



lumil SOLAR

**H2400 - AS450
AS415**

Version:05.23



Assembly Instructions

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A. MATERIAL LIST

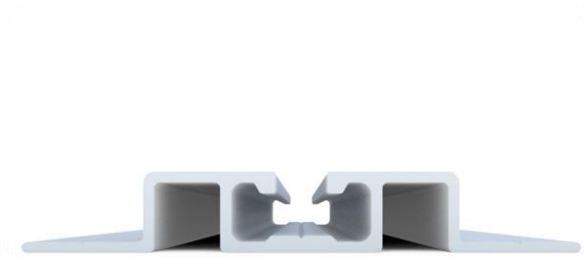
1. Aluminum Profiles

➤ Profiles for AS410L



PROFILE H2409 (Length 300mm)
(EX - 8962409300)

➤ Profiles for AS410P



PROFILE H2410
Length 300mm (EX - 8962410310)
or
Length 400mm (EX - 8962410420)

OR



PROFILE H2301
Length 300mm (EX - 8962301300)
or
Length 400mm (EX - 8962301410)

➤ **Profiles for AS415L**



PROFILE H2409

OR



PROFILE H2408

➤ **Profiles for AS415P**



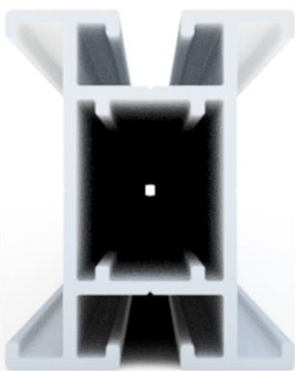
PROFILE H2409

OR



PROFILE H2408

AND



PROFILE H2216



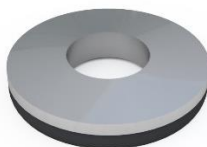
CORE FOR H2216 PROFILE
(EX-8962200200)

2. Fasteners & other accessories.

➤ Accessories needed to mount the profiles



HEXAGON HEAD TAPPING SCREW DIN 7976 6,3X32 INOX A2 (EX- 8966332001)



BONDED SEALING WASHER WITH GREY EPDM 6,2x16 INOX A2 (EX-8966216001)



CLAMP FOR H2401 PROFILE (EX- 8962406000)



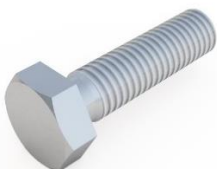
DIN7504-K SELF DRILLING SCREW 6,3x150 (EX-7626615000)
or
6,3x110 (EX-7626611000)
GALVAN+EPDM



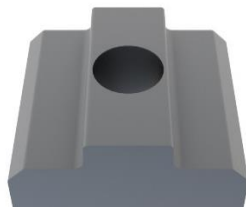
ALUMINIUM BUTYL TAPE 100x0,6mm (EX-7201999200)



T-SLOT NUT M8 ALUMINUM (EX-8968008103)



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



SEAL FOR PROFILE H2409 or H2408 (EX-8962409040)

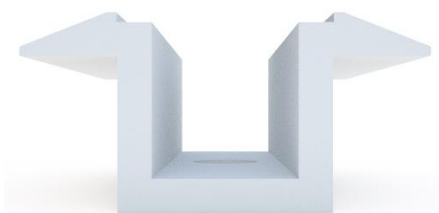


SERRATED LOCK WASHER DIN6798-A M8 A2 INOX (EX-7627300801)



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

➤ **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	Allen bolt for H2409
50	EX-8960330100	EX-7629085001	EX-7629086001
46	EX-8960430100	EX-7629084501	EX-7629085501
42	EX-8960340100	EX-7629084001	EX-7629085001
40	EX-8960440100	EX-7629084001	EX-7629085001
38	EX-8960720100	EX-7629084001	EX-7629084501
35	EX-8960450100	EX-7629083501	EX-7629084501
34	EX-8960460100	EX-7629083001	EX-7629084001
32	EX-8960621100	EX-7629083001	EX-7629084001
30	EX-8960630100	EX-7629083001	EX-7629084001

3. Tooling set



Spirit Level (2m)



Stell Tape Measure (50 -100m)



Spanners Sockets (Metric)

Torque Wrench



Screw Rivet Tool



Suitable Angular Measuring Device

String Line



Tap screw adaptor



Power Driver & Bits
Impact Driver



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

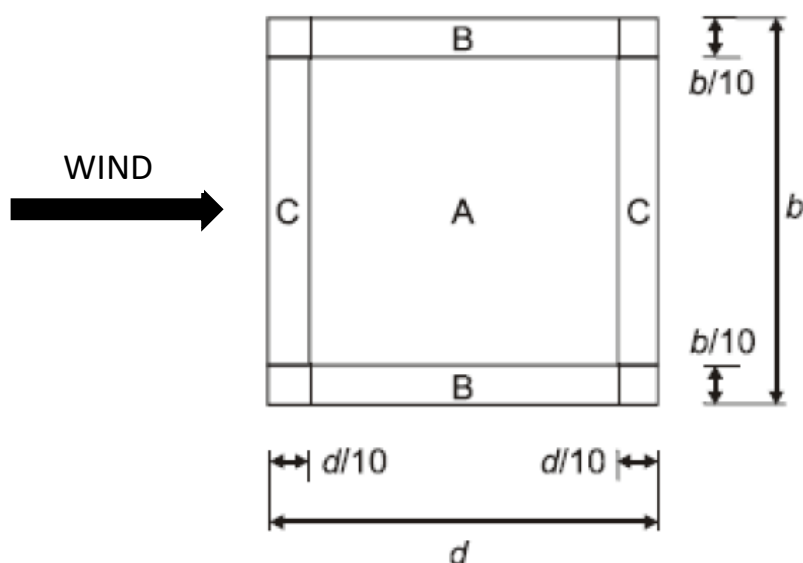
The table below represents the specific torques that should be used for fastening the screws and nut's, according to size (i.e. M8 or M10) and aluminum's finishing (i.e. mill finished or anodized).

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

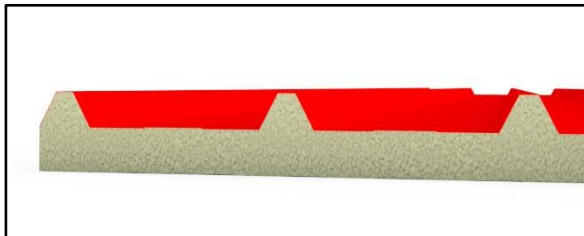
Safety distances of 10% roofs length should be kept from all edges of the roofs.

Installation of PV panels at zones B & C should be avoided since wind forces are very high at those zones.

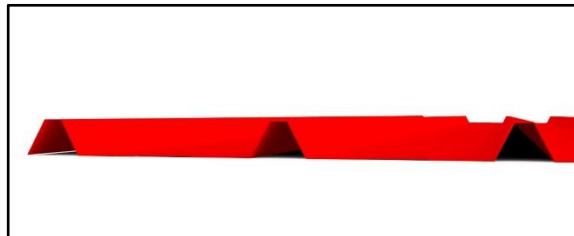


B. ASSEMBLY INSTRUCTIONS FOR AS410

AS410 is suitable for both types of industrial roofs



Roof sandwich panel



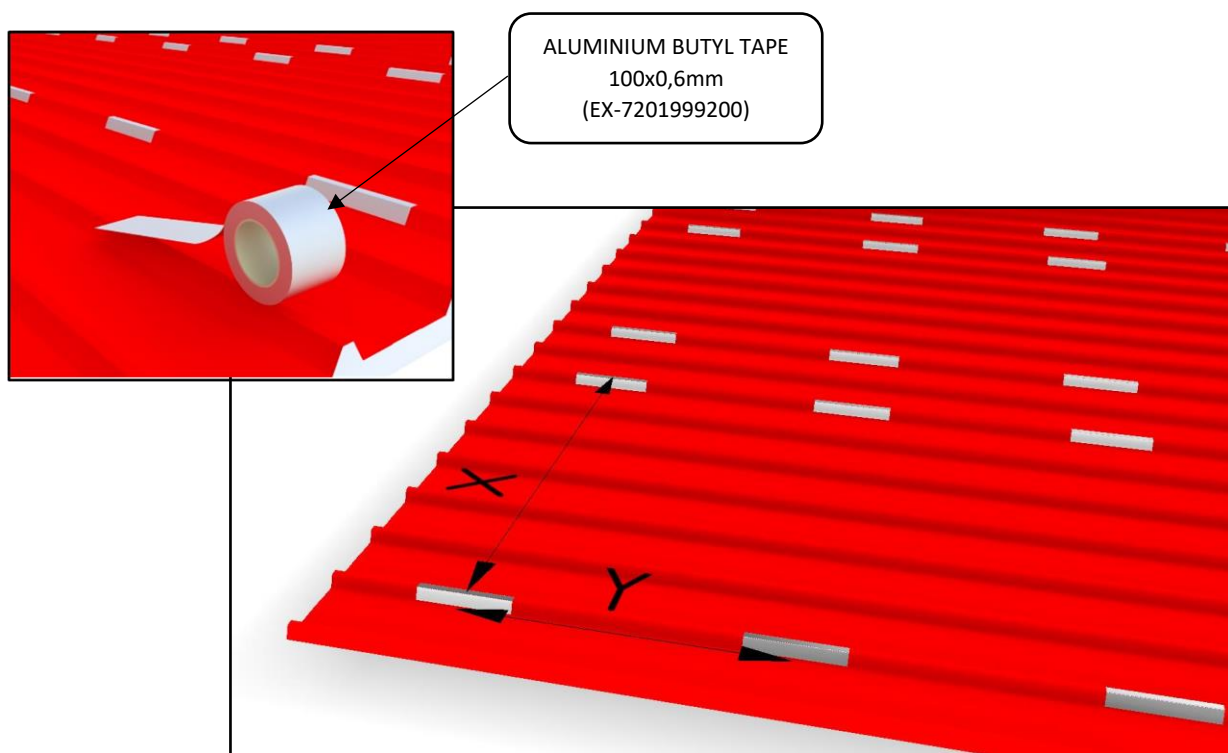
Roof metal sheet

1. AS410 Landscape

➤ **Placing profile pieces H2409 on the roof.**

Apply the ALUMINIUM BUTYL TAPE to the roof tops following the X and Y dimensions specified in the manual. It is important to use the correct amount of tape to ensure a strong and durable bond between the roof panel and the roof tops. Carefully position the roof panel onto the roof tops, making sure that it is aligned with the X and Y dimensions specified in the manual.

Repeat the process for each roof panel until the installation is complete.

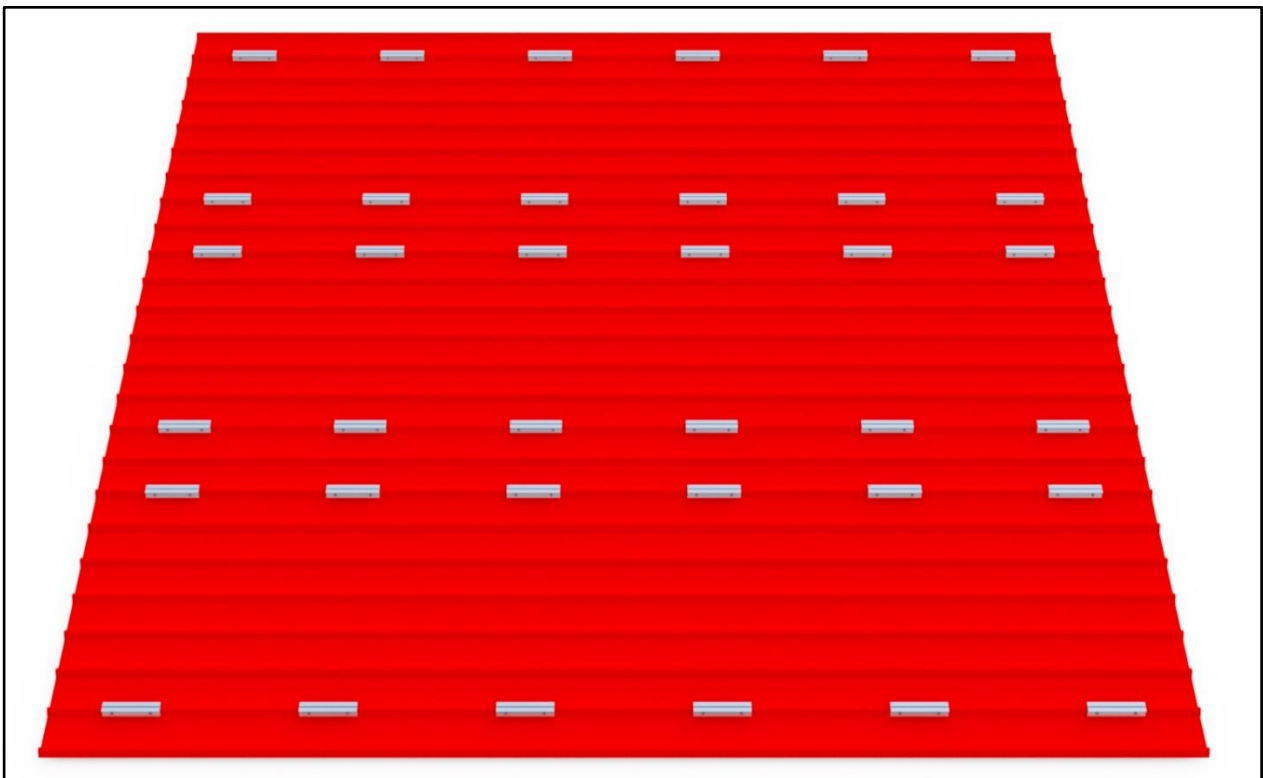
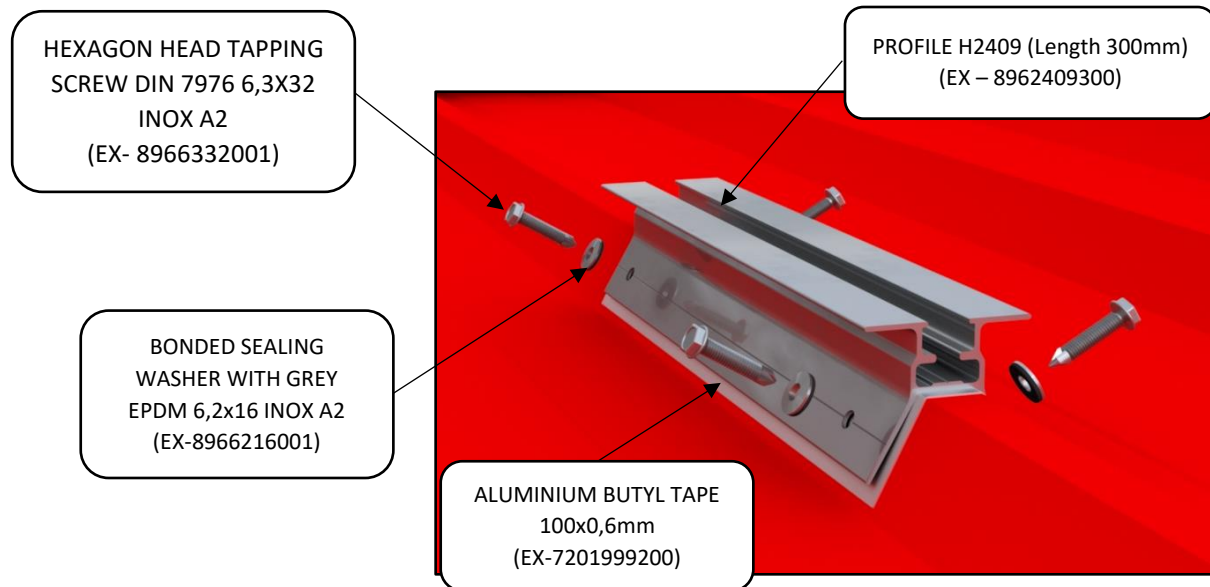


Y= Panel Width.

X= According to PV panel manufacturer.

Position the PROFILE PIECE H2409 on top of the ALUMINIUM BUTYL TAPE. Use four self-drilling screws to attach the PROFILE PIECE H2409 to the ALUMINIUM BUTYL TAPE. Ensure that bonded sealing washers are used with each screw to ensure a secure and watertight seal.

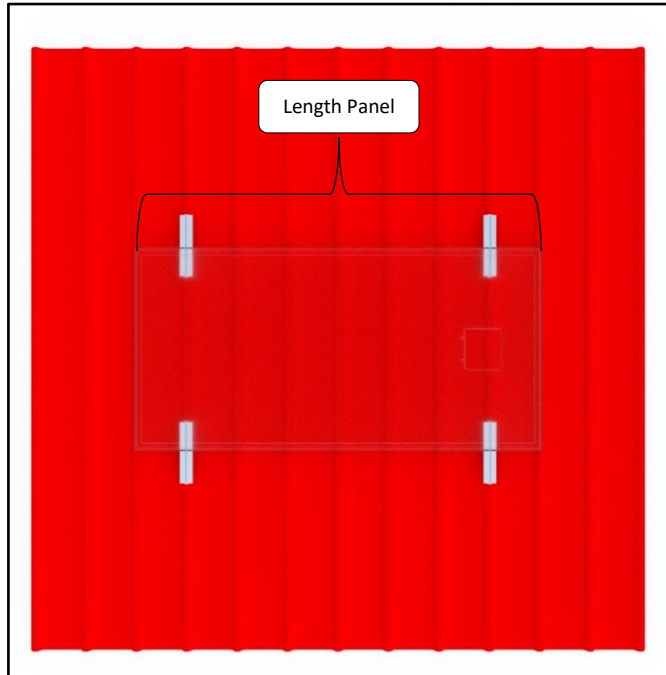
Refer to the diagram below to ensure that the components are assembled correctly.



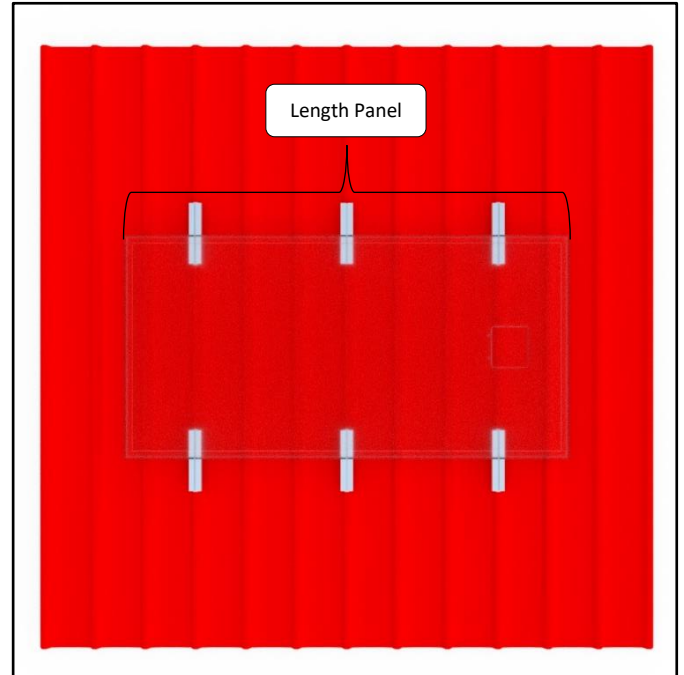
If the PV panel is up to 2000mm in size, it should be fixed in four points.

If the PV panel is larger than 2000mm in size, it should be fixed in six points.

Refer to the images provided below for a visual representation of the recommended fixing points for the PV panel.



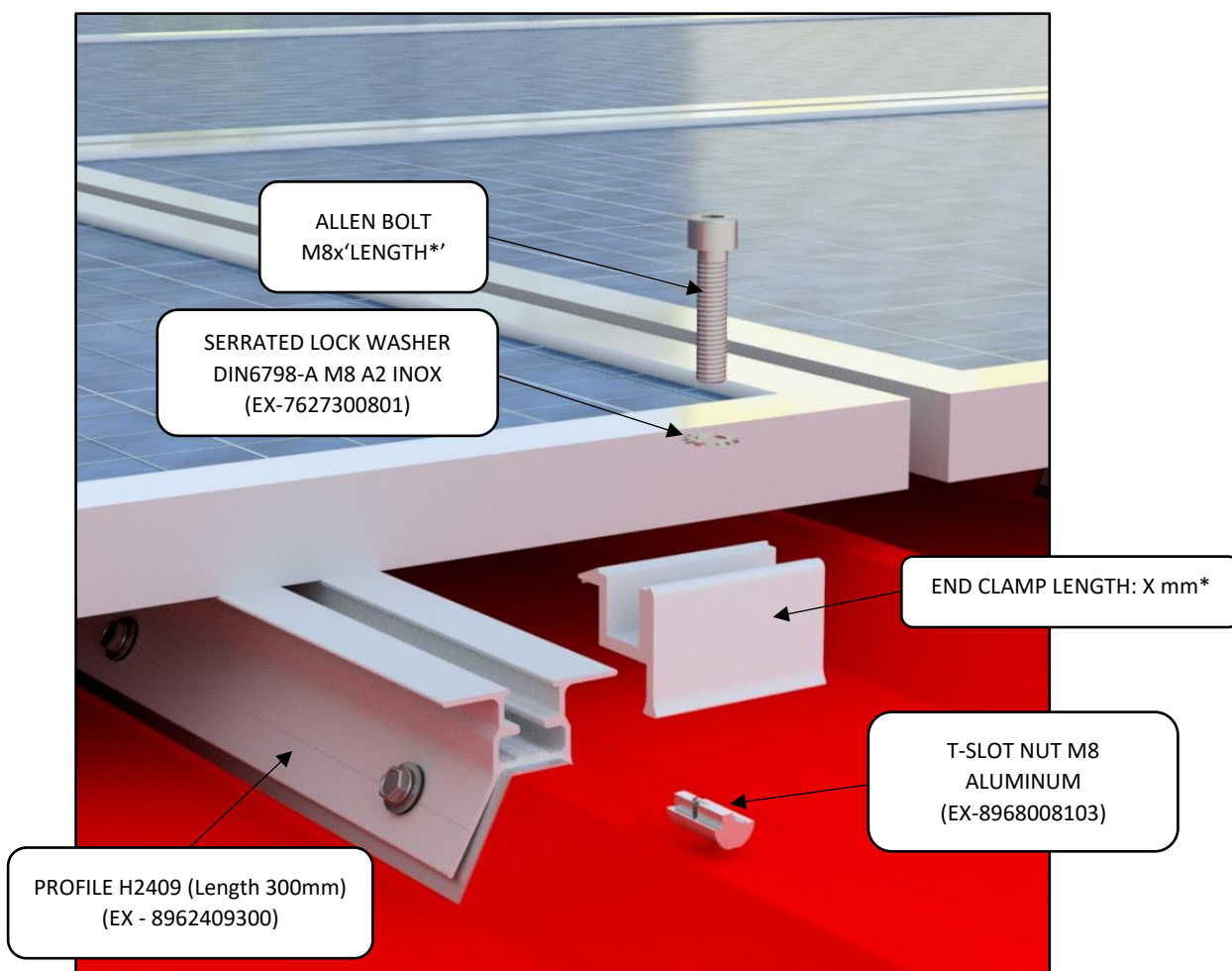
PV Panel Length < 2000mm



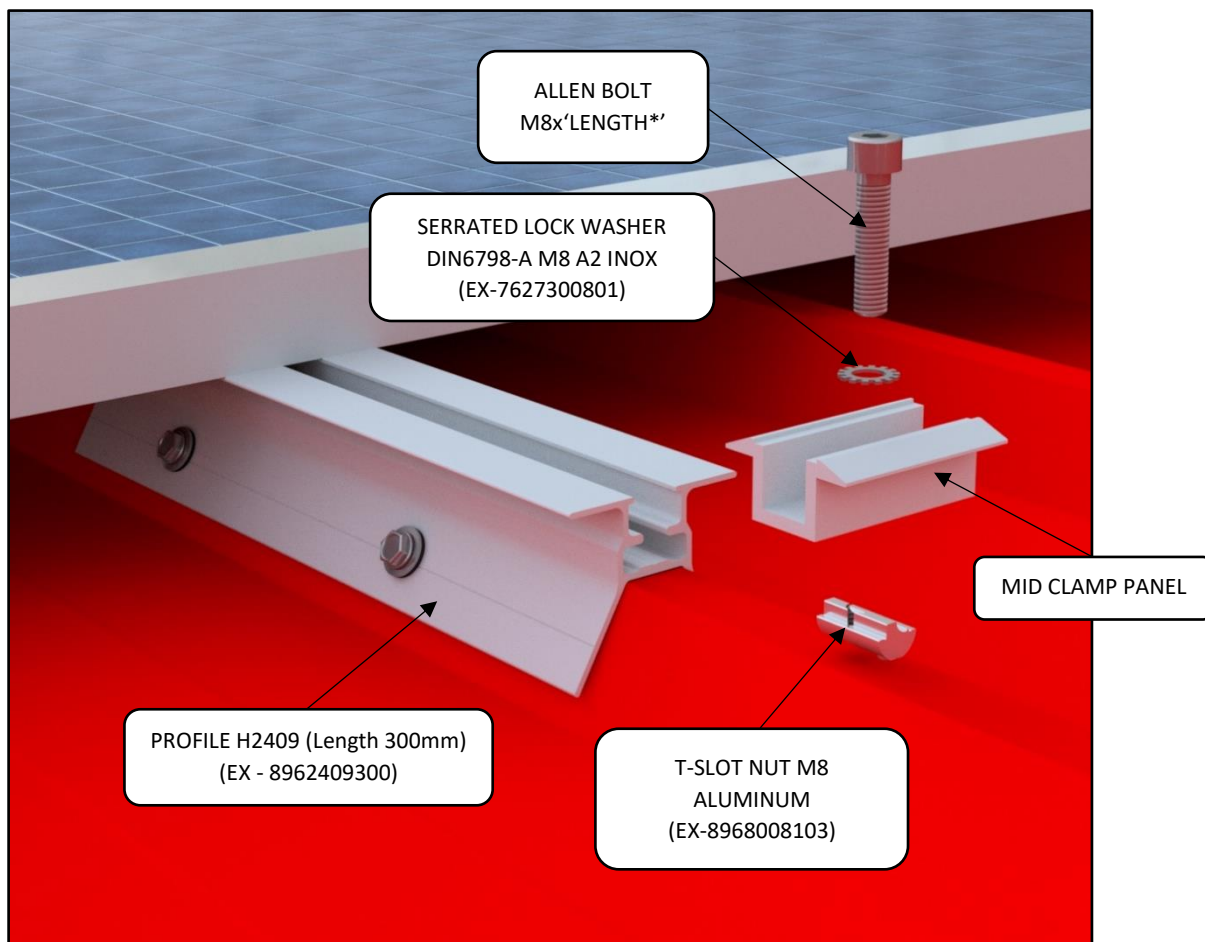
PV Panel Length \geq 2000mm

➤ **Mounting panel on profile pieces H2409.**

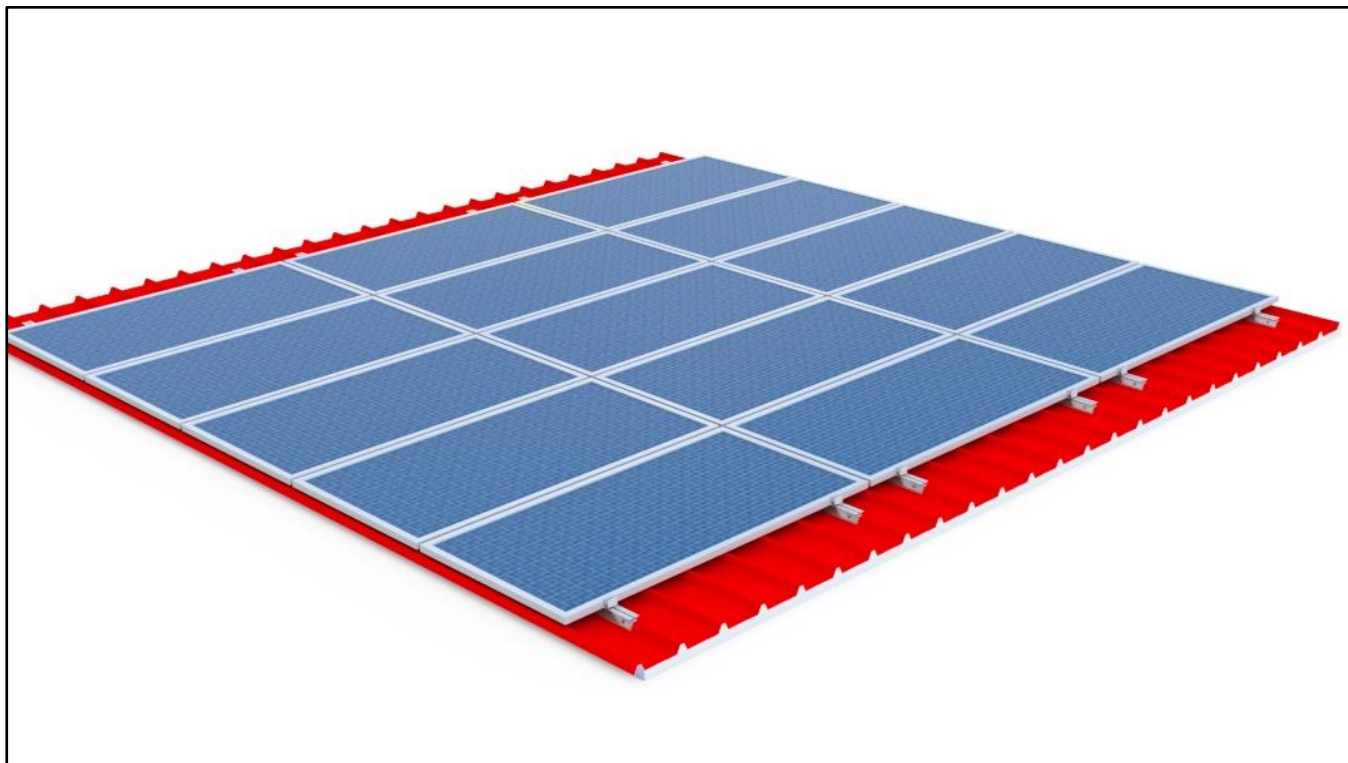
To assemble the panels, place them horizontally on top of the profile pieces, then use the specified components, including the END CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8, and T-SLOT NUT M8, as shown in the accompanying image.



To mount two successive PV panels onto the PROFILE H2409, use the specified components including the MID CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 A2, and T-SLOT NUT M8.



A complete installation with AS410 mounting system for landscape orientation.

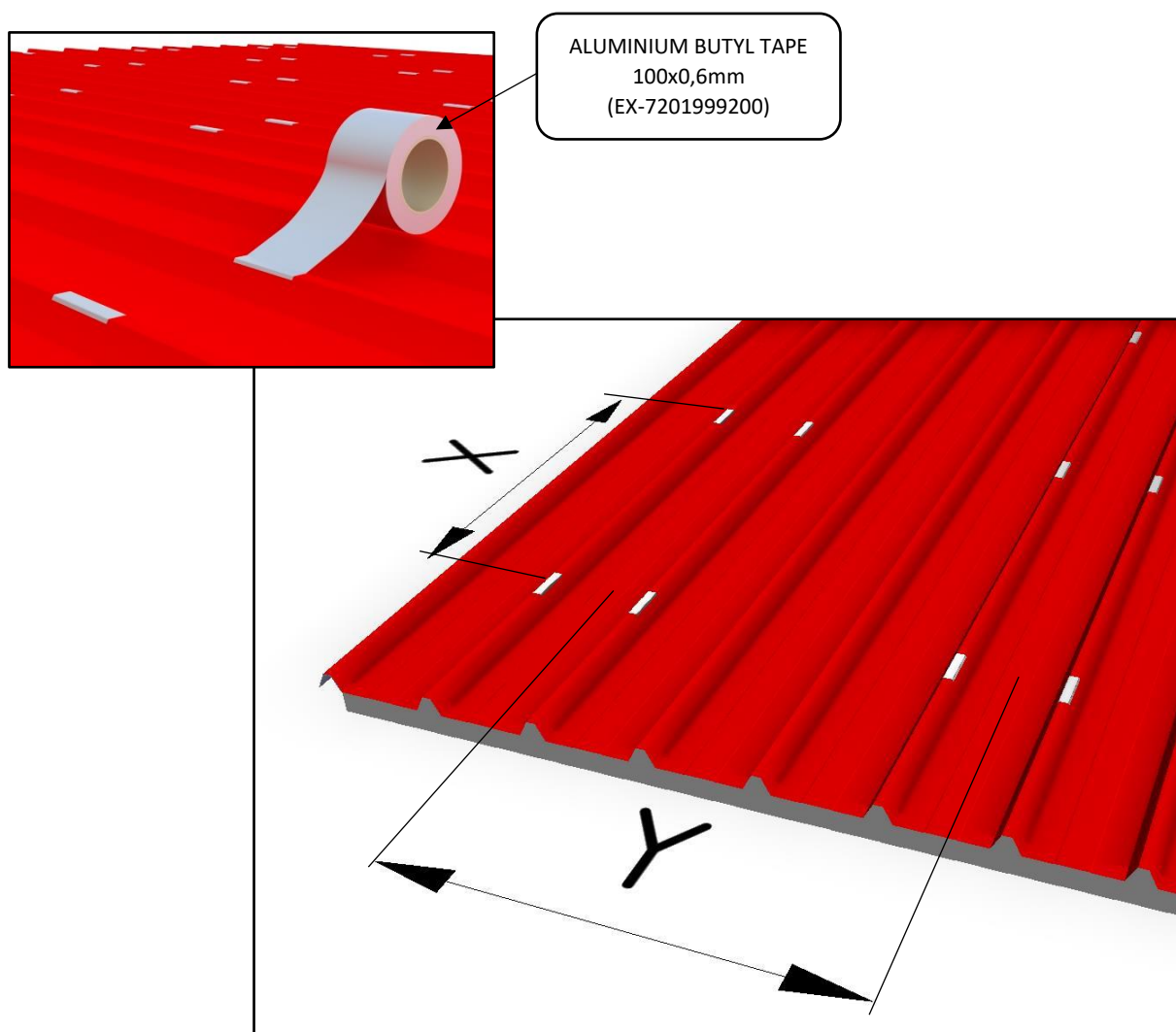


2. AS410 Portrait

➤ **Placing profile H2301 or H2410 on the roof**

Measure the distance between two successive tops of the roof panel using a tape measure. This distance should be taken from the center of one top to the center of the next top.

Apply the ALUMINIUM BUTYL TAPE to the roof tops following the X and Y dimensions specified in the manual. It is important to use the correct amount of tape to ensure a strong and durable bond between the roof panel and the roof tops. Carefully position the roof panel onto the roof tops, making sure that it is aligned with the X and Y dimensions specified in the manual.



Y= Panel Width.

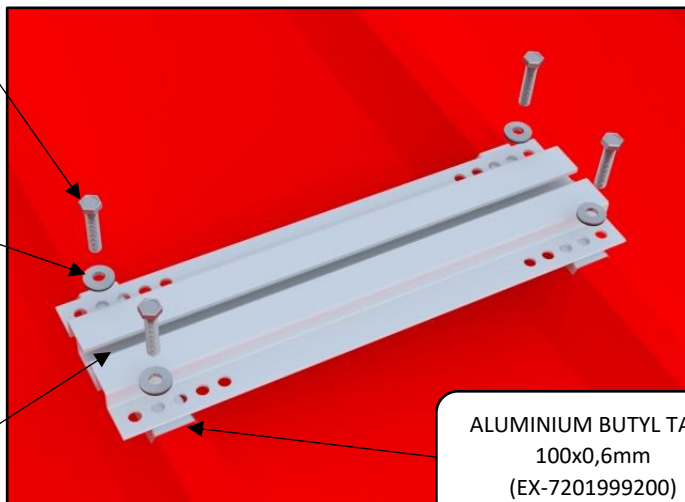
X= According to PV panel manufacturer.

Place the PROFILE H2301 or H2410 on top of the ALUMINIUM BUTYL TAPE and screw with 4 self-drilling screws and bonded sealing washers as shown below.

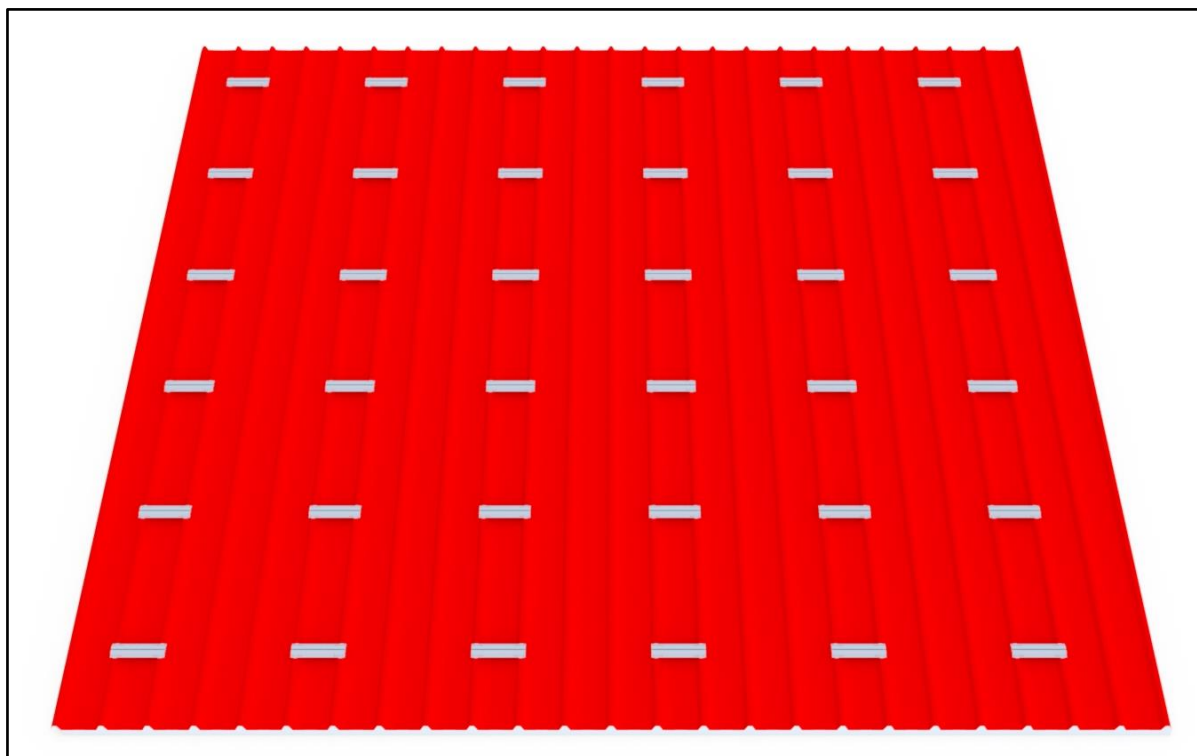
HEXAGON HEAD TAPPING
SCREW DIN 7976 6,3X32
INOX A2
(EX- 8966332001)

BONDED SEALING
WASHER WITH GREY
EPDM 6,2x16 INOX A2
(EX-8966216001)

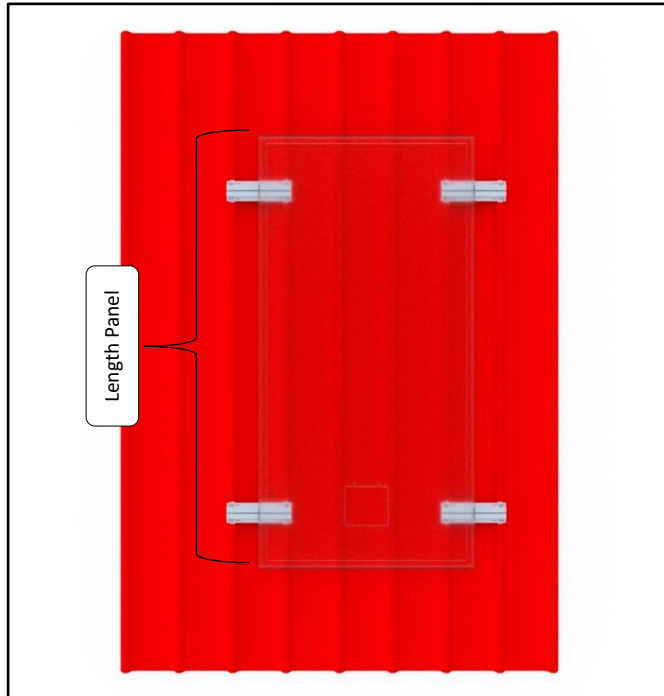
PROFILE H2301 or H2410
(Length 300mm or 400mm)



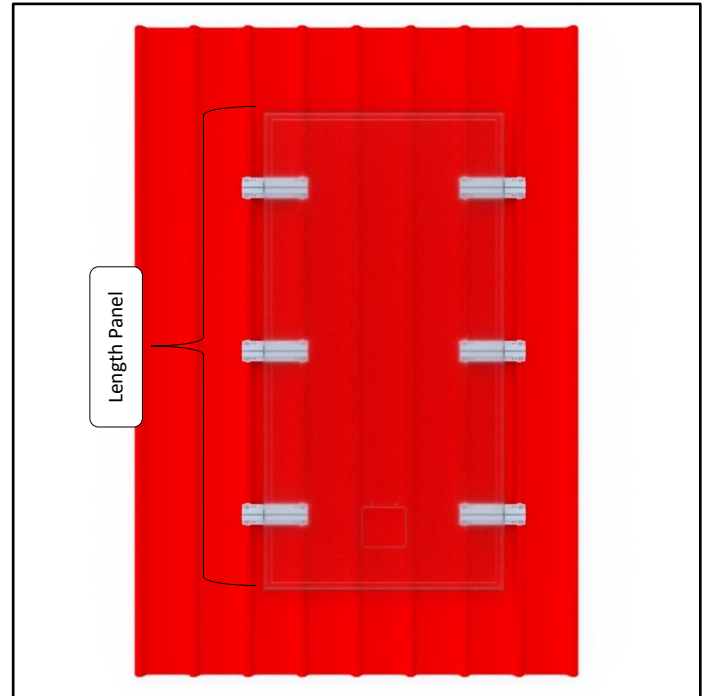
ALUMINIUM BUTYL TAPE
100x0,6mm
(EX-7201999200)



In case the PV panel is up to 2000mm, it should be fixed in 4 points, while, in case the PV panel is bigger than 2000mm, it should be fixed in 6 points, as shown in the following images.



Panel Length < 2000mm

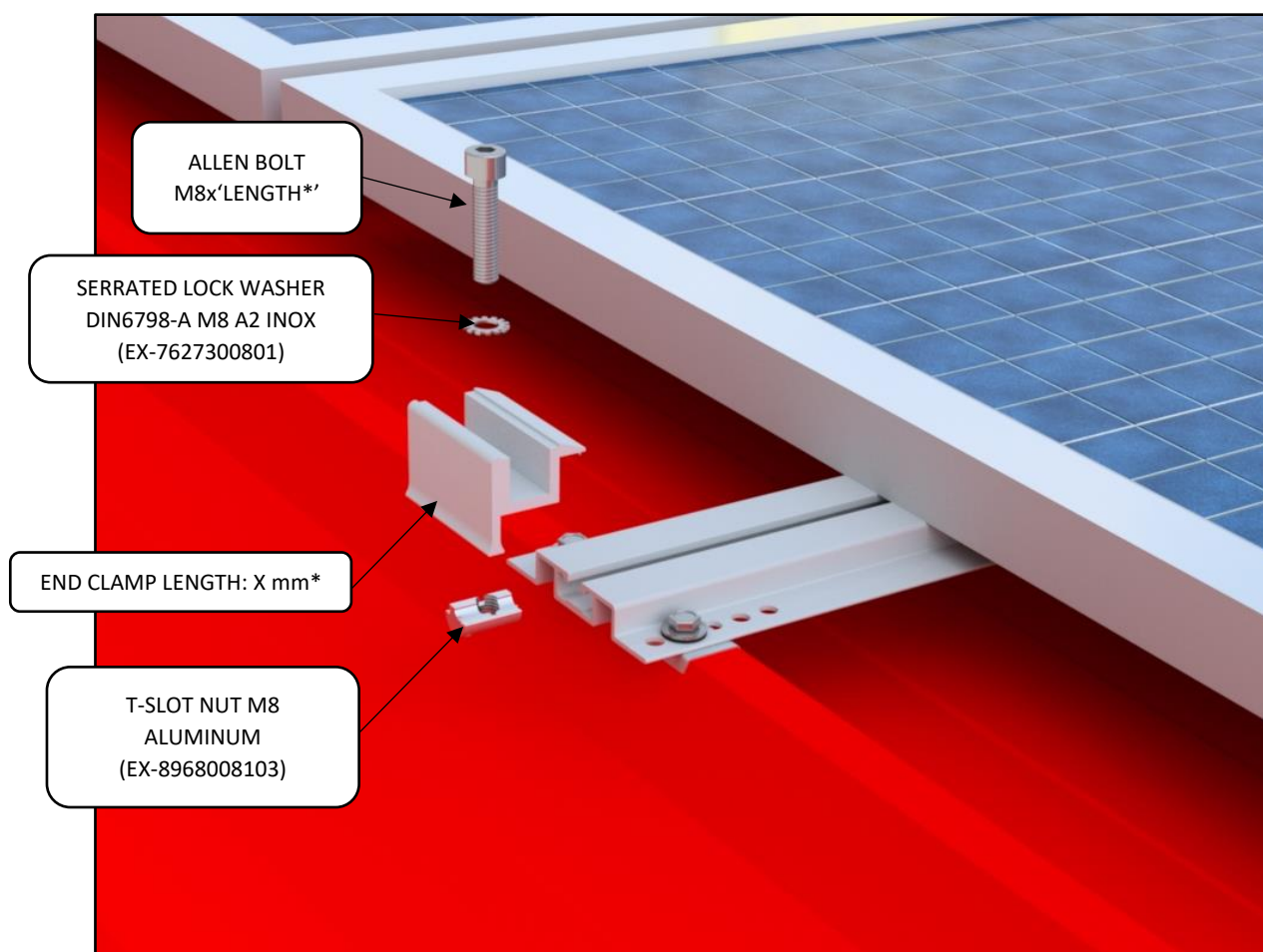


Panel Length \geq 2000mm

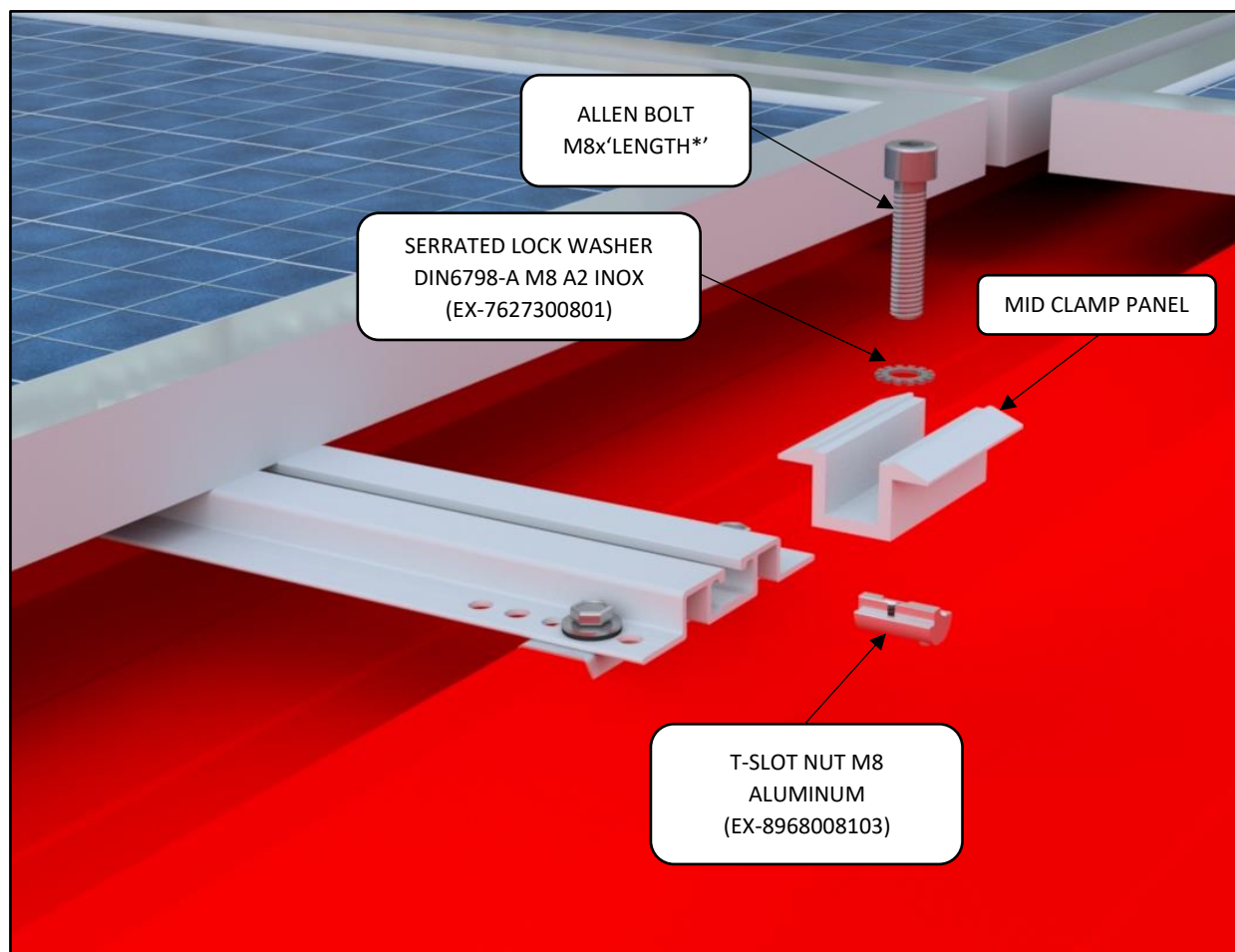
➤ **Mounting panel on profile H2301 or H2410.**

Place the panels on top of the profile pieces in Portrait orientation.

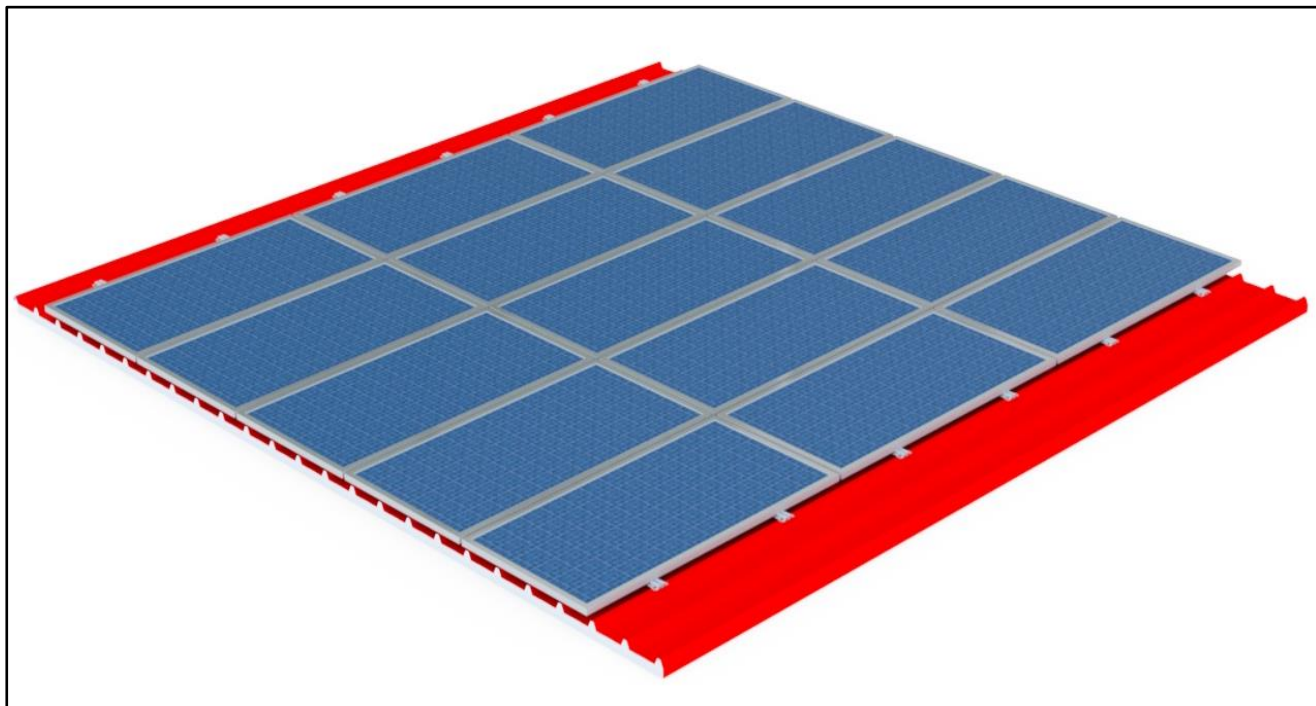
Use END CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 and T-SLOT NUT M8 as shown in the image below.



Use MID CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 A2 and T-SLOT NUT M8 to mount 2 successive PV panels to the PROFILE H2301 or H2410.



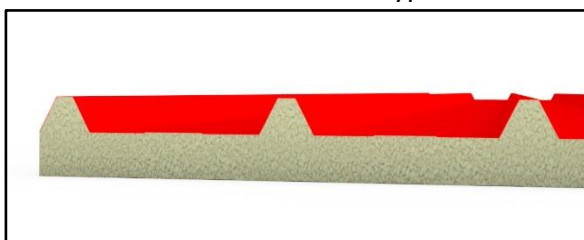
A complete installation with AS410 mounting system for portrait orientation



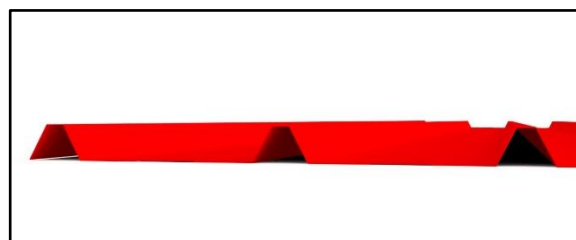
C. ASSEMBLY INSTRUCTIONS FOR AS415

1. AS415 Landscape

AS415 is suitable for both types of industrial roofs



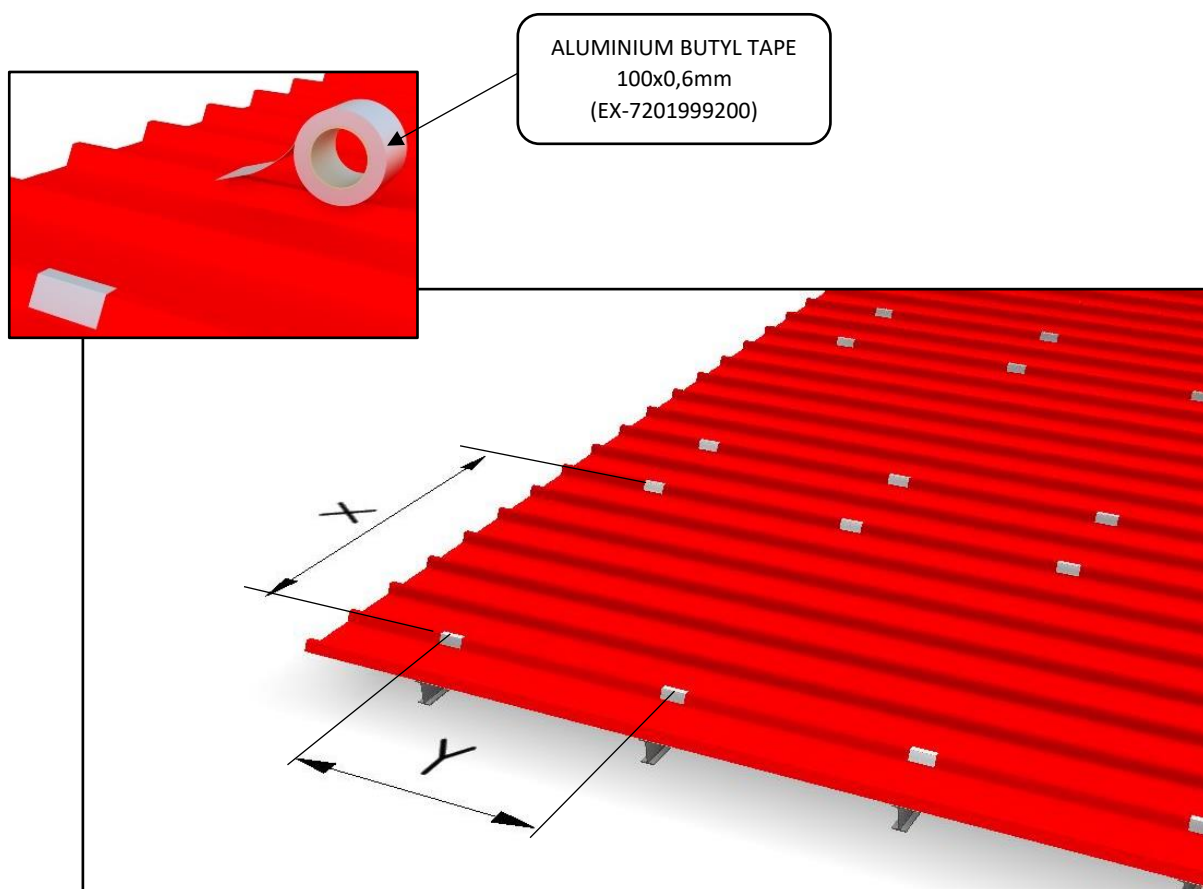
Roof sandwich panel



Roof metal sheet

➤ **Placing profile H2409 or H2408 in the roof.**

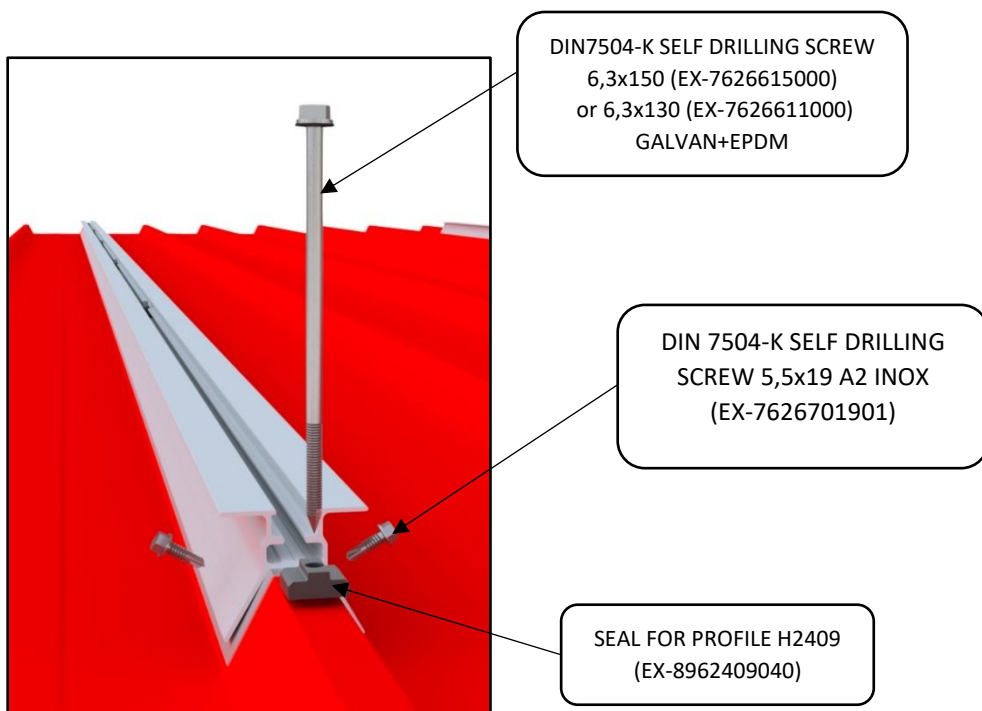
Place 100mm of the ALUMINIUM BUTYL TAPE where the roof panel will be drilled.



Y= Panel Width.

X= According to PV panel manufacturer.

Place the PROFILE H2409 on top of the ALUMINIUM BUTYL TAPE. Use DIN7504-K SELF DRILLING SCREW 6,3x150, SEAL FOR PROFILE H2409 or H2408 and DIN 7504-K SELF DRILLING SCREW 5,5x19 A2 INOX to mount the PROFILE H2409 or H2408.

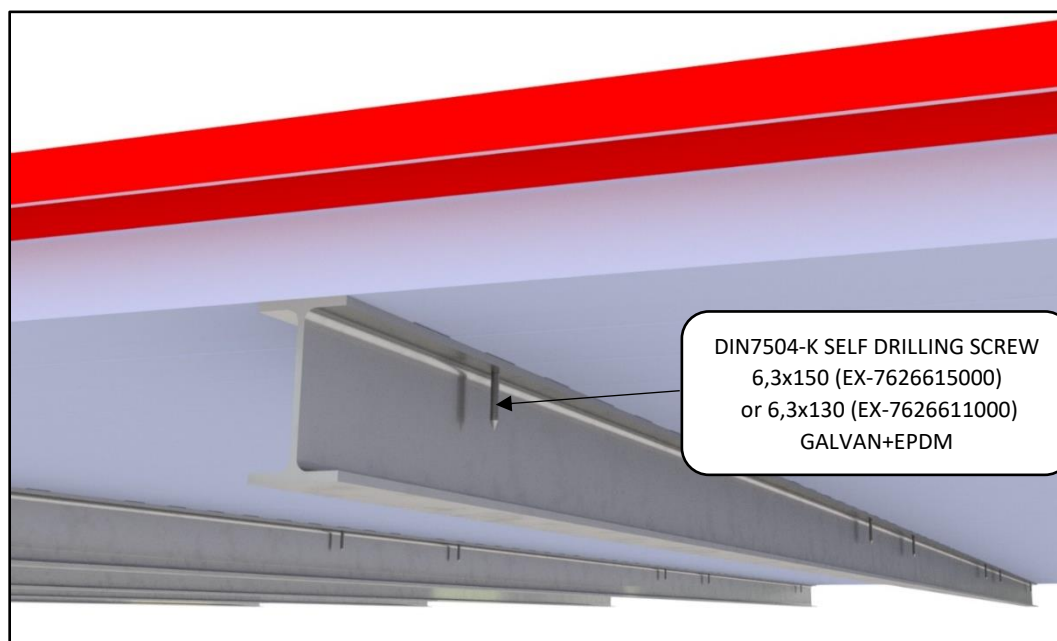


Install the DIN7504-K SELF DRILLING SCREW 6,3x150 or 6,3x130 and the SEAL FOR PROFILE H2409 or H2408 at each point where the roof panel has a purlin below.

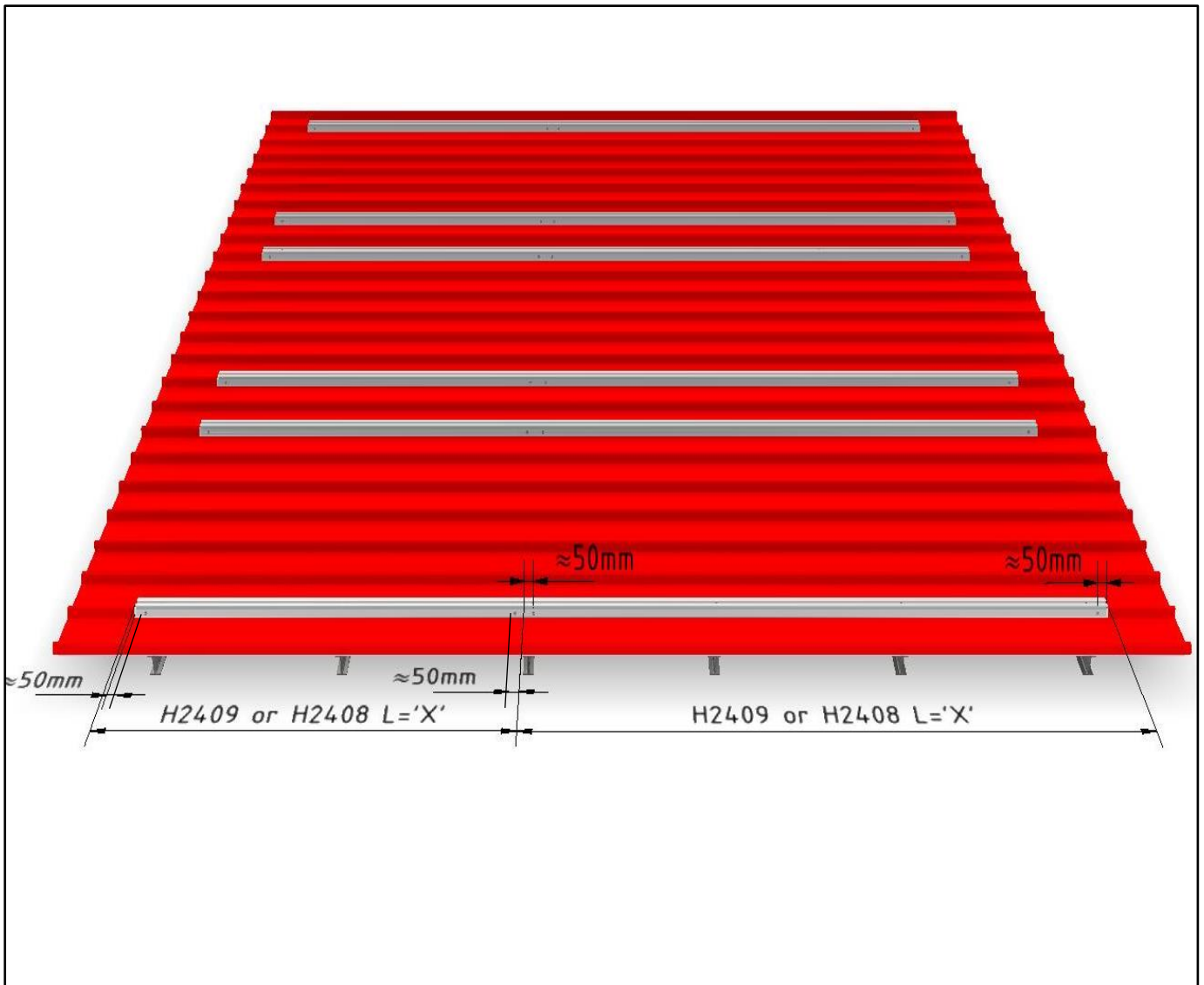
*Maximum distance between screws is 1,5m.

For profiles H2409 with length $\leq 3150\text{mm}$ at least 2 screws DIN7976 are needed.

For profiles H2409 with length $\leq 6200\text{mm}$ at least 3 screws DIN7976 are needed.

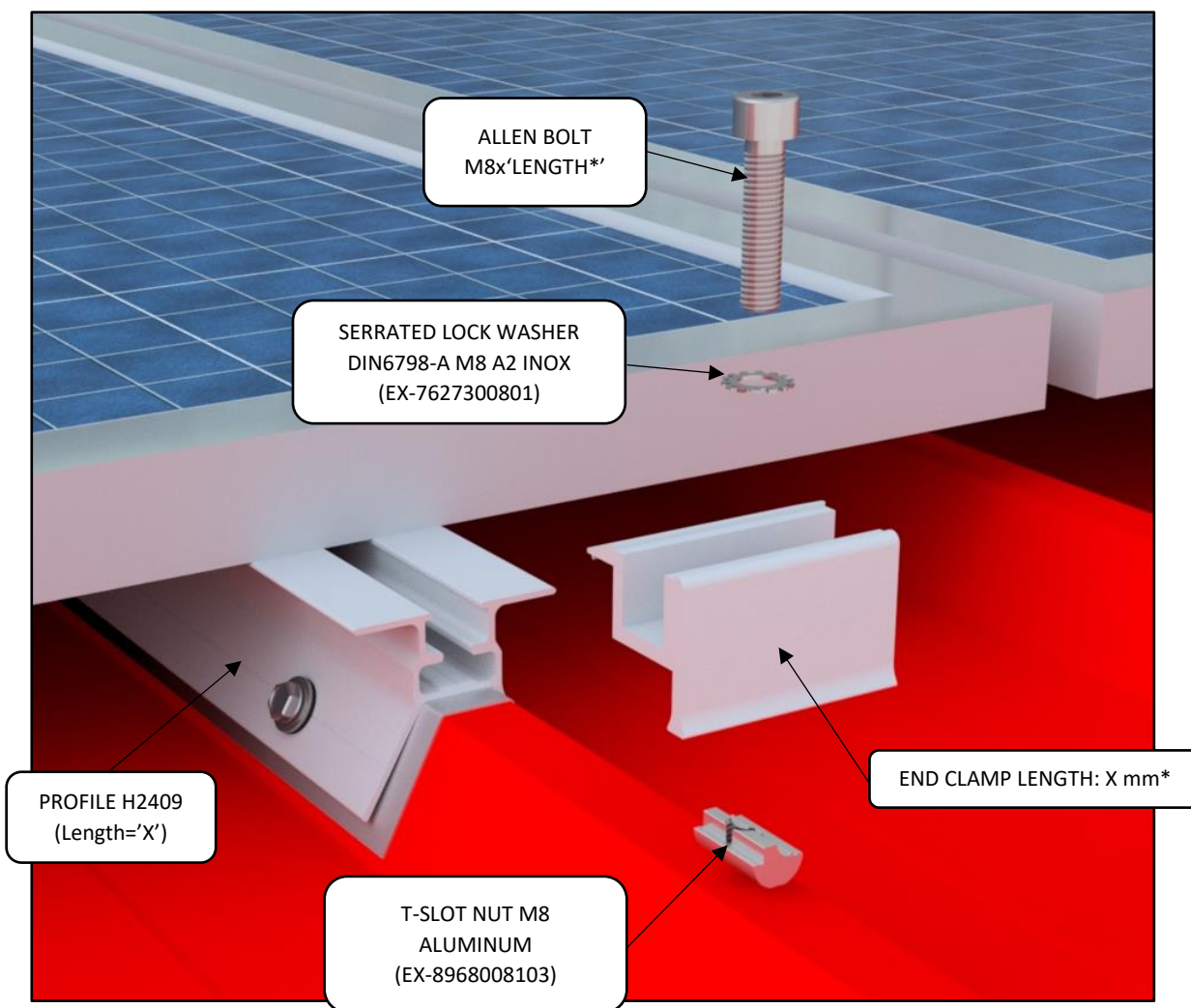


Install 2 DIN 7504-K SELF DRILLING SCREW 5,5x19 A2 INOX on each end of the PROFILE as shown below (Total 4 DIN 7504-K SELF DRILLING SCREW 5,5x19 A2 INOX for every profile).

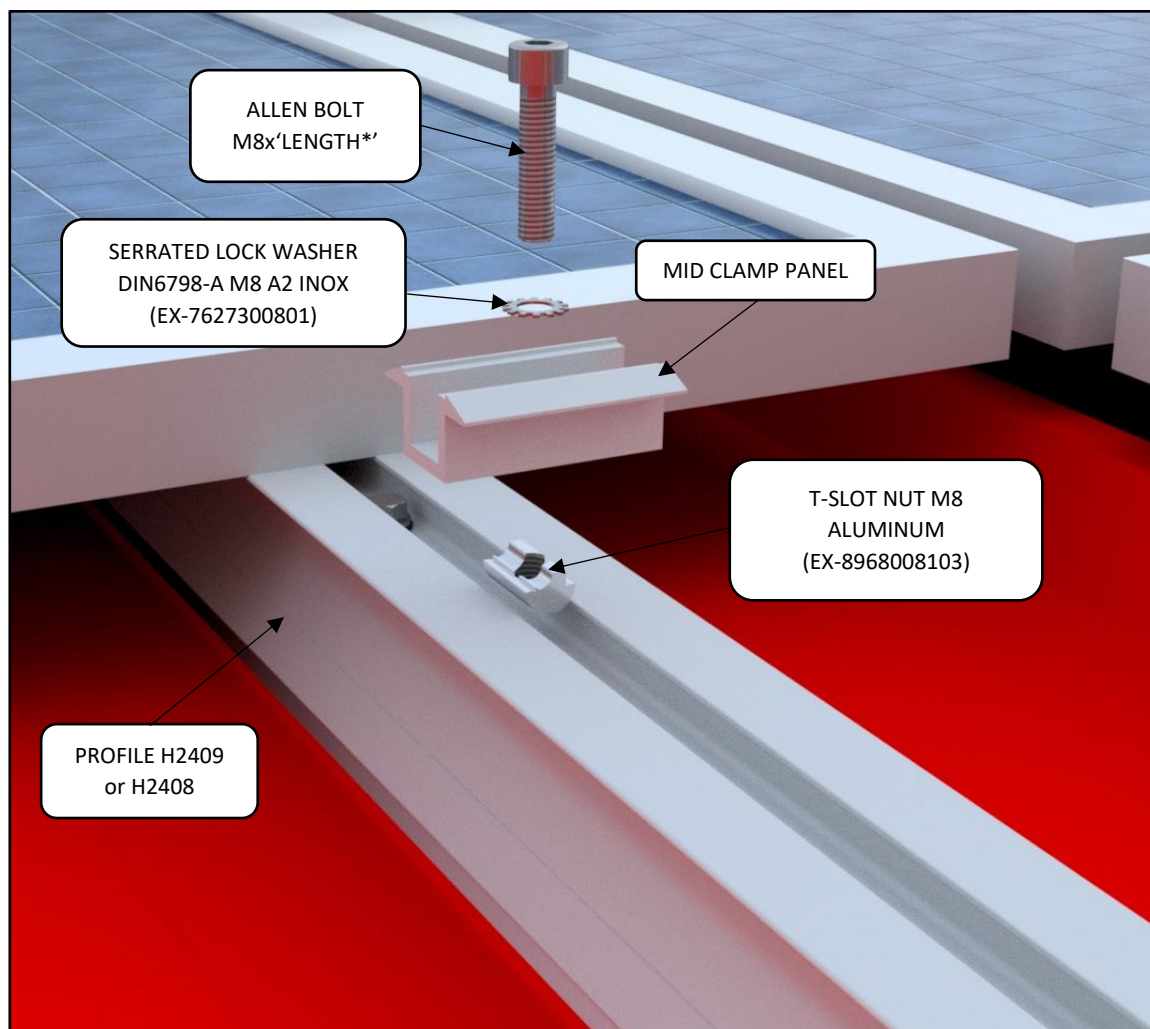


➤ **Mounting panel to profile H2409 or H2408.**

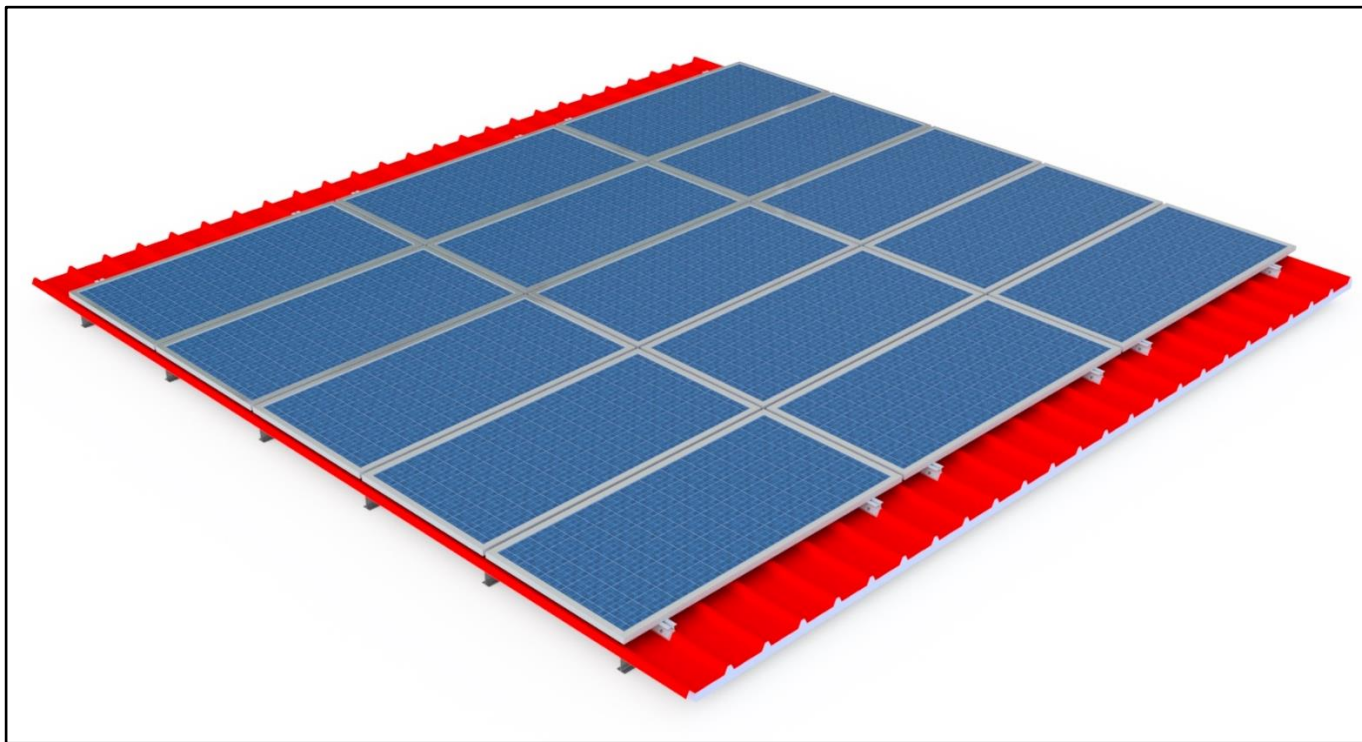
Use END CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 and T-SLOT NUT M8 as shown in the image below.



Use MID CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 A2 and T-SLOT NUT M8 to mount 2 successive PV panels to the PROFILE H2408 or H2409.



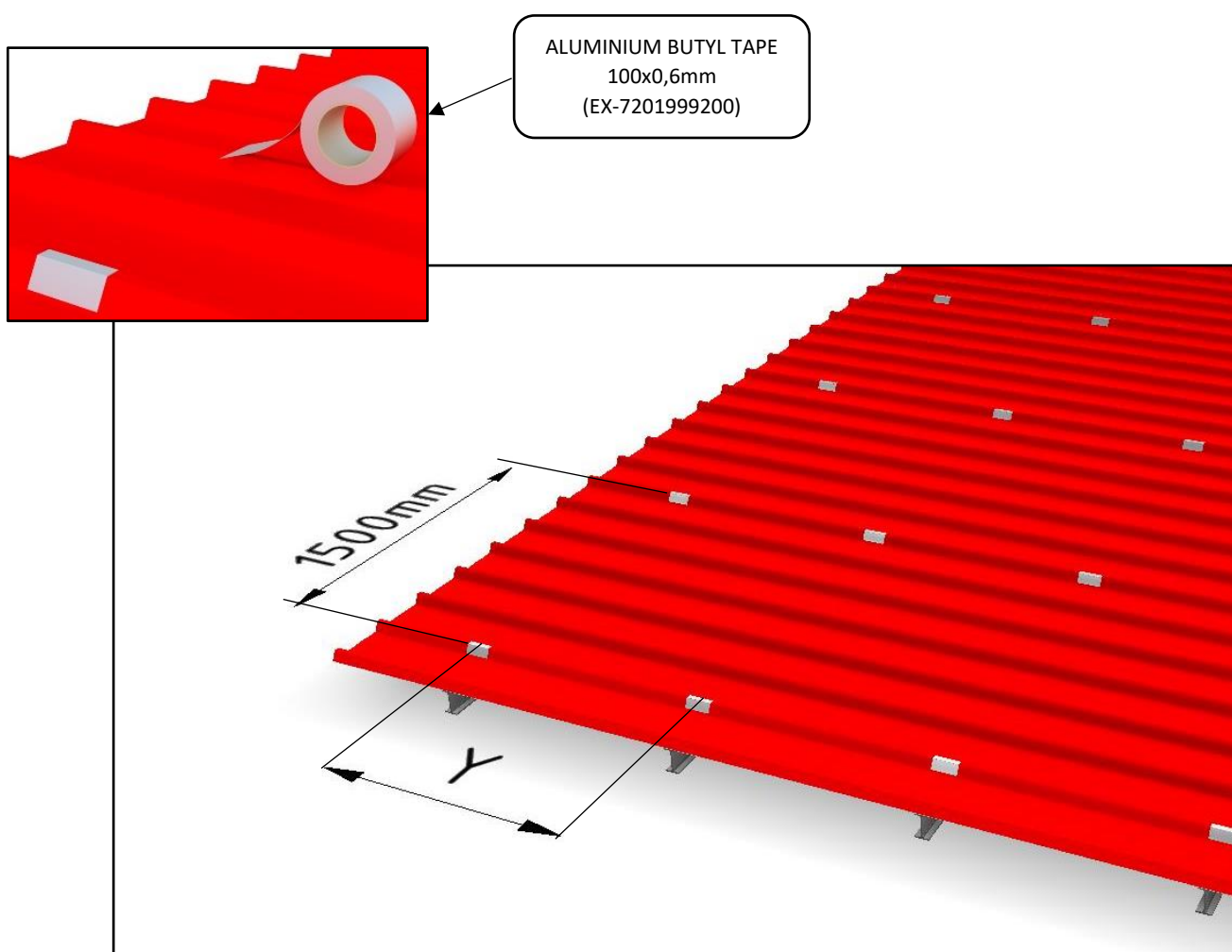
A complete installation with AS415 mounting system for landscape orientation



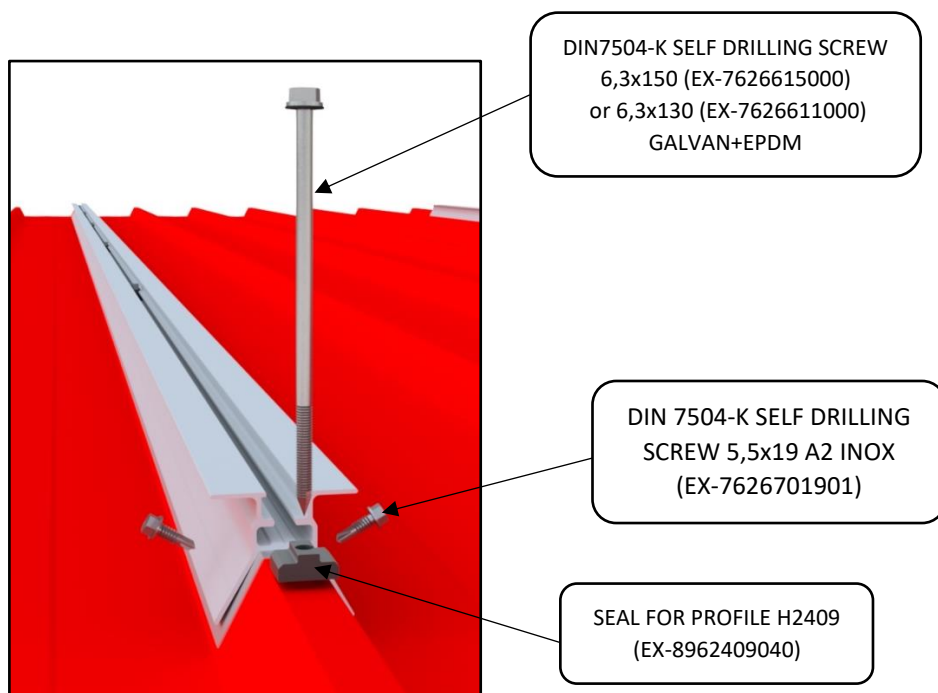
2. AS415 Portrait

➤ **Placing profile H2409 or H2408 on the roof.**

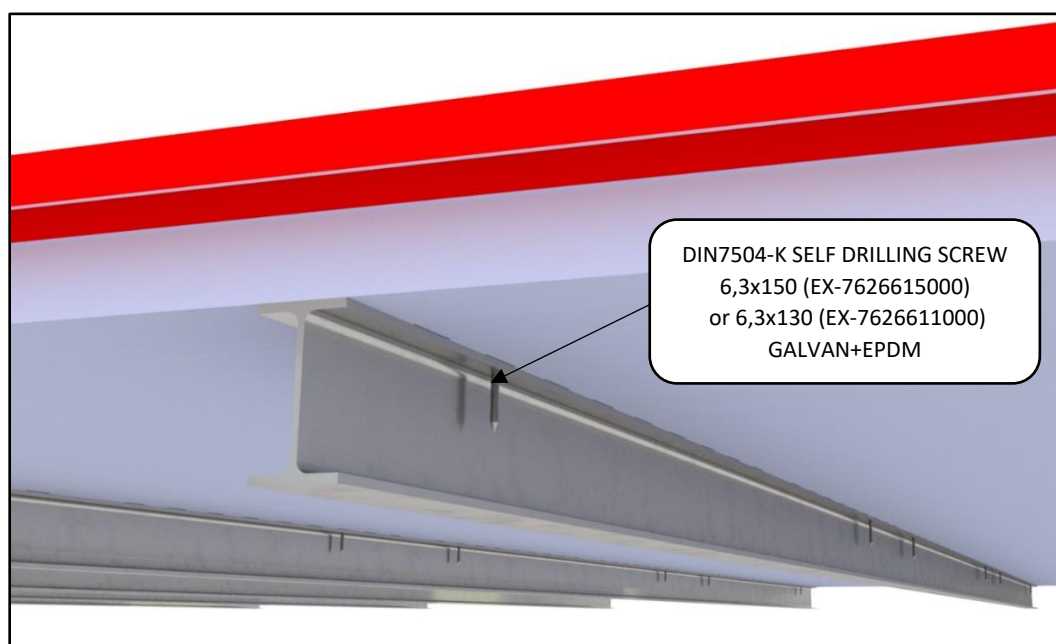
Place 100mm of the ALUMINIUM BUTYL TAPE where the roof panel will be drilled. Maximum distance between two profiles H2409 or H2408 is 1500mm.



Place the PROFILE H2409 on top of the ALUMINIUM BUTYL TAPE. Use DIN7504-K SELF DRILLING SCREW 6,3x150 or 6,3x130, SEAL FOR PROFILE H2409 and DIN 7504-K SELF DRILLING SCREW 5,5x19 A2 INOX to mount the PROFILE H2409 or H2408.

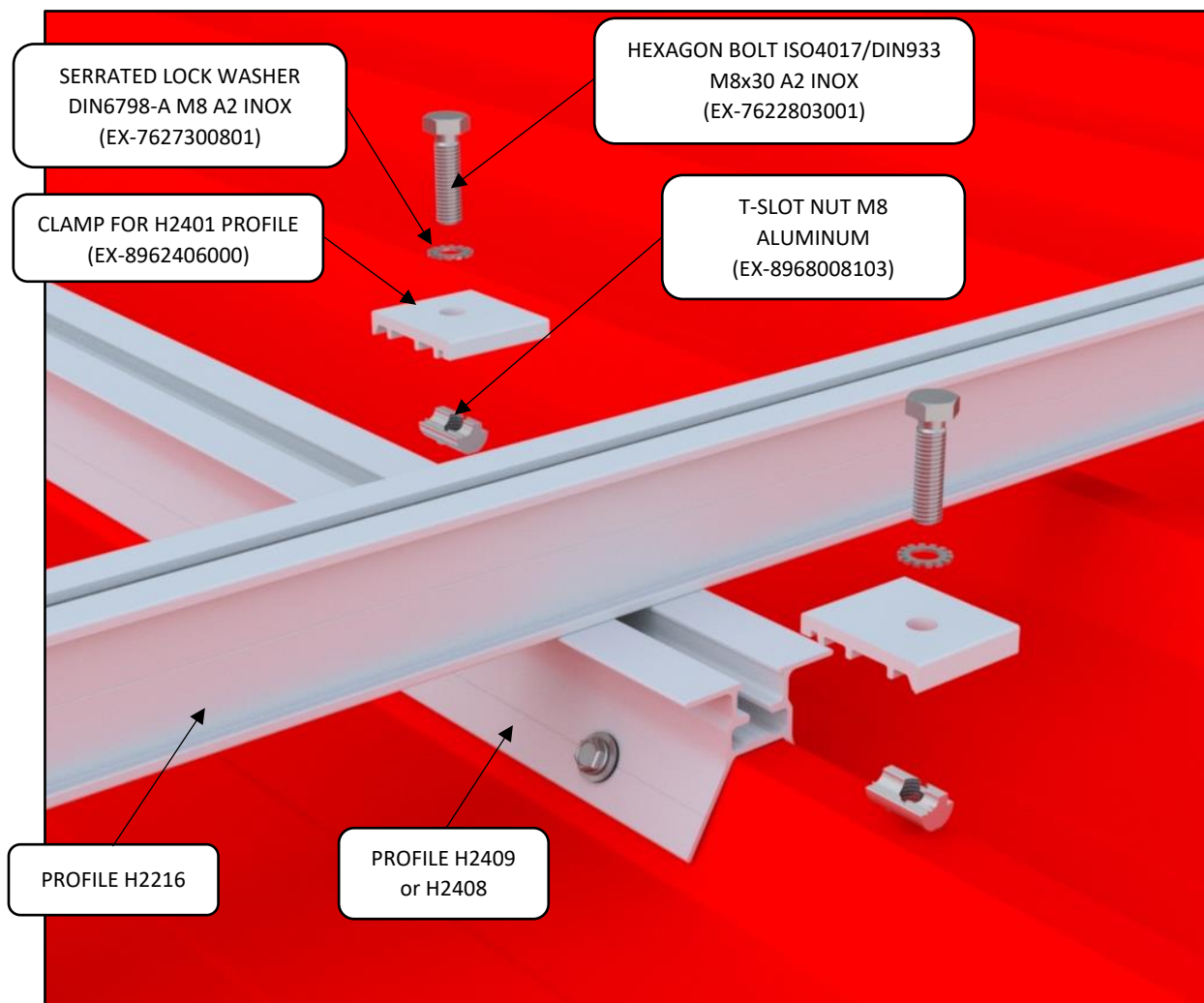


Install the DIN7504-K SELF DRILLING SCREW 6,3x150 or 6,3x130 and the SEAL FOR PROFILE H2409 at each point where the roof panel has a purlin below.



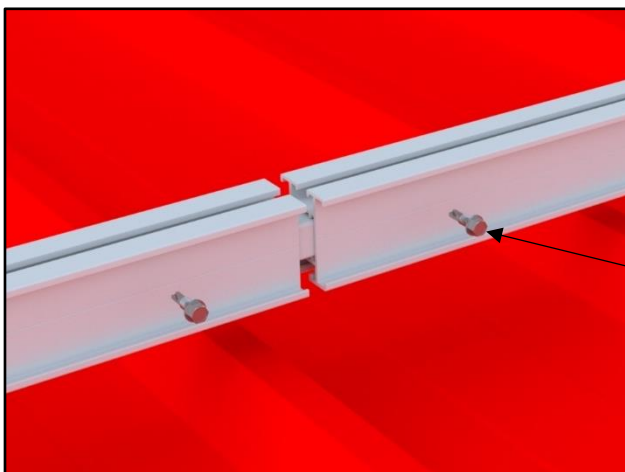
➤ **Placing H2216 on profile H2409.**

Use HEXAGON BOLT ISO4017/DIN933 M8x30, SERRATED LOCK WASHER, CLAMP FOR H2401 PROFILE and T-SLOT NUT M8 to mount the PROFILE H2216 with the PROFILE H2409 or H2408.

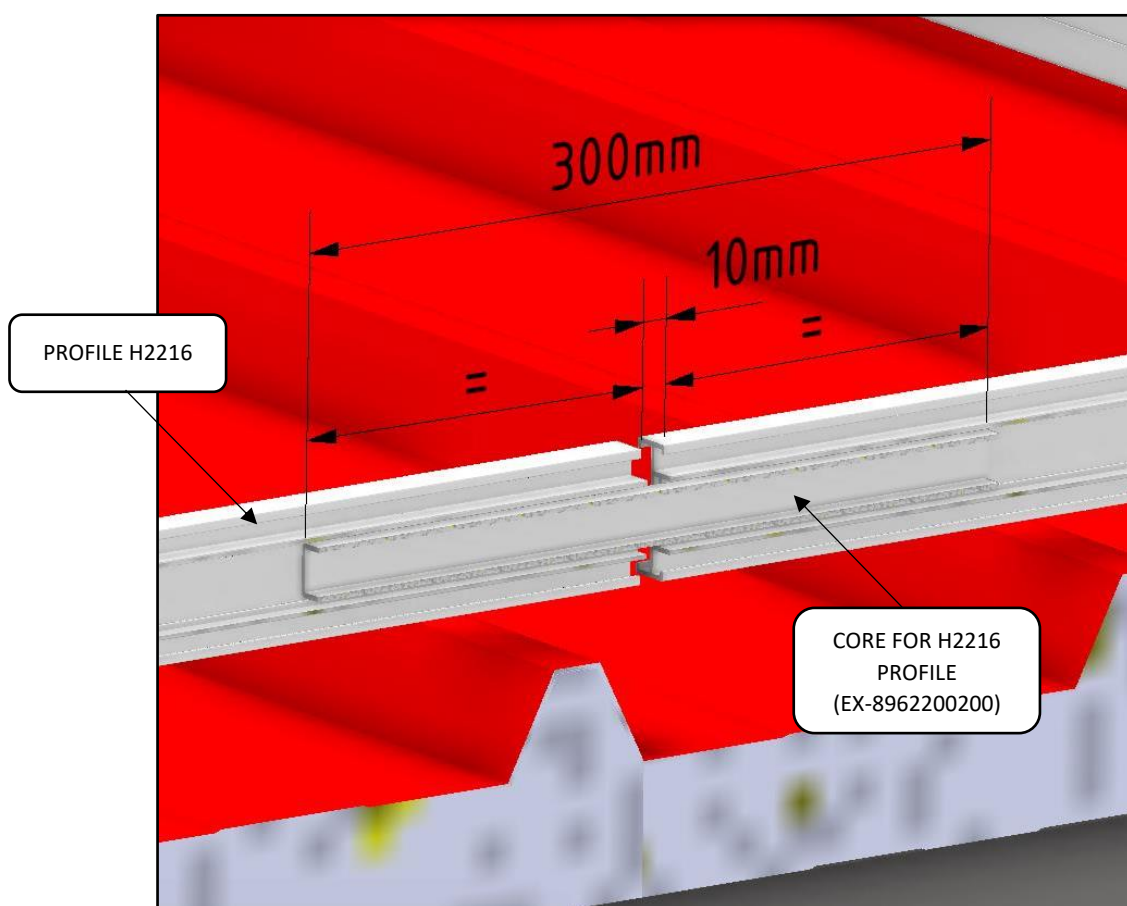


➤ **Placing core in profile H2216**

Place the CORE FOR H2216 in the 2 successive PROFILES H2216 and mount the with 2 SELF DRILLING SCREWS 5,5x19

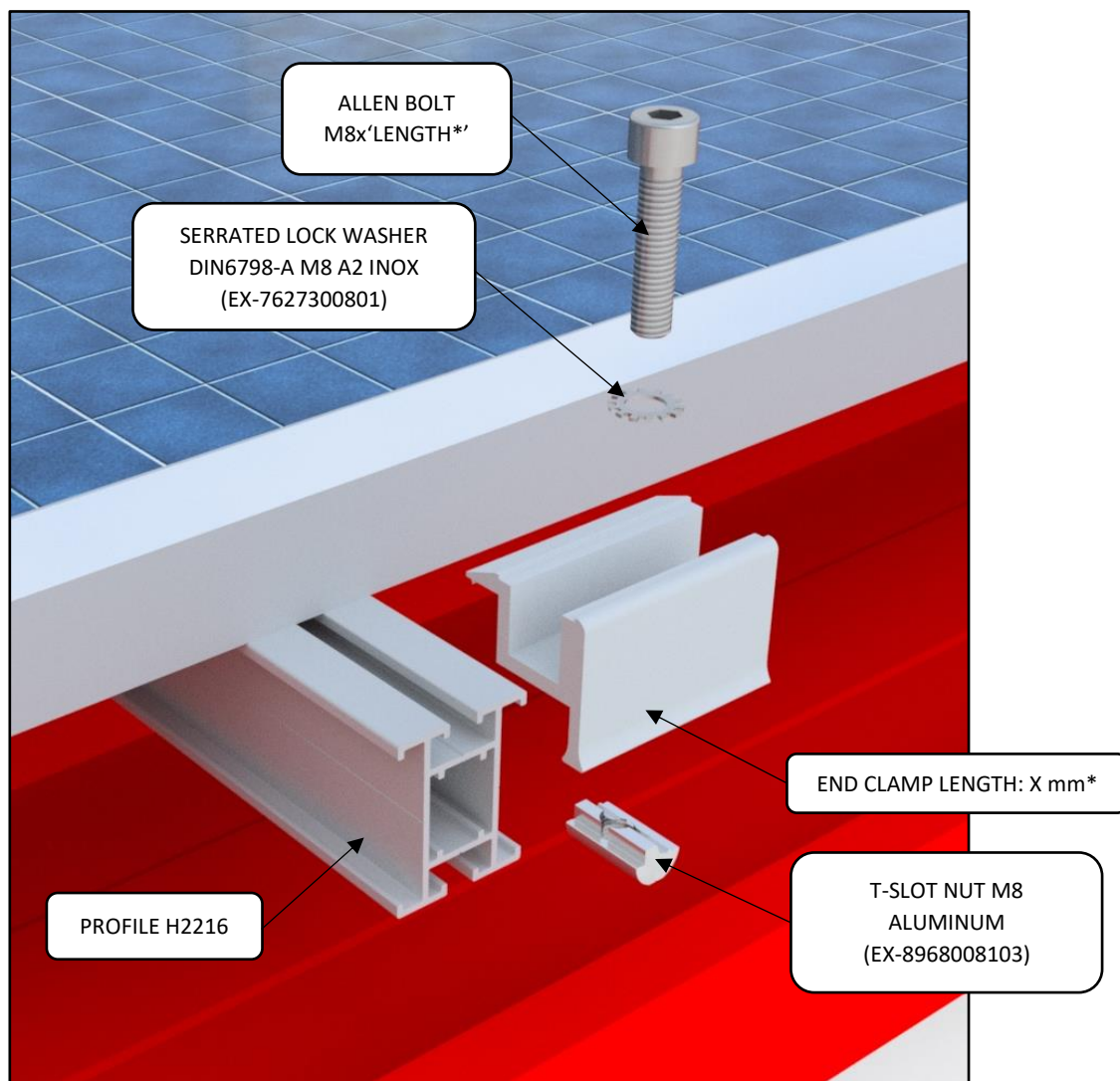


DIN 7504-K SELF DRILLING
SCREW 5,5x19 A2 INOX
(EX-7626701901).

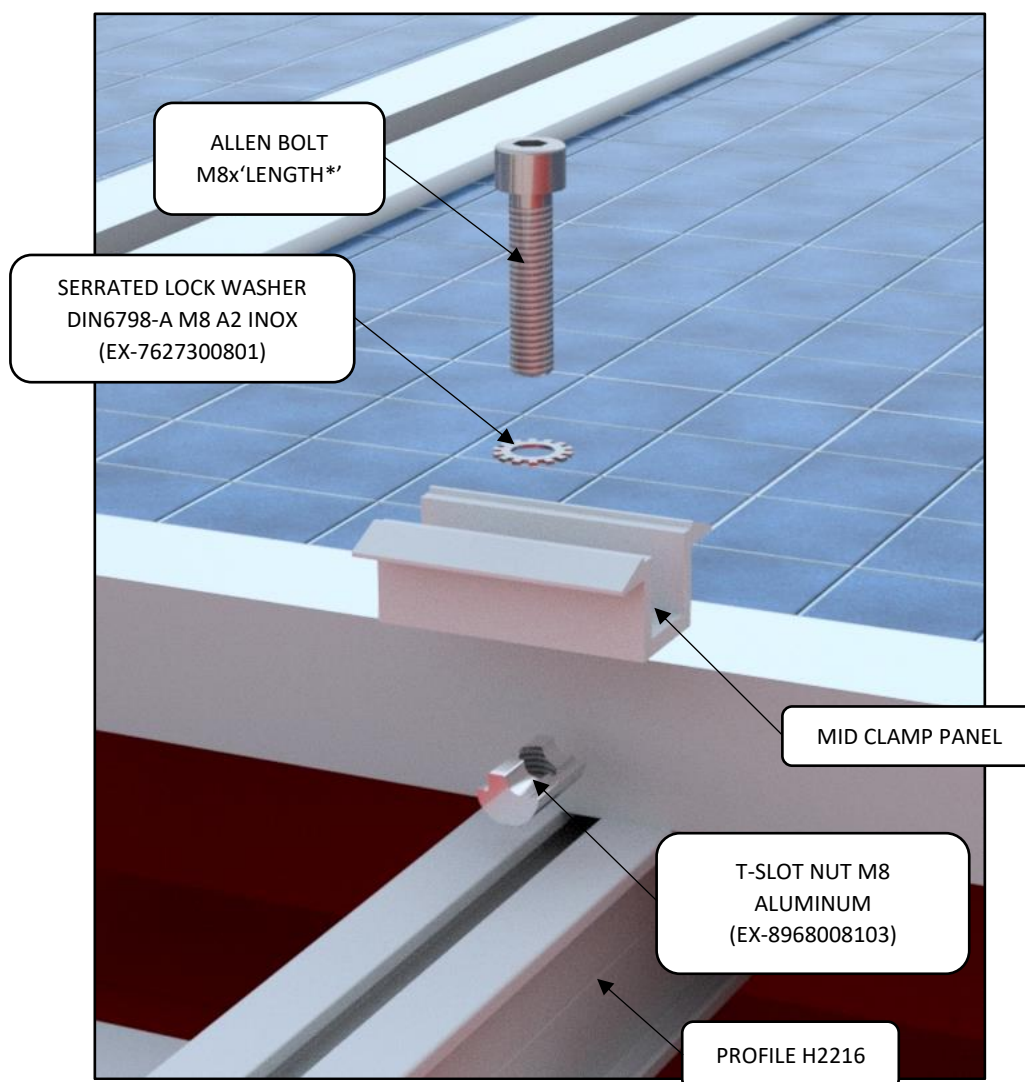


➤ **Mounting panel on profile H2216.**

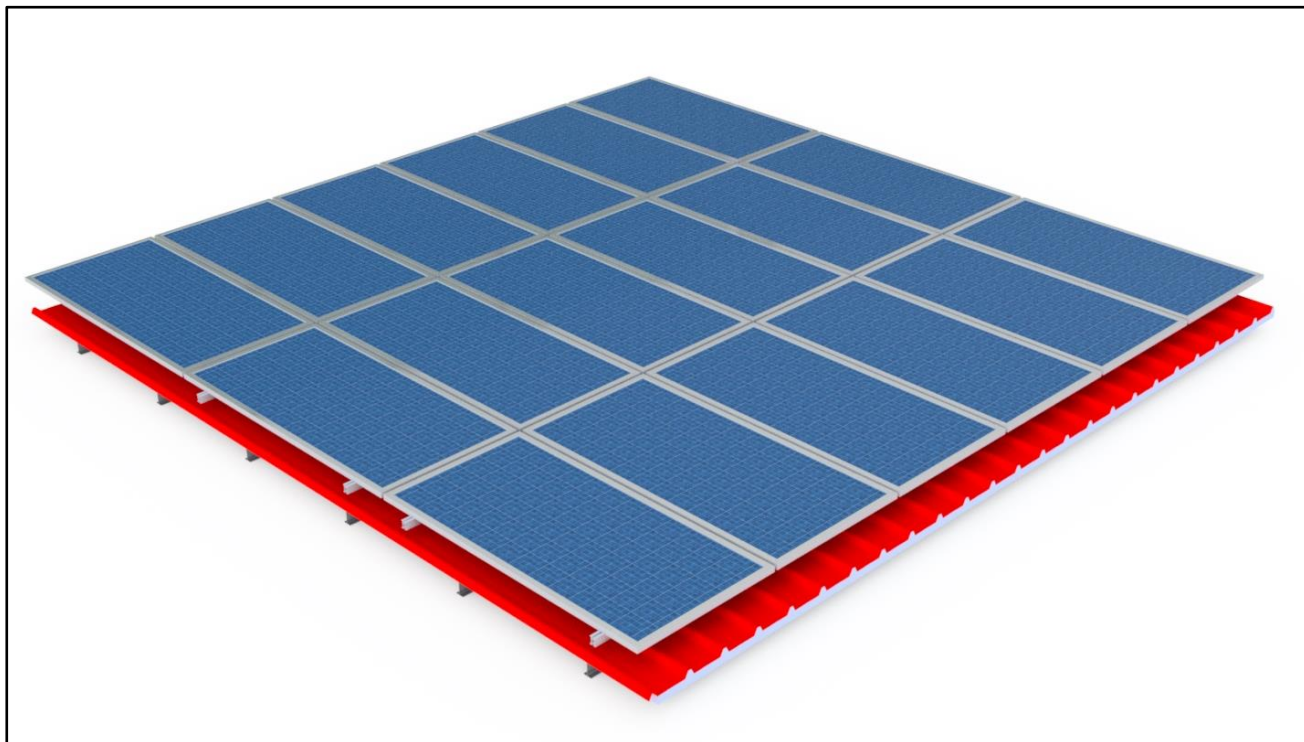
Use END CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 and T-SLOT NUT M8 as shown in the image below.



Use MID CLAMP, ALLEN BOLT M8, SERRATED LOCK WASHER M8 A2 and T-SLOT NUT M8 to mount 2 successive PV panels to the PROFILE H2216.



A complete installation with AS415 mounting system for portrait orientation



D.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.*



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