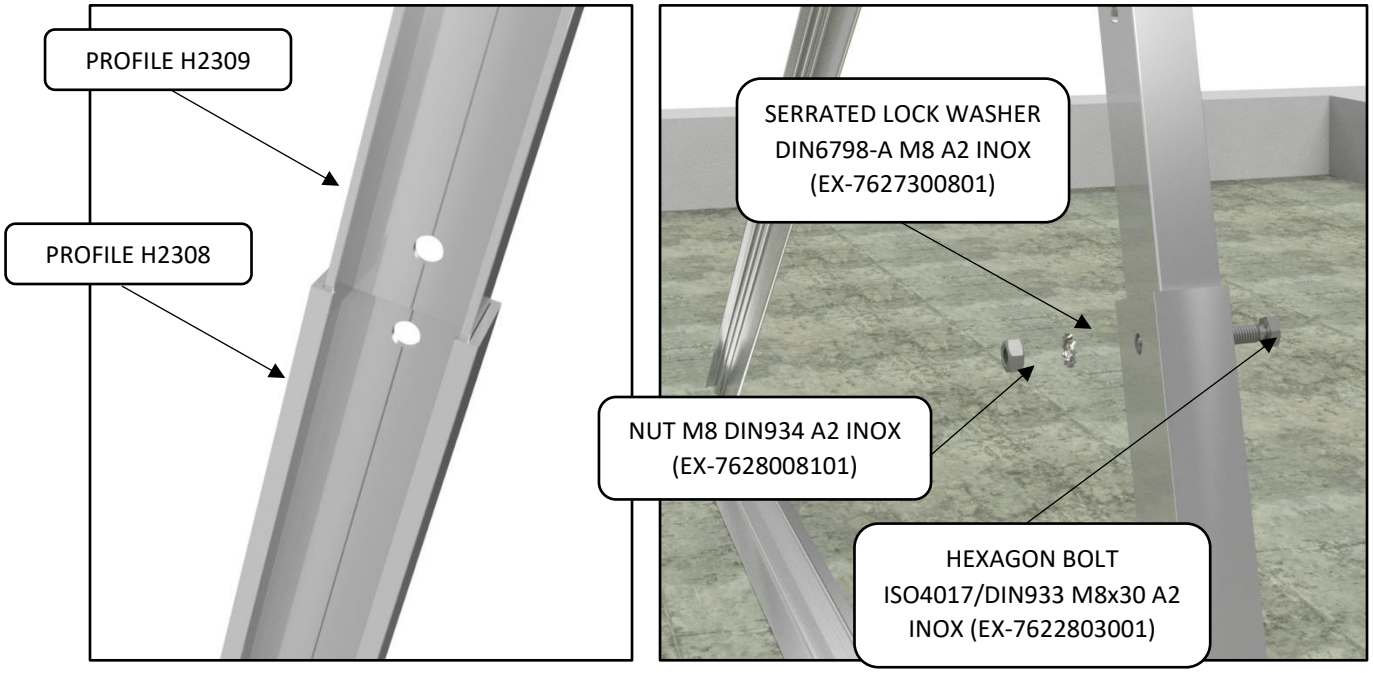


ATTENTION: Install the inclined and the diagonal in the right side.

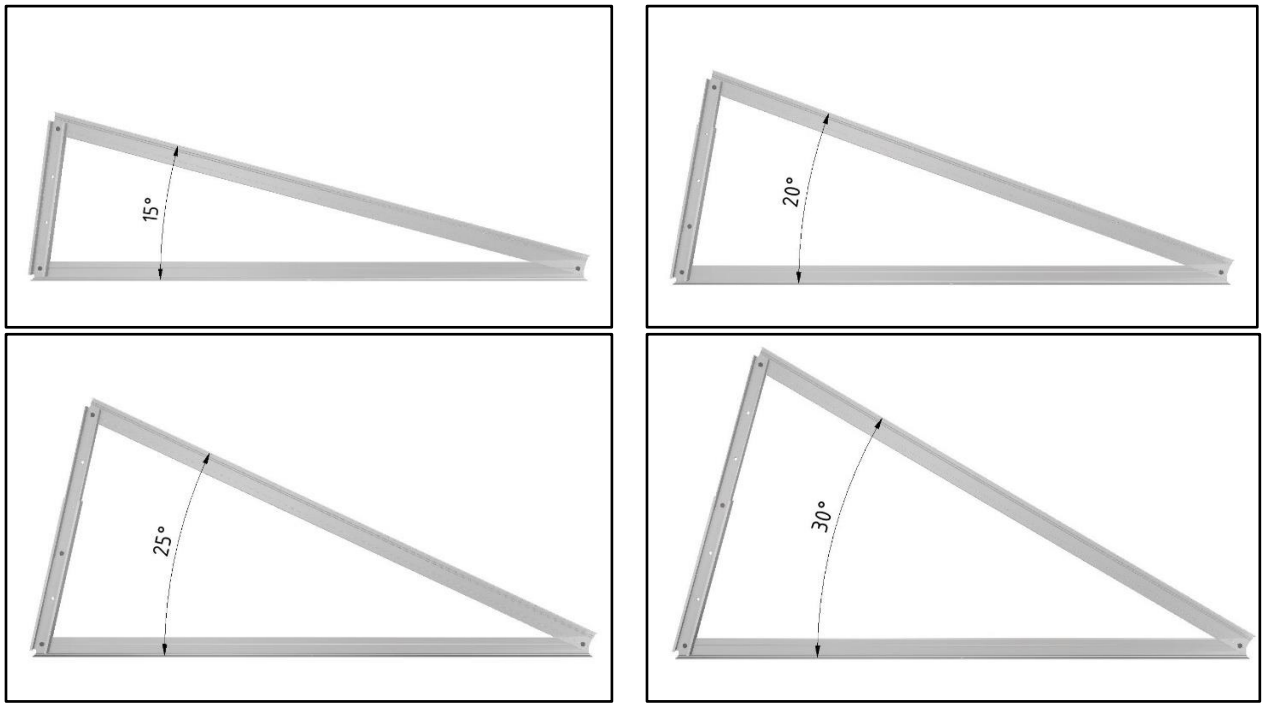




The diagonal is made of two telescoping pieces and the mounting is made according to the desired angle. The position of the bottom hole of the upper diagonal determines the slope of mount.

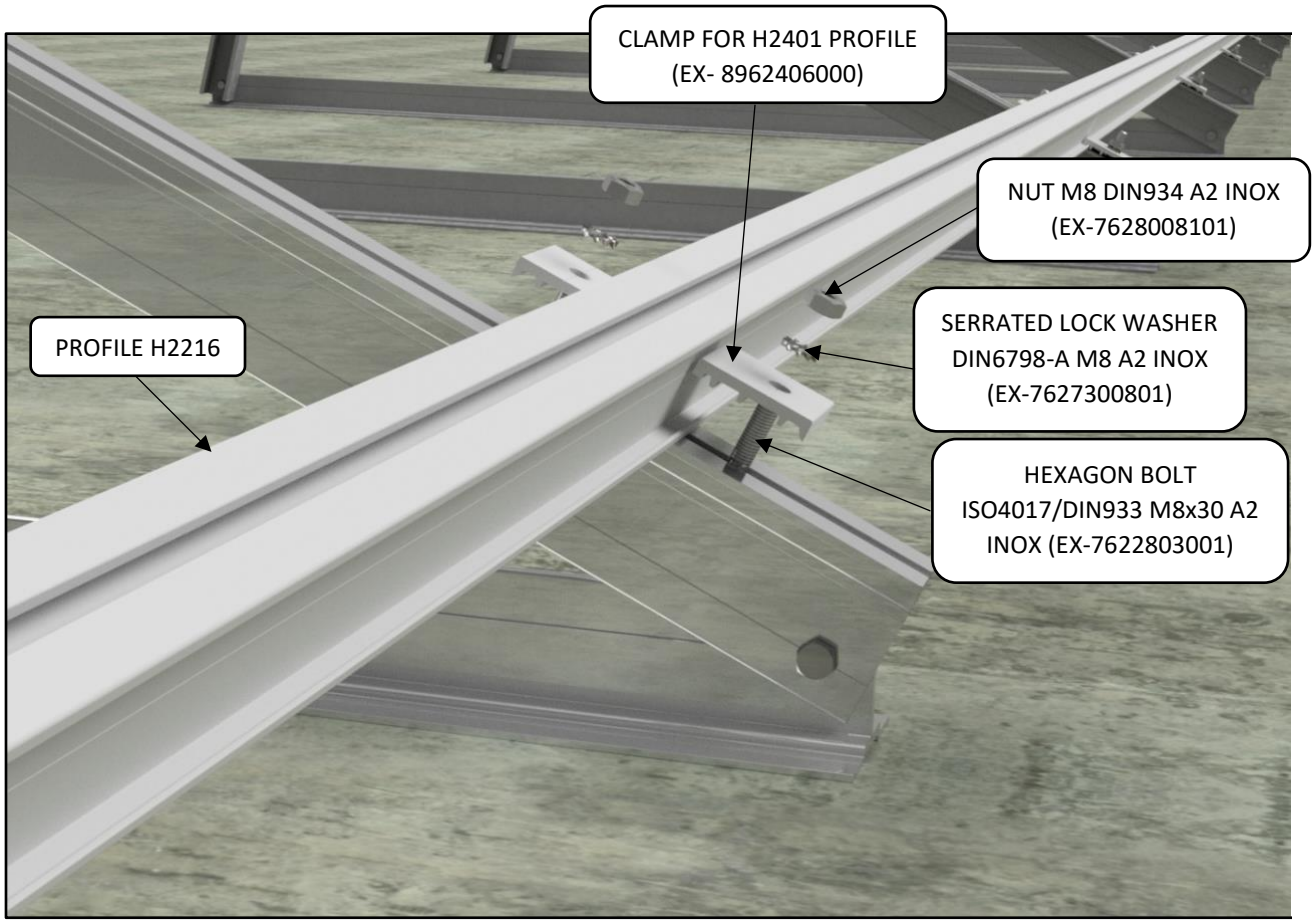


Angle position



➢ Placing H2216 on triangle AS360

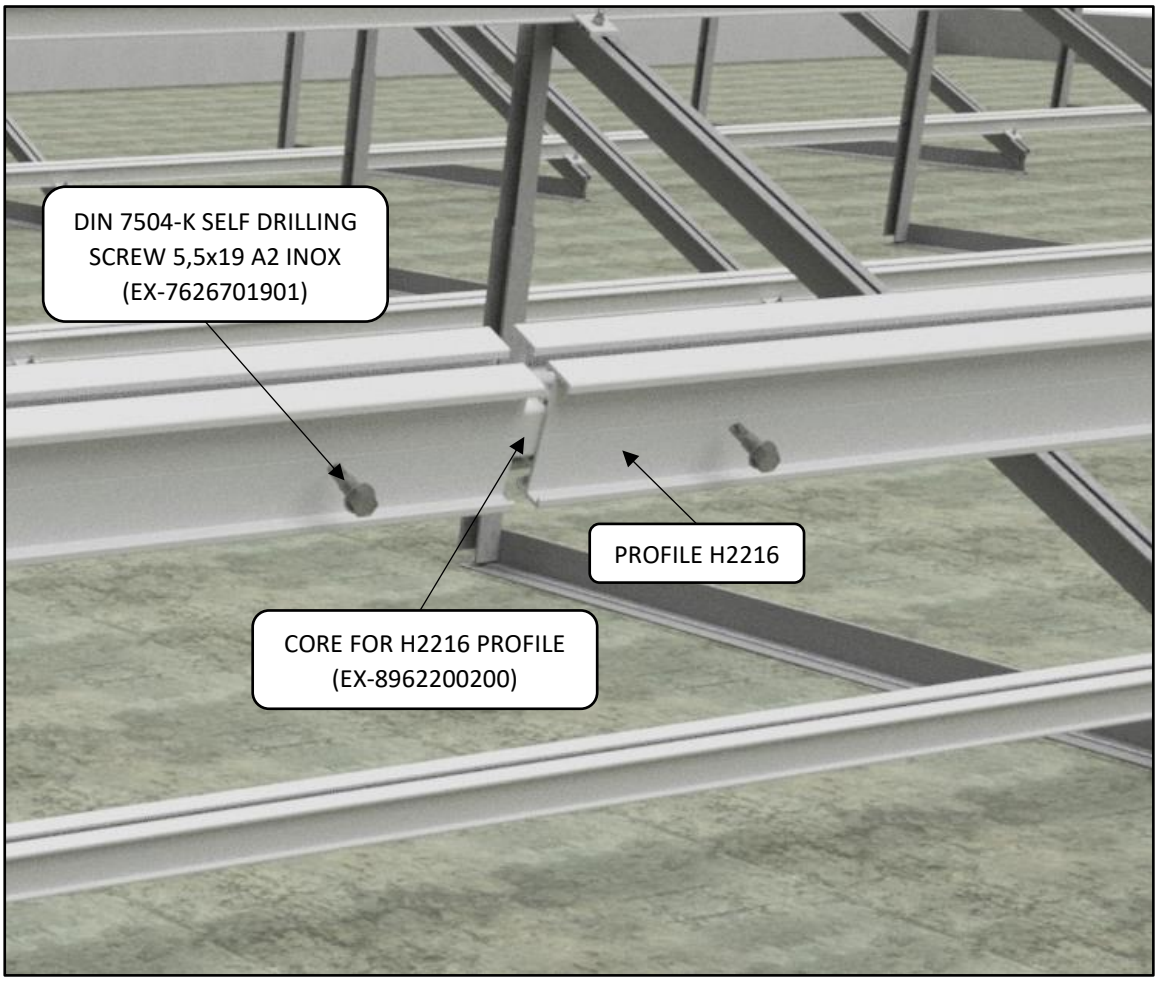
Place the purlins at the appropriate distances, according to the manufacturer of the PV module.

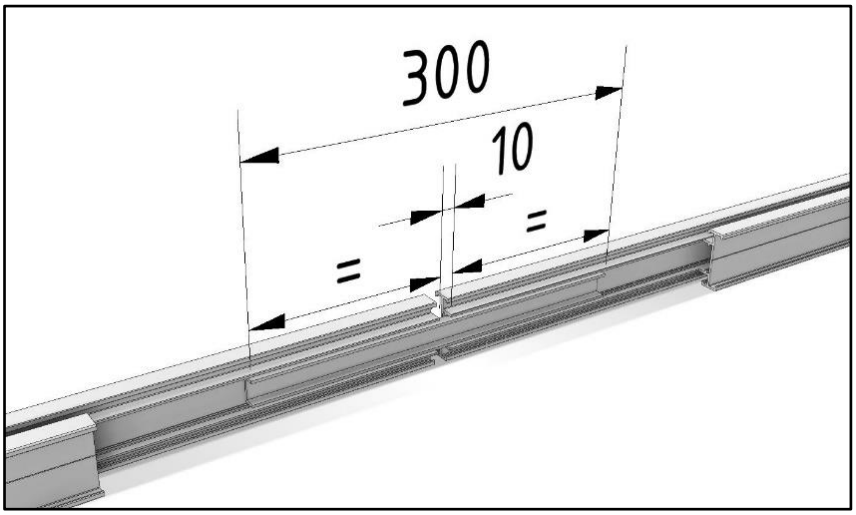


➢ Placing core in profile H2216

After bases installation, are placed. In their meeting point, the connection should be done with the help of core accessory. Core is used to connect two identical profiles, while helping in the absorption of thermal expansions due to temperature changes.

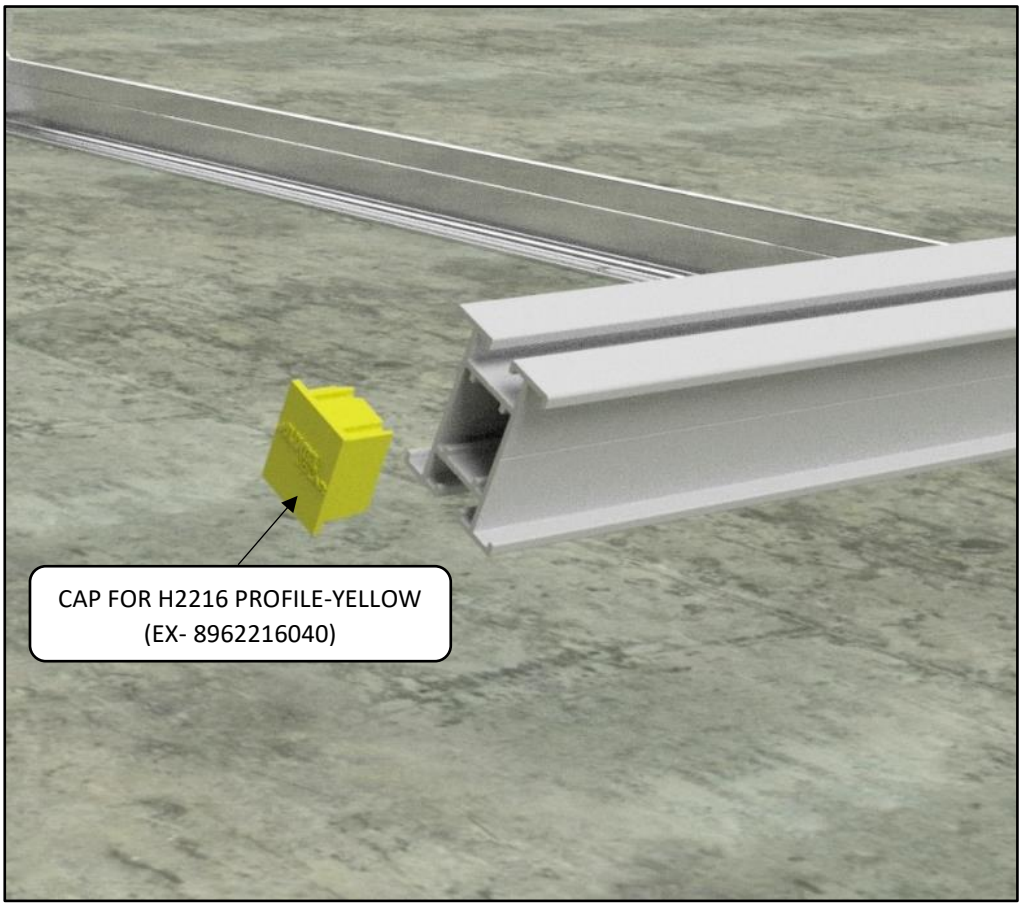
Place the core in the 2 successive profiles and mount with 2 self-drilling screw.





➢ Placing cap on profile H2216

Install the yellow plastic caps at the end of the rails, with four caps for one side of the table and four caps for the other side.

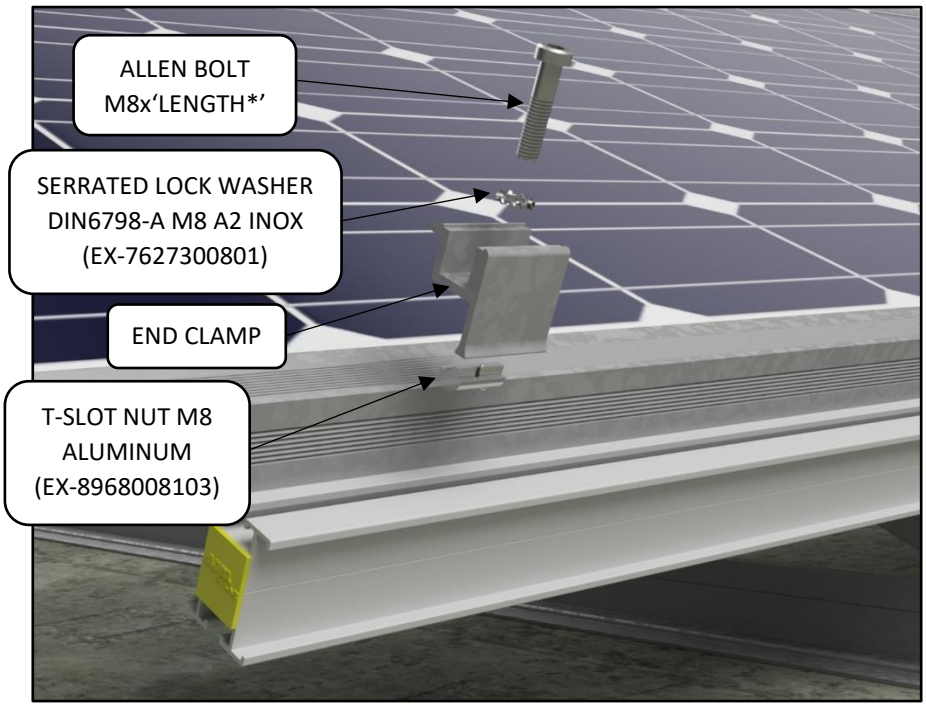


➢ Mounting panel on profile H2216

The process for fixing the photovoltaic (PV) modules with clamps after fixing the purlins is as follows:

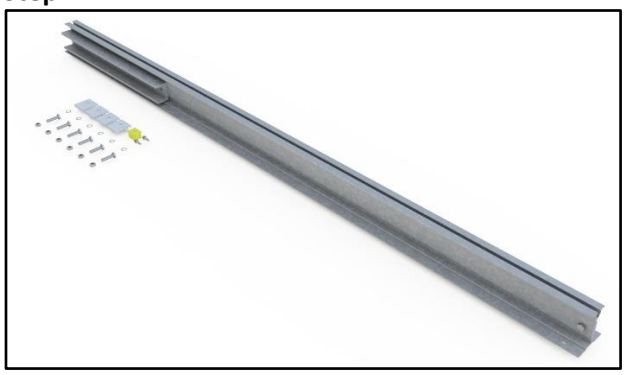
1. Gather all necessary tools and materials, including the PV modules, clamps, and any other necessary hardware.
2. Locate the purlins that have already been fixed in place.
3. Place the clamps loosely on the purlins, making sure that they are spaced evenly and positioned in a way that allows them to be used to secure the PV modules.
4. Begin with the placement of the PV modules on the purlins. Start by positioning the end clamps at the start and end of a line, and then place the middle clamps at all other locations along the line.
5. Secure each PV module in place by tightening the clamps, making sure that each module is securely fastened to the purlins.
6. Repeat the process of placing and securing PV modules along each line, making sure that each module is properly aligned and that all clamps are tightened securely.
7. Inspect the entire installation to make sure that all components are securely attached and that there are no gaps or other issues.

Mount the edge panels onto the purlins using an End Clamp, an M8 Allen Bolt of specified length, a M8 Grover, and a T-Slot Aluminum Nut.

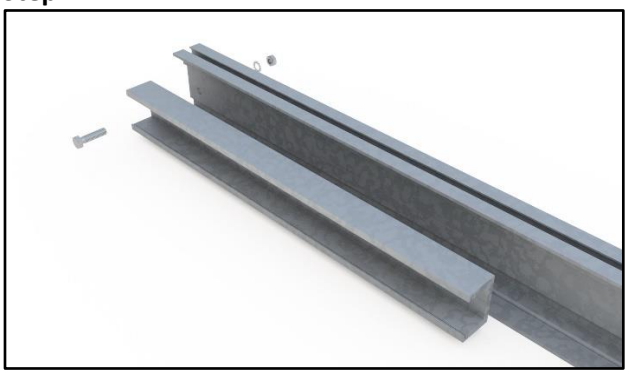


The series also provided in a pre-assembled form. In this case the packaging of a triangle - base includes all the required assembly materials. To install follow these six simple steps.

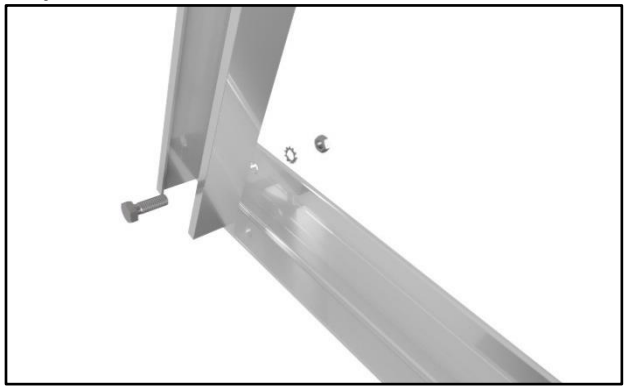
Step:1



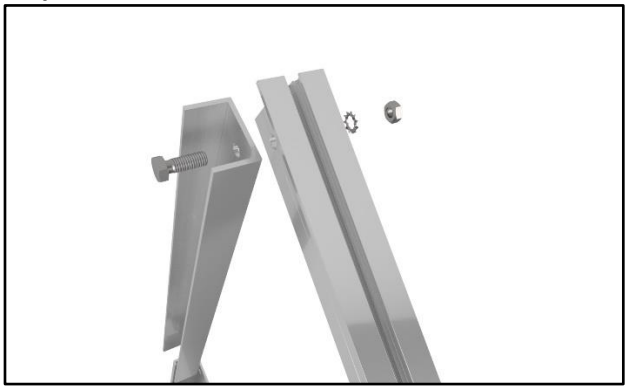
Step:2



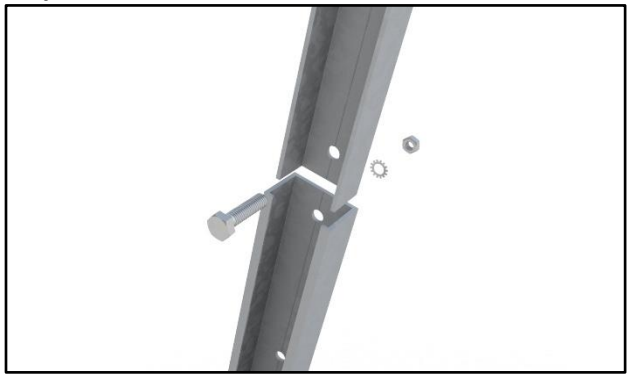
Step:3



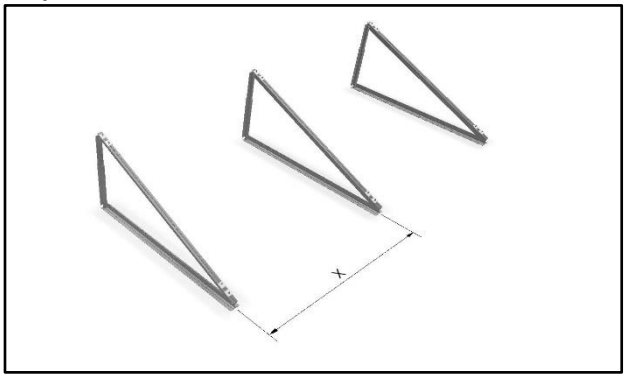
Step:4



Step:5



Step:6



A complete installation with AS360 mounting system for horizontal orientation.

3. AS370 (Landscape)

➢ Placing triangle on roof.

To place the profiles on the roof according to the X and Y dimensions, please follow these steps:

Review the roof plan and layout to determine the location and orientation of the profiles.

Use a tape measure or other measuring tool to mark the appropriate X and Y coordinates on the roof where the profiles are to be placed.

Use a chalk line or other straight-edge tool to mark a straight line on the roof along the X dimension where the profile is to be placed.

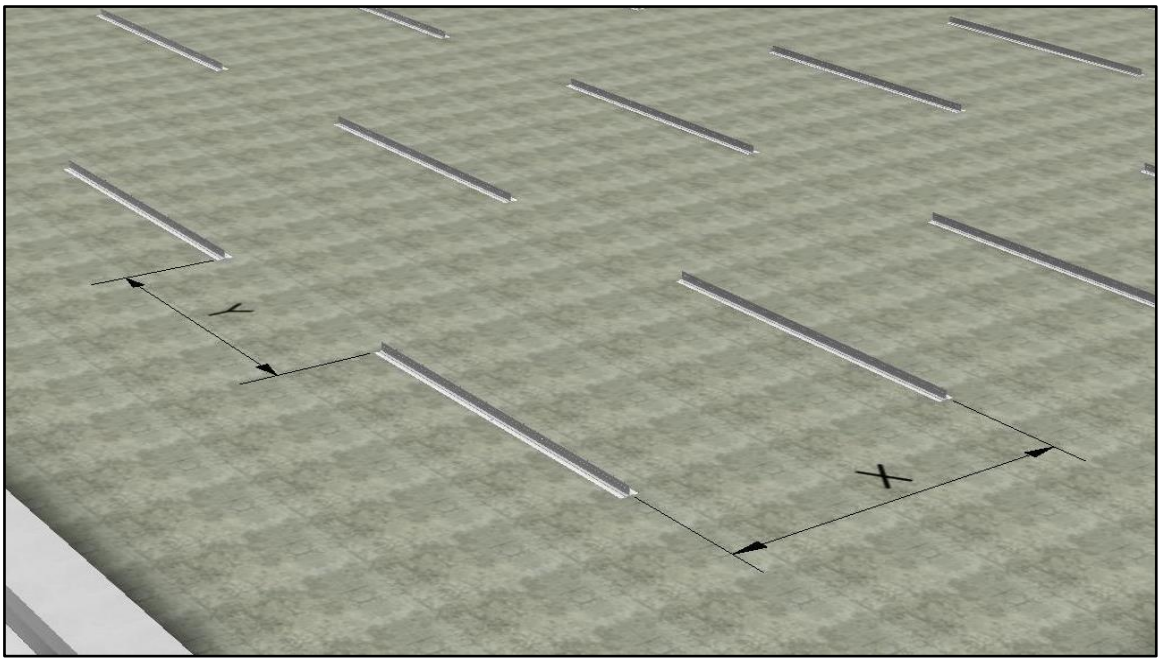
Repeat this process for the Y dimension to mark a straight line where the profile is to be placed perpendicular to the X dimension line.

Use a level to ensure that the marked lines are straight and level in both directions.

Place the profile onto the marked location on the roof, ensuring that it is properly aligned with the X and Y dimensions.

Secure the profile onto the roof using appropriate mounting hardware, such as screws or bolts, according to the manufacturer's instructions.

Repeat this process for each profile that needs to be installed.



X = Distance of horizontal according to order

Y = Distance of vertical profiles according to order.

Use a drill to make holes in the foundation according to the measurements indicated in the foundation study.

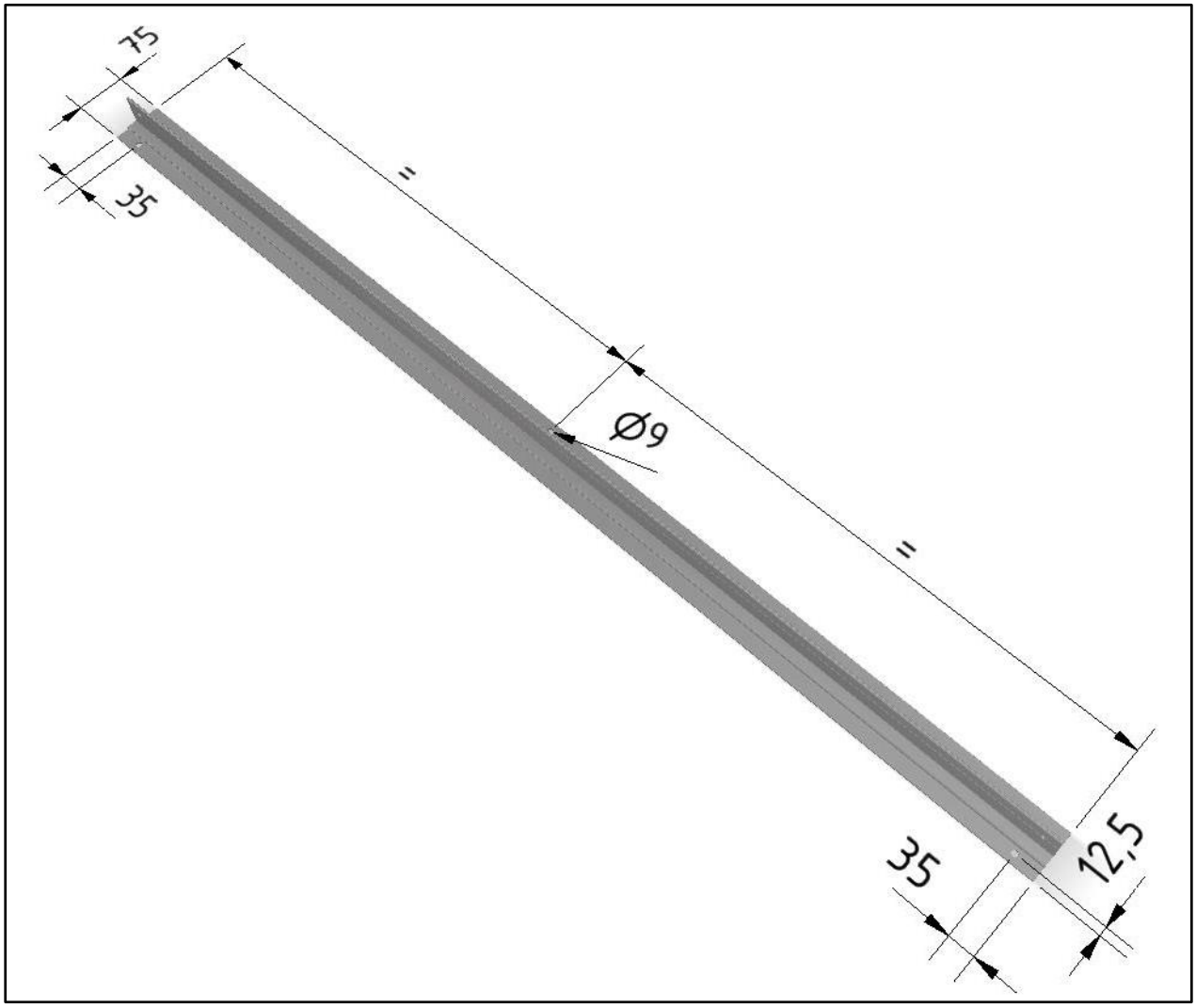
Install anchors or bolts into the holes to secure the connection profile to the foundation.

Mount the connection profile onto the anchors or bolts and secure it with nuts and washers.

Use a level to ensure that the profile is straight and level in both directions.

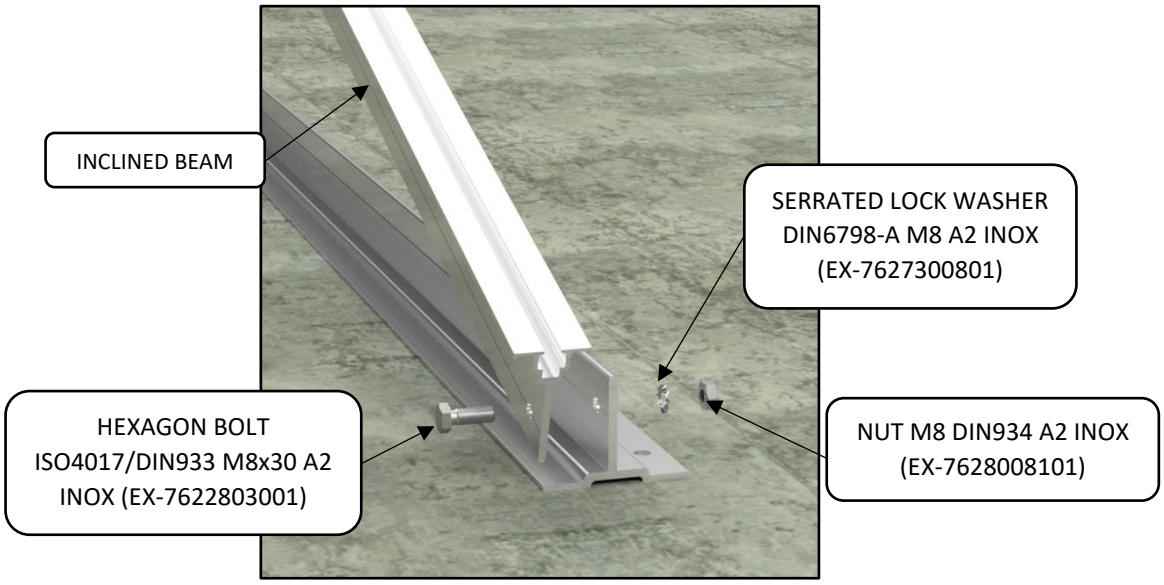
Tighten the nuts to secure the connection profile to the foundation.

Each profile has 3 holes for adequate mounting structure.

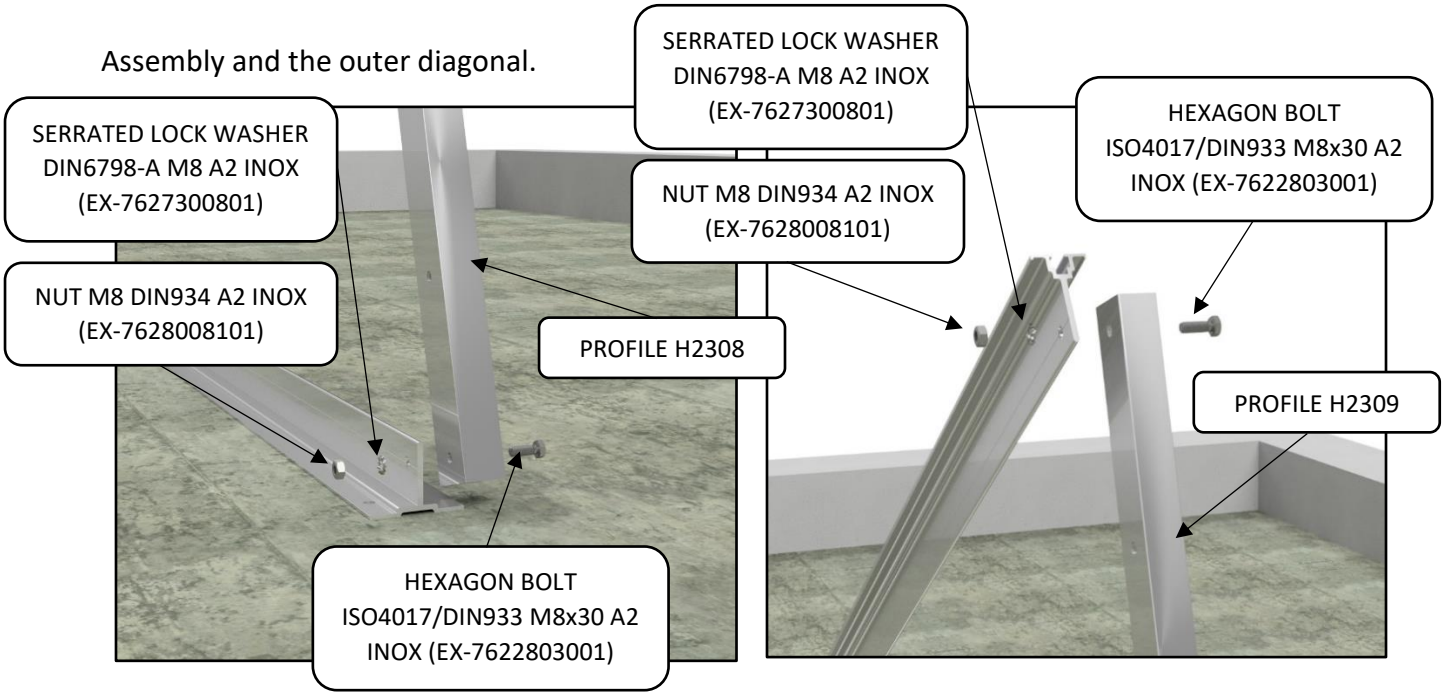


➢ Placing inclined beam and outer diagonal on base

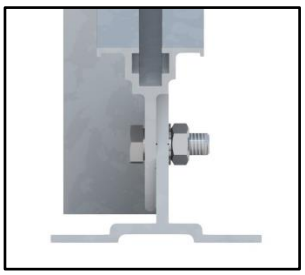
Assembly the connecting profile with inclined beam as shown in drawing.

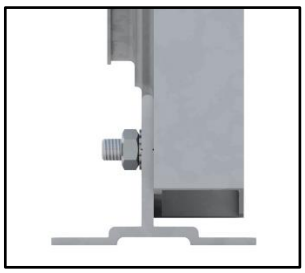


Assembly and the outer diagonal.



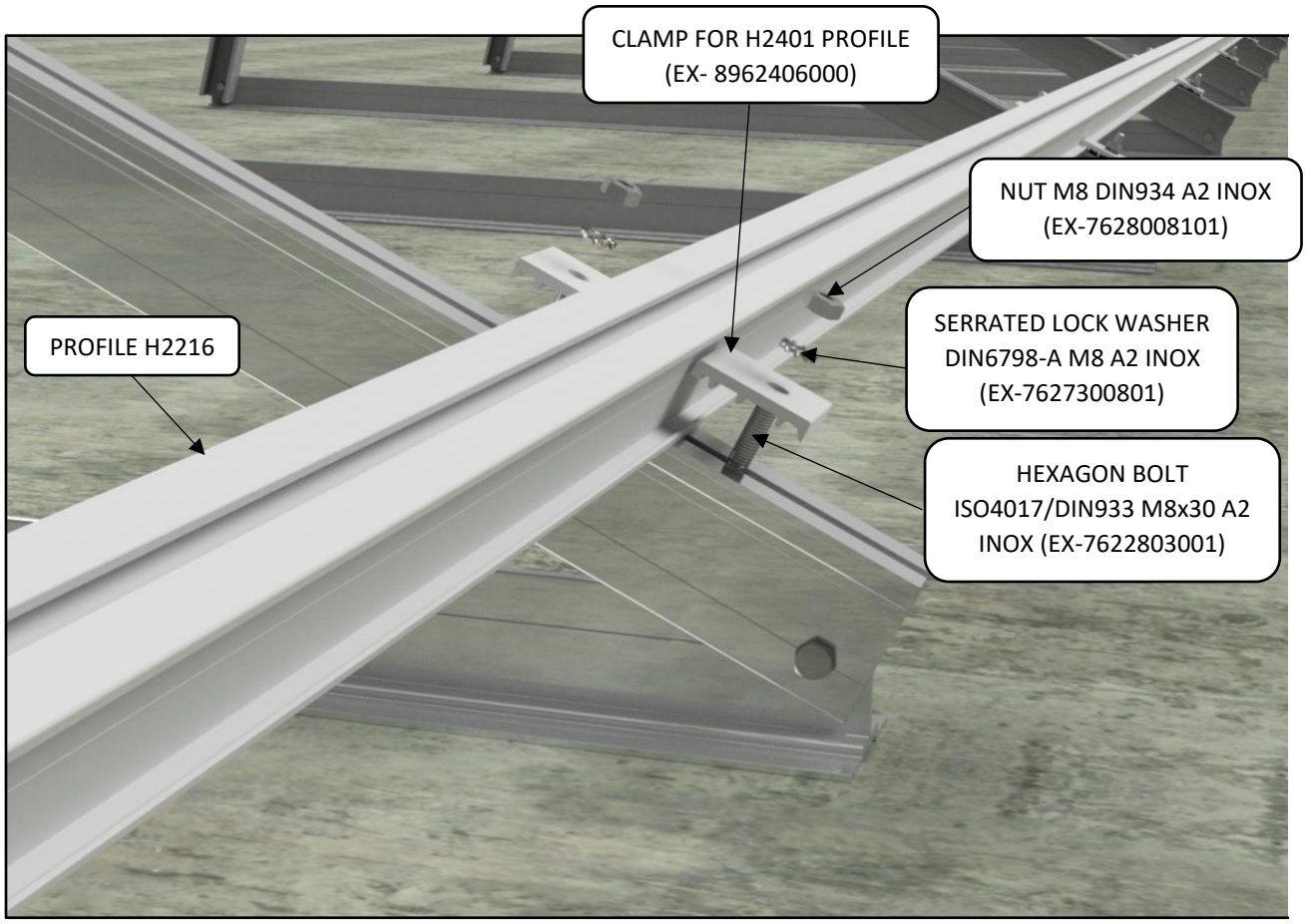
ATTENTION: Install the inclined and the diagonal in the right side.





➢ Placing H2216 on triangle AS370

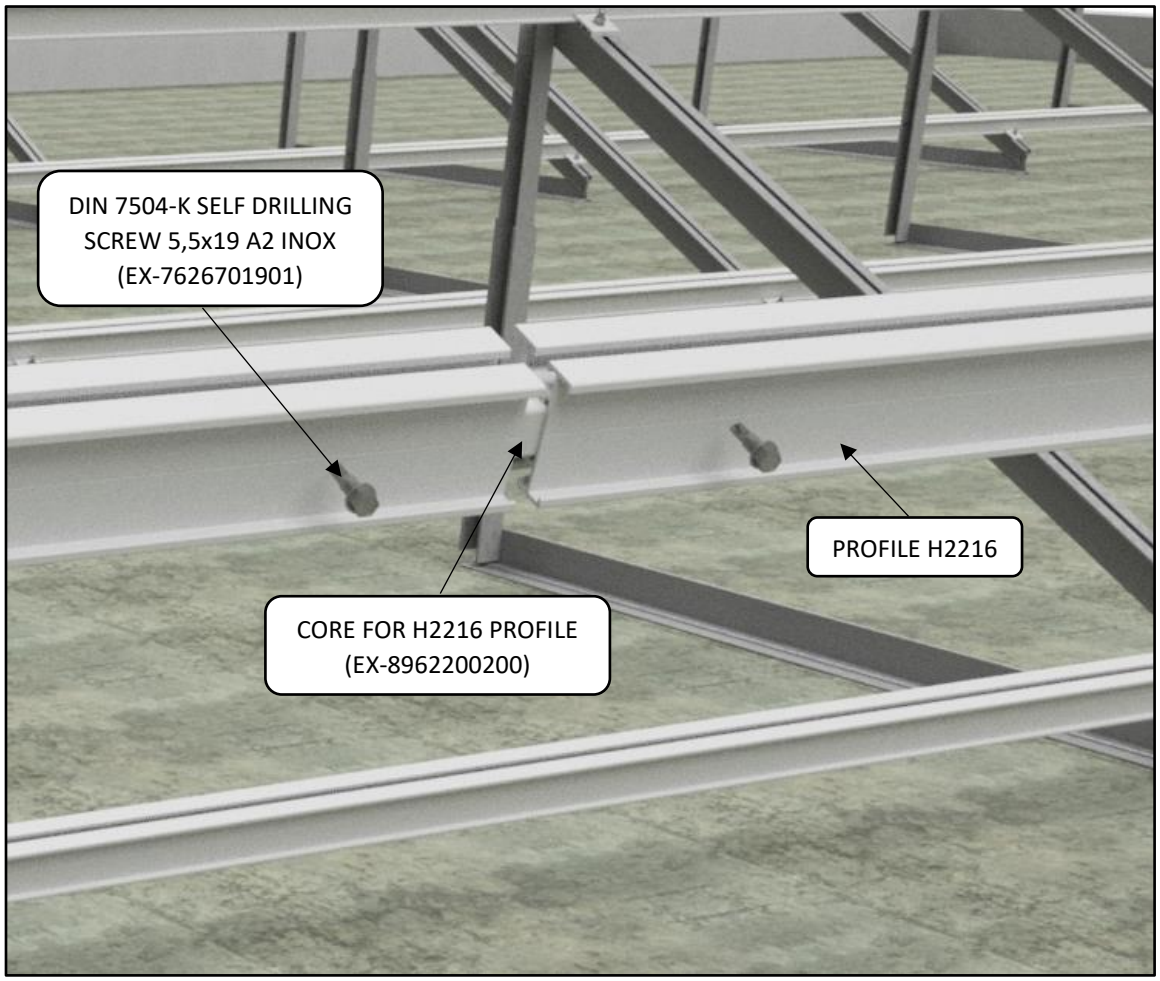
Place the purlins at the appropriate distances, according to the manufacturer of the PV module.

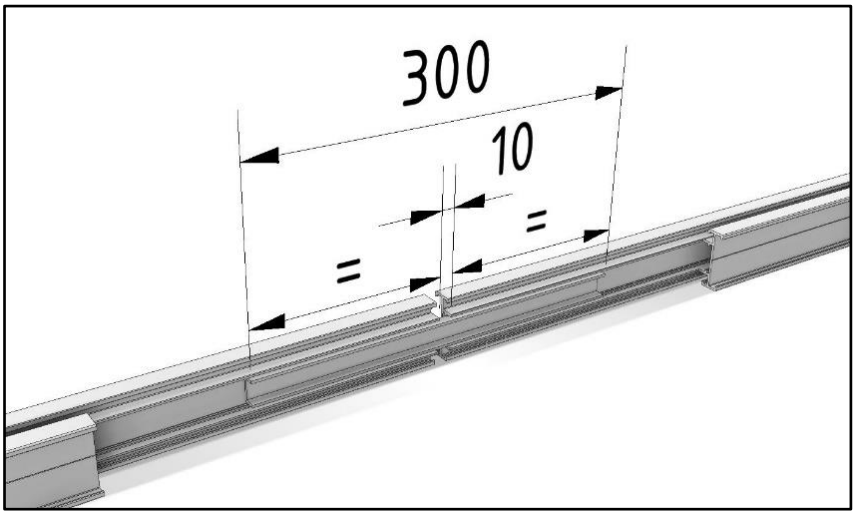


➢ Placing core in profile H2216

After bases installation, are placed. In their meeting point, the connection should be done with the help of core accessory. Core is used to connect two identical profiles, while helping in the absorption of thermal expansions due to temperature changes.

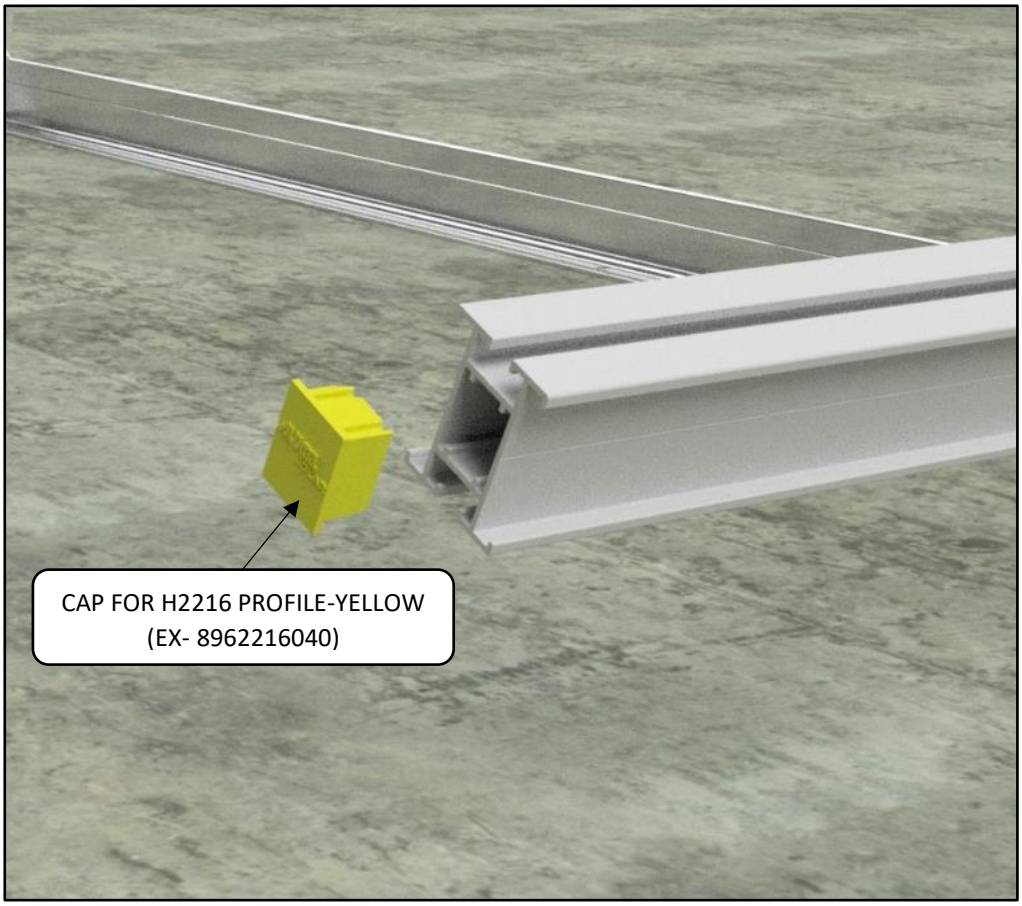
Place the core in the 2 successive profiles and mount with 2 self-drilling screw.





➢ Placing cap on profile H2216

Install the yellow plastic caps at the end of the rails, with four caps for one side of the table and four caps for the other side.

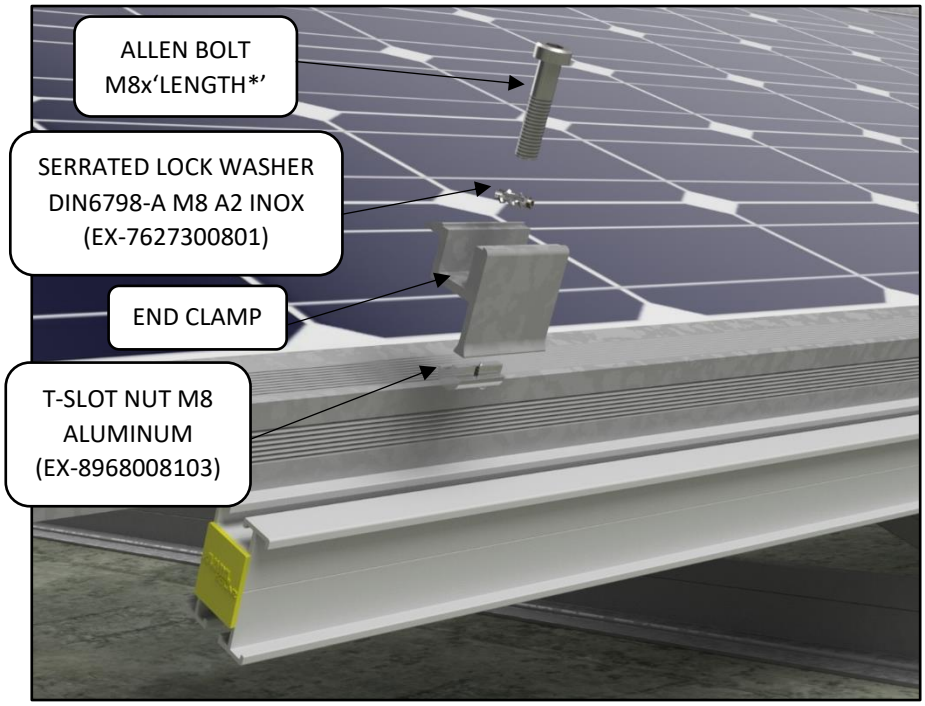


➢ Mounting panel on profile H2216

The process for fixing the photovoltaic (PV) modules with clamps after fixing the purlins is as follows:

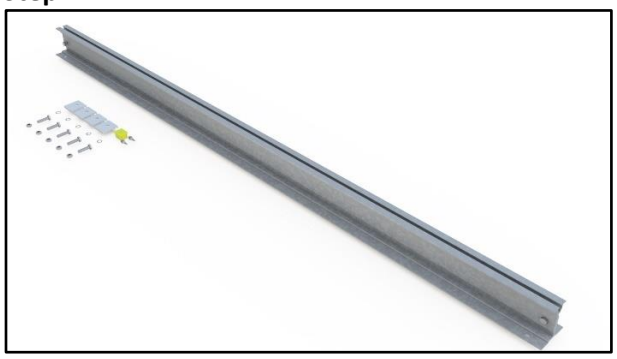
1. Gather all necessary tools and materials, including the PV modules, clamps, and any other necessary hardware.
2. Locate the purlins that have already been fixed in place.
3. Place the clamps loosely on the purlins, making sure that they are spaced evenly and positioned in a way that allows them to be used to secure the PV modules.
4. Begin with the placement of the PV modules on the purlins. Start by positioning the end clamps at the start and end of a line, and then place the middle clamps at all other locations along the line.
5. Secure each PV module in place by tightening the clamps, making sure that each module is securely fastened to the purlins.
6. Repeat the process of placing and securing PV modules along each line, making sure that each module is properly aligned and that all clamps are tightened securely.
7. Inspect the entire installation to make sure that all components are securely attached and that there are no gaps or other issues.

Mount the edge panels onto the purlins using an End Clamp, an M8 Allen Bolt of specified length, a M8 Grover, and a T-Slot Aluminum Nut.

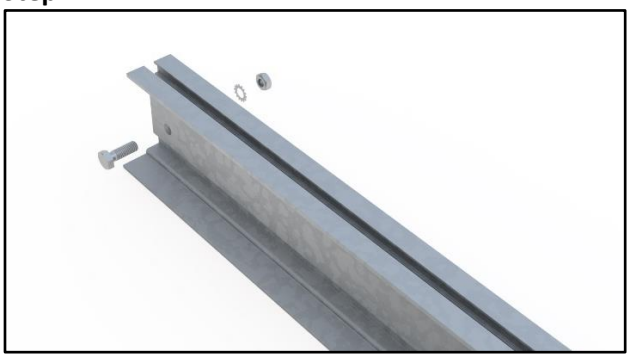


The series also provided in a pre-assembled form. In this case the packaging of a triangle - base includes all the required assembly materials. To install follow these five simple steps.

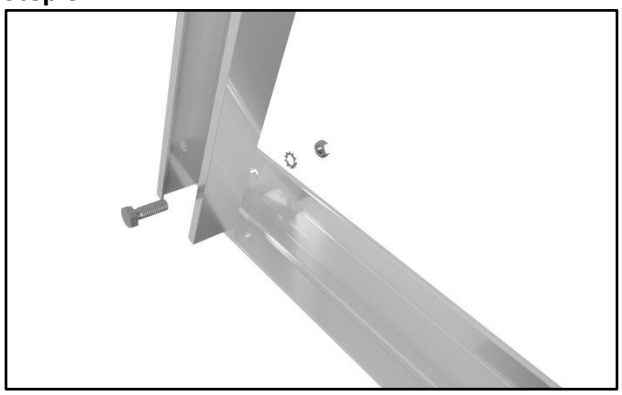
Step:1



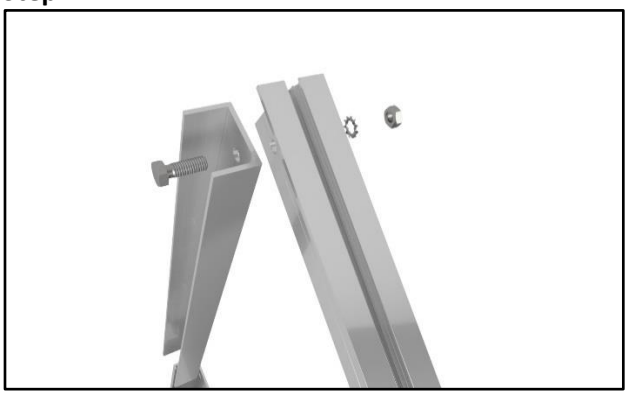
Step:2



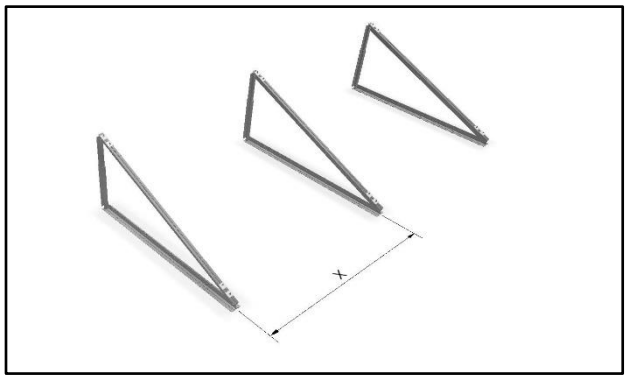
Step:3



Step:4



Step:5



A complete installation with AS370 mounting system for horizontal orientation.

C. MAINTENANCE

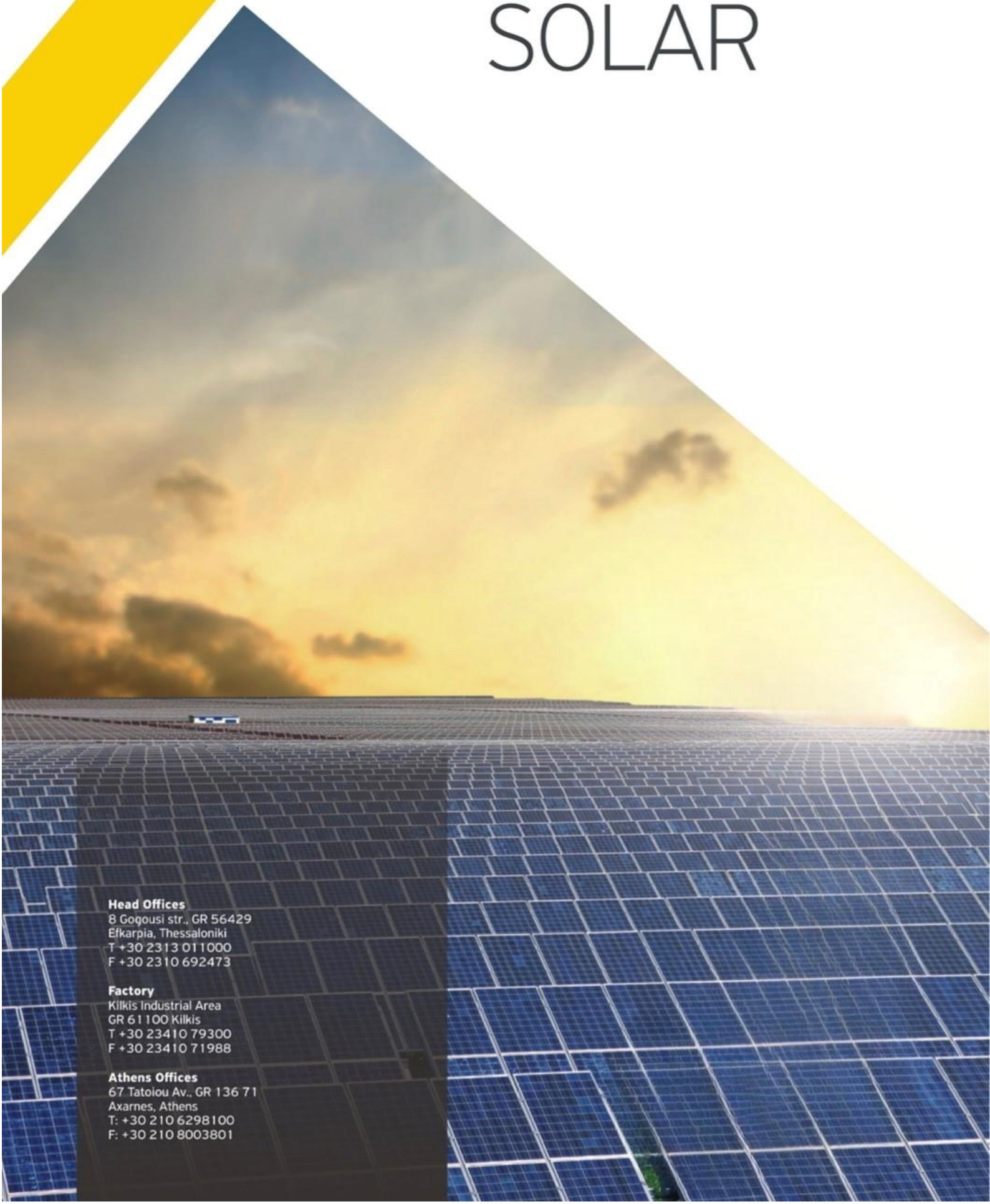
The PV mounting structures of ALUMIL S.A are designed in accordance with the European Standards (Eurocode 1, 3, 9) and do not require any special attention. ALUMIL also offers certified aluminum PV mounting structures made from durable aluminum alloy (Al 6005T6).

However, regular maintenance is recommended to maintain the high quality and longevity of the structures.

During site inspections, it is advisable to pay close attention to areas such as joints and holes. Specifically, the following checks are recommended:

- *Inspect bolted joints annually and replace them if bolt corrosion is detected.*
- *Periodically check the torque of bolted joints (every 1-2 years).*
- *Verify the torque on panel clamps every 6-9 months or after severe weather conditions to ensure the installation and torque settings remain accurate. Torque specifications can be found in the installation manual.*
- *Inspect aluminum and plastic components for any deformations and replace any deformed parts as needed (every 2 years).*
- *For locations close to sea level (<150m), it is important to clean the structures with water (no pressure) to prevent salt corrosion (annually).*
- *If snow accumulates, the panels must be cleared within 2 days of being fully covered to avoid freezing. Remove the snow without allowing it to freeze.*

Alumil SOLAR



Head Offices
8 Gogousi str., GR 56429
Efkarpia, Thessaloniki
T +30 2313 011000
F +30 2310 692473

Factory
Kilkis Industrial Area
GR 61100 Kilkis
T +30 23410 79300
F +30 23410 71988

Athens Offices
67 Tatoiou Av., GR 136 71
Axarnes, Athens
T: +30 210 6298100
F: +30 210 8003801