

INSTALLATION MANUAL

ATTACHMENTS FOR METAL SHEET
WITH LONG RAIL

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Quality tested-several certifications

WOCHN Systems stands for secure connections, highest quality and precision. Our customers and business partners have known that for a long time. Independent institutes have tested, confirmed and certified our capabilities and components

Please find our quality and product certificates under:

<https://www.wochnmounting.com/>

Disclaimer

This manual describes the proper installation procedures and provides minimum standard required for product reliability and warranty. This installation instruction is based on the state of the art and many years of experience in how our systems can be installed on site. Due to the many variables and requirements associated with a specific installation. Because of this, these instructions only serve as a guideline for the installation of the product described in this manual.

- The equipment may only be installed and operated by qualified and adequately trained installers.
- Prior to installation, ensure that the product complies with on-site static loading requirements
- National and local building regulations and environmental requirements must be adhered to.
- All work must comply with national, state and local installation procedures, product and safety standards.
- Compliance with health and safety regulations, accident prevention guidelines and applicable standards is required.
- Protective equipment such as safety helmet, boots and gloves must be worn.
- Validate foundation parameters prior to installation, We recommend consulting with a local engineer familiar with local regulations and build site requirements, including soil conditions, terrain and load criteria. All parameters may impact foundation requirements.
- At least two people must be present for the duration of the installation work in order to provide rapid assistance in the event of an emergency.
- At least one copy of the assembly instructions should be available on site throughout the duration of the installation.
- Failure to adhere to our general safety and assembly instructions and not using all system components,
- WOCHN is not liable for any resulting defects or damages. We do not accept liability for any damage resulting in the use of competitor' s parts. Warranty is excluded in such cases.
- Dismantling of the system is performed in reverse order to the assembly
- The manual provides guidelines for installation, but it does not guarantee the quality of installation work. Please complete the installation in a responsible and professional manner.



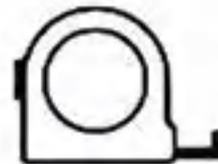
6.3, 10, 12, 18



8, 6.3



NM



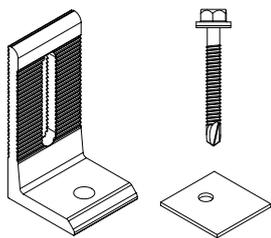
Torque Values

M6.3 screw: 8 N • m

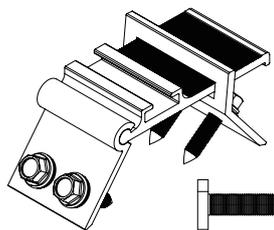
M8 screw: 10 N • m

M10 screw: 40 N • m

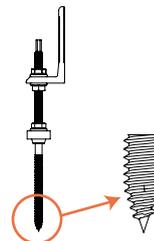
Trapezoidal:



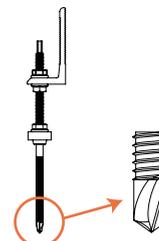
WQ-AH-01
L foot
For all trapezoidal metal sheet



WQ-AC-24
T attachment
Universal for all trapezoidal metal sheet roofs

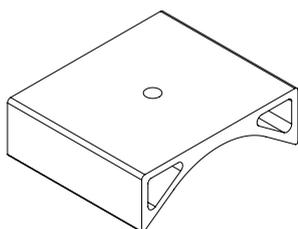


WQ-SHW
Hanger bolt for wooden beam
For metal sheet on timber substructure

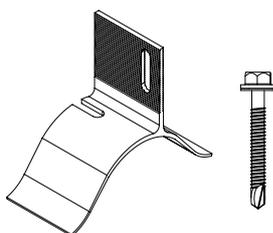


WQ-SHS
Hanger bolt for steel beam
For metal sheet on timber substructure

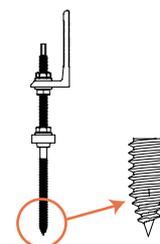
Corrugated:



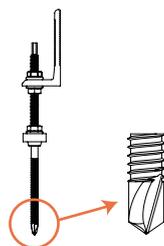
WQ-AC-29
Corrugated clamp
For round bulb seam around R25 metal sheet



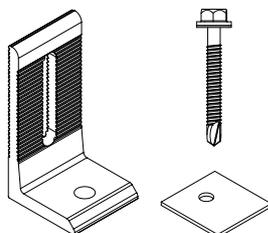
WQ-AC-30
Corrugated clamp
For round bulb seam around R52 metal sheet



WQ-SHW
Hanger bolt for wooden beam
For corrugated fire cement

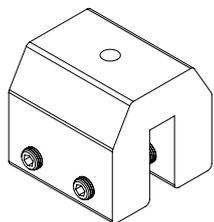


WQ-SHS
Hanger bolt for steel beam
For corrugated fire cement

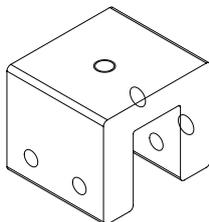


WQ-AH-01
L foot
For all trapezoidal metal sheet

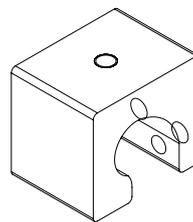
Standing seam:



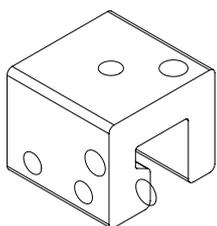
WQ-AC-17
Universal standing seam clamp 17#
For standing seam less than 14mm metal sheet



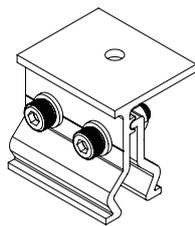
WQ-AC-28
Universal standing seam clamp 28#
For standing seam between 14-25mm metal sheet



WQ-AC-21
Universal round bulb standing seam clamp 21#
For round bulb seam less than 22mm metal sheet

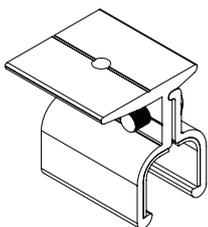


WQ-AC-23
Single folded seam clamp
For single folded seam metal sheet in 90 degree

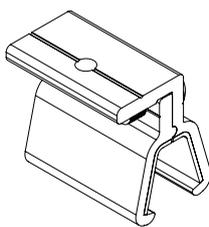


WQ-AC-05
Standing seam clamp
For V-650 roofing profile or with similar dimension

700/406 Lysaght:

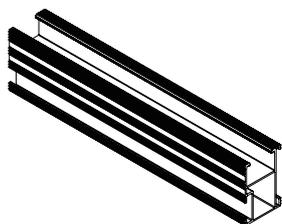


WQ-AC-02
Lysaght 700 klip lok clamp
For Lysaght klip lok 700

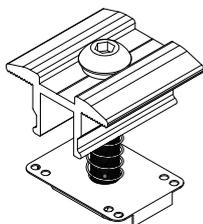


WQ-AC-03
Lysaght 406 klip lok clamp
For Lysaght klip lok 406

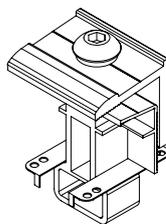
Universal TR rail system:



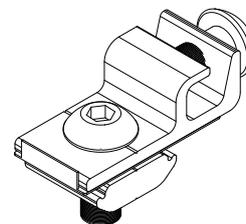
WQ-TR45-S



WQ-TRM-3035-S



WQ-TRE-3035-S



WQ-TR-GL

Please use the following table to determine the attachments spacing for installation.

• Design code reference

The following engineering references were considered in determining the values of the wind load conditions and material properties of the aluminum rail.

- > AS/NZS 1170.2:2011 Admt 3-2012
- > AS 1664.1.1:1997 on aluminum structures

• Design criteria

The following parameters were considered in determining the values of the allowable span charts of the railing.

- > Wind region A,B, C, D
- > WIND TERRAIN Category 3
- > PV modules to be flush installed on the roof
- > Max building height 20m
- > Max roof slope: 30 degree
- > Max PV module: 2400x1200mm

Roof Angle(ϕ) – $\phi < 15^\circ$

	Building height H (m) Span Spacing(mm)		
	H ≤ 10m	10 < H ≤ 15	15 < H ≤ 20
Wind zone	Internal zone	Internal zone	Internal zone
A	1570	1460	1370
B	1080	980	920
C	590	540	510
D	430	N/A	N/A

Roof Angle(ϕ) – $15^\circ \leq \phi \leq 30^\circ$

	Building height H (m) Span Spacing(mm)		
	H ≤ 10m	10 < H ≤ 15	15 < H ≤ 20
Wind zone	Internal zone	Internal zone	Internal zone
A	1730	1640	1570
B	1270	1150	1080
C	820	590	560
D	530	500	440

- > IBC 2015 / CALIFORNIA BUILDING CODE 2016
- > ASCE 7-10(wind loading)
- > Aluminum Design: Aluminum Design Manual 2010

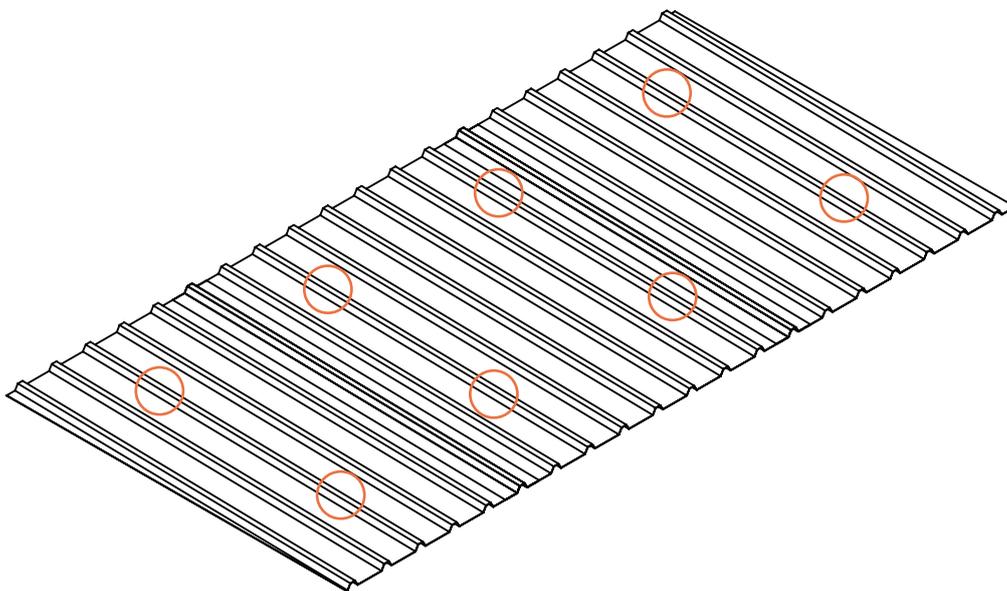
- > Maximum Building Height Considered = 9m
- > Exposure Categories Considered: B & C
- > Wind Pressure Based on Section 30.4 (C&C Method 1)
- > Gust Factor, G = 0.85
- > Topography Factor, Kzt = 1.0
- > Directionality Factor, Kd = 0.85
- > Importance Factor, I = 1.0
- > Maximum Cantilever of Railing from Anchor 12 Inches
- > Tilt Angles Considered: 0 to 30 degrees

Ground Snow Load (PSF)	Racking Max. Rail Span (mm) For Zone 2*					
	Exposure B Wind Speed (Mph)			Exposure C Wind Speed (Mph)		
	110	130	150	110	130	150
0	1800	1800	1200	1800	1200	600
10	1800	1800	1200	1800	1200	600
20	1800	1800	1200	1800	1200	600
30	1800	1800	1200	1800	1200	600
40	1800	1800	1200	1800	1200	600
50	1800	1800	1200	1800	1200	600
60	1800	1800	1200	1800	1200	600
70	1200	1800	1200	1200	1200	600
80	1200	1800	1200	1200	1200	600
90	600	1800	1200	600	600	600

* Maximum Building Height Considered = 9m

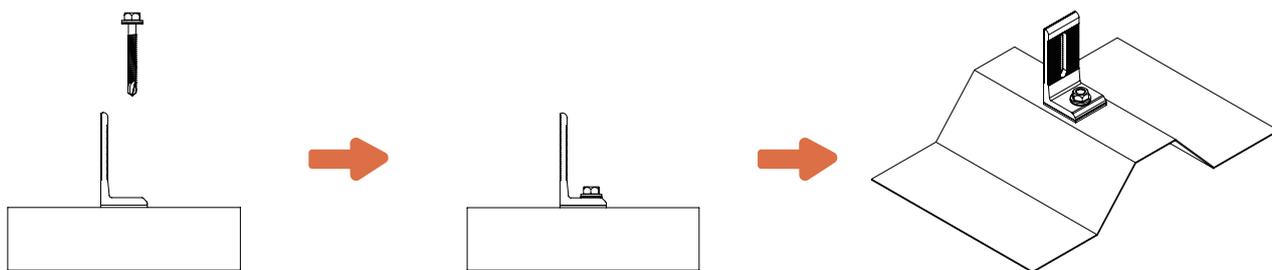
1. Confirm attachments installation positions

Confirm the positions in circles to fix the attachments according to the drawing

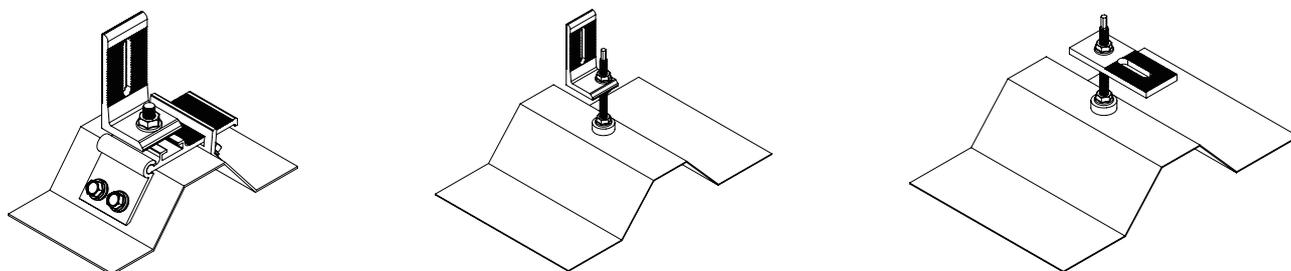


2. How to fix the attachments

(1) Trapezoidal metal sheet: After confirmation of the install positions, fix the L foot tightly to the top of the trapezoidal metal sheet with M6.3*80 screw

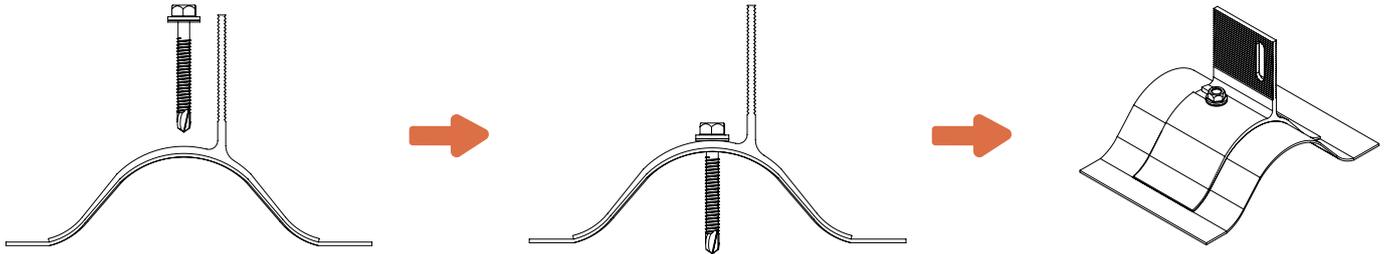


Tips: all attachments of trapezoidal as below can follow this way

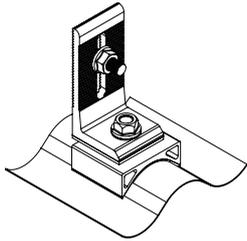


2.How to fix the attachments

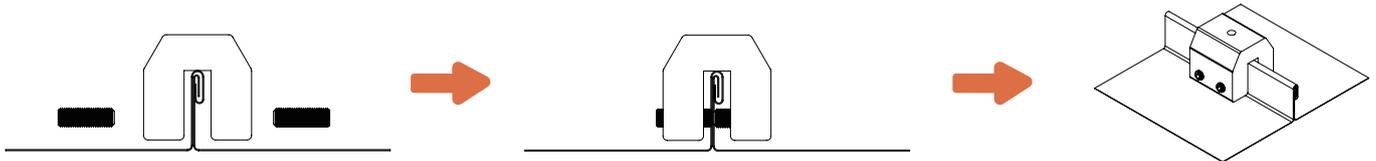
(2)Corrugated metal sheet: After confirmation of the install positions, fix the attachments to the top of the corrugated metal sheet with M6.3*80 screw



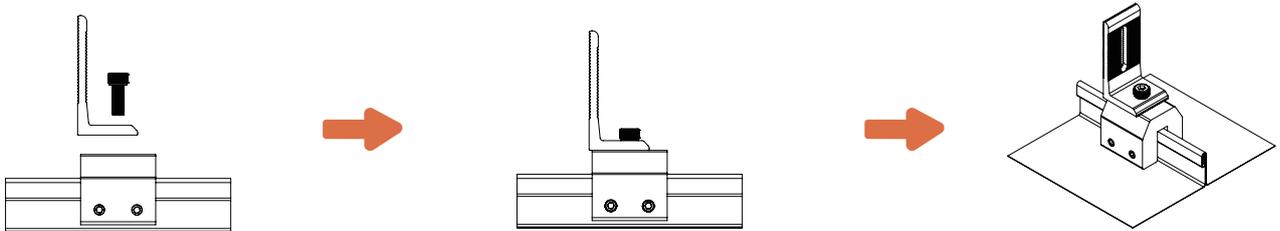
Tips: all attachments of corrugated as below can follow this way



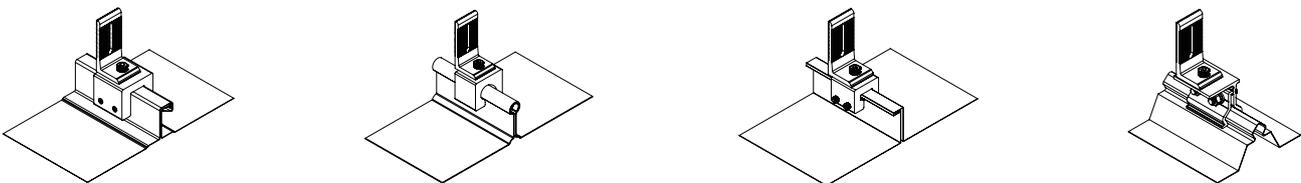
(3)Standing seam metal sheet: After confirmation of the install positions, fix the attachments to the top of the standing seam metal sheet.Tighten the side screws to make sure the attachments are fixed tightly.



Fix L foot on the attachments tightly with M8*20 screw

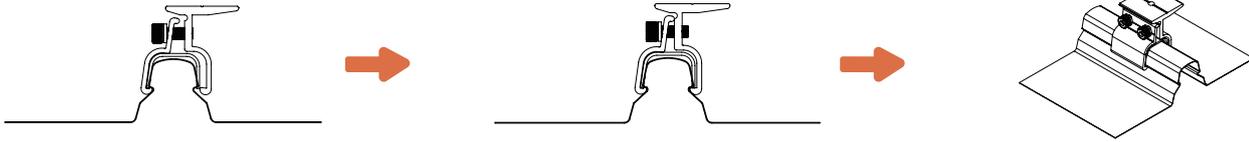


Tips: all attachments of standing seam metal sheet can follow this way

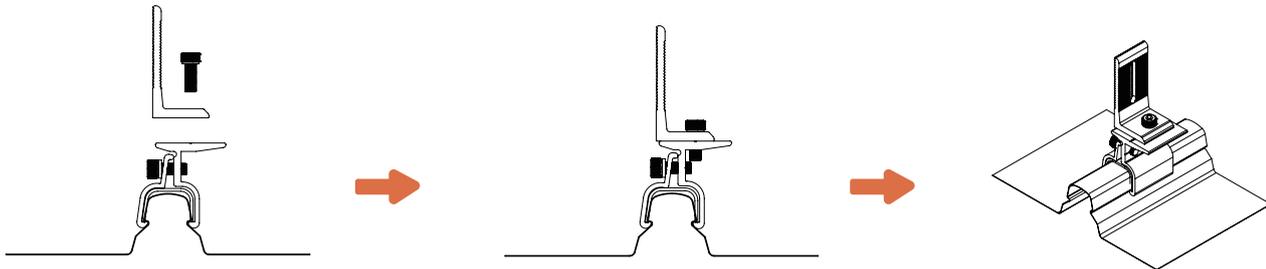


2. How to fix the attachments

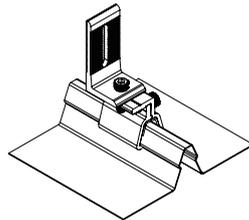
(4) 700/406 Lysaght metal sheet: Fix the attachments to the top of the 700/406 lysaght metal sheet. Tighten the side screws to make sure the attachments are fixed tightly.



Fix L foot on the attachments with M8*25 screw

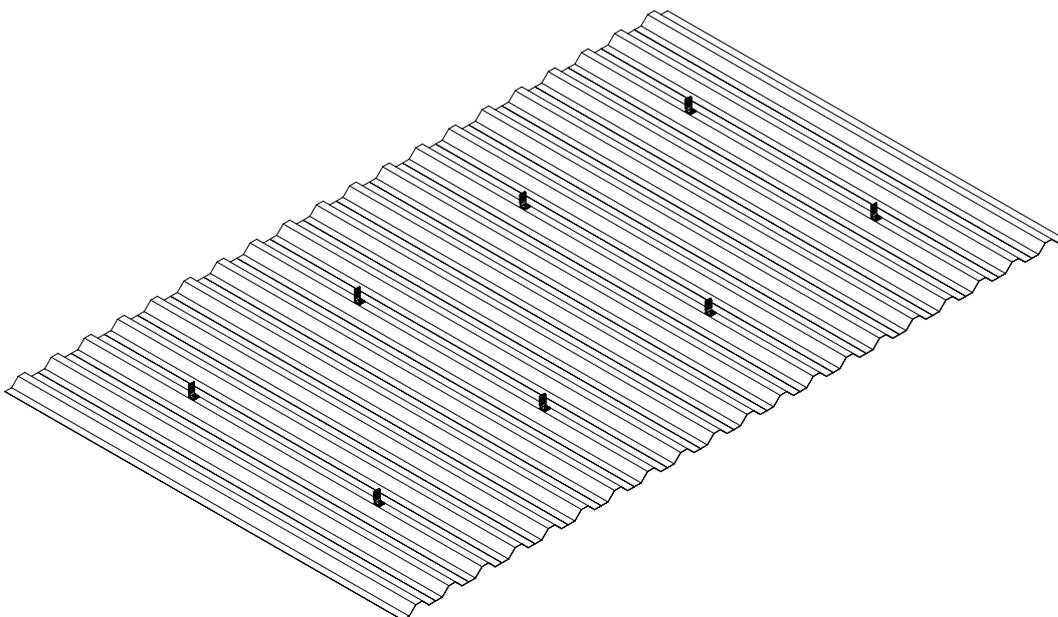


Tips:
all attachments of 700/406 lysaght metal sheet can follow this way



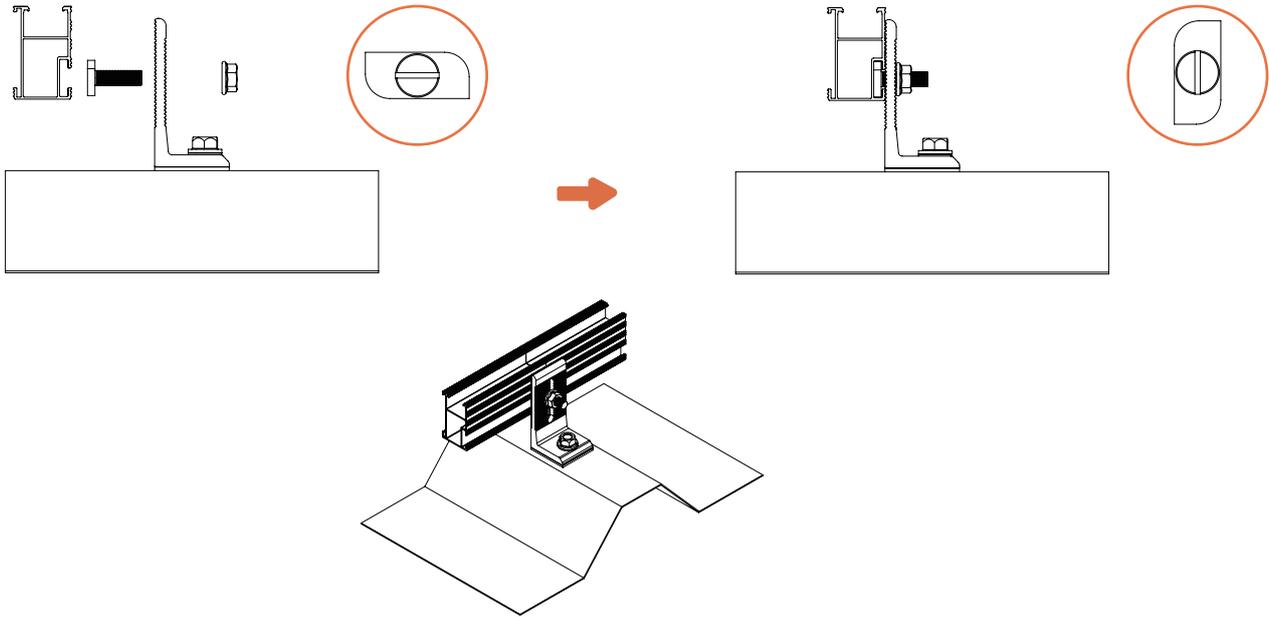
3. Fix the attachments in each position correctly

Fix all the attachments in circle position correctly: Suitable for all attachments, example as L foot



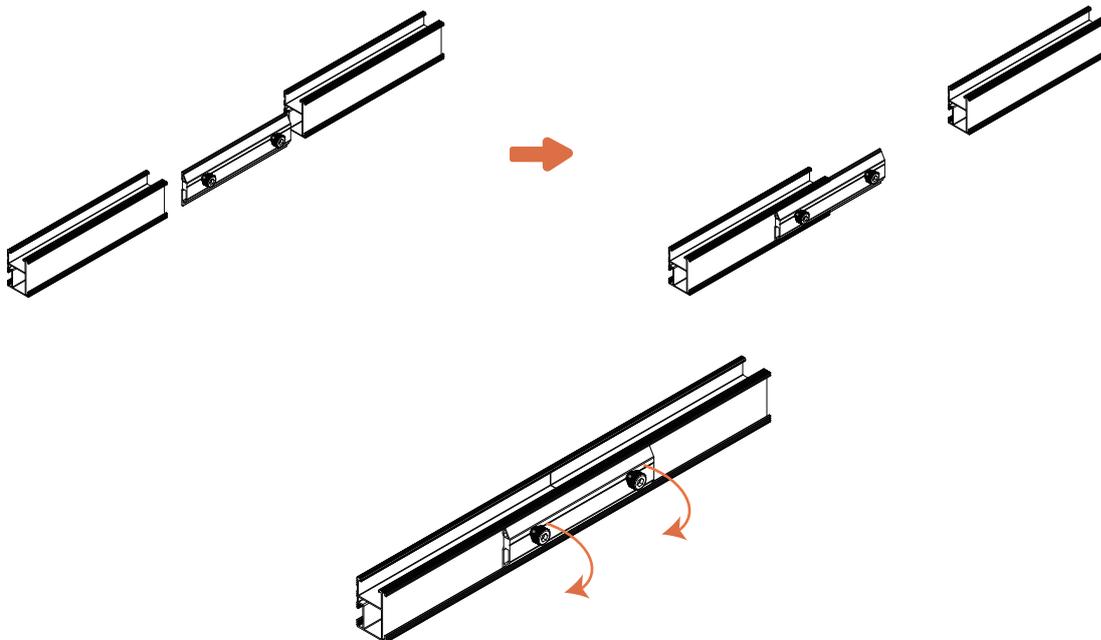
4. Connect the rails and attachments

Connect TR rail and L foot with T bolt: Suitable for all attachments, example as L foot. Put T-bolt into the rail horizontally and rotate to vertical.

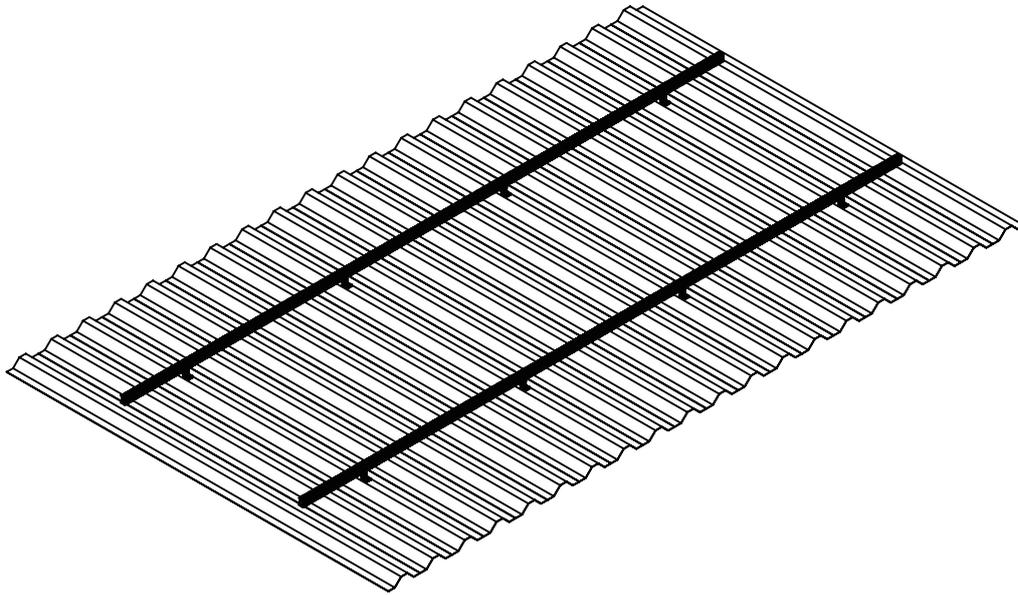


5. Rail Connection

Use rail splice to connect TR rails, fix the splice to the side of the TR rail, tighten the screws to fix tightly. When the rails need to be connected, it usually occurs in big arrays.

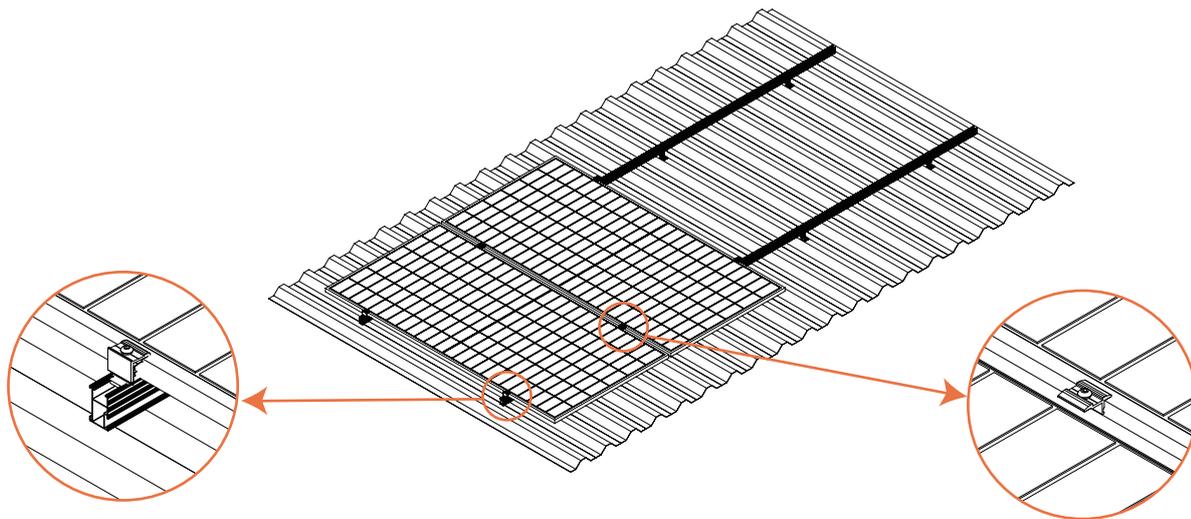


6. Repeat step 4 and 5 until all the rails are fixed

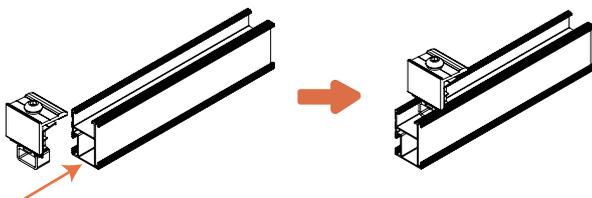


7. Fix the panels with clamps

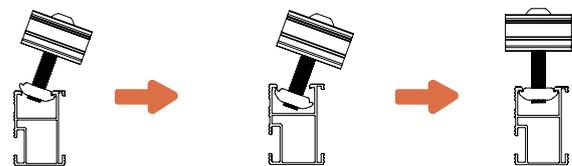
Install first panel with end clamps, then mid clamps between two panels, repeat this step until all panels are fixed



⚠ Notice: How to fix end clamp

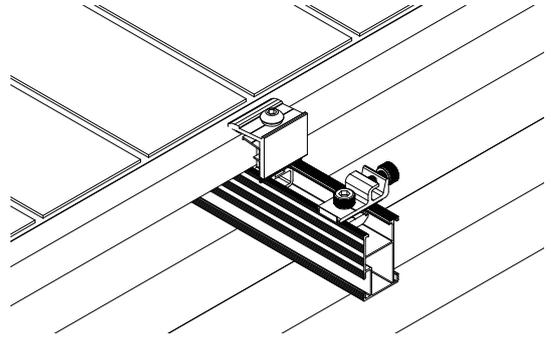
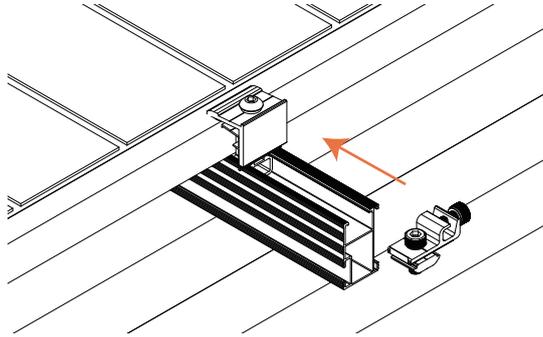


⚠ Notice: How to fix mid clamp

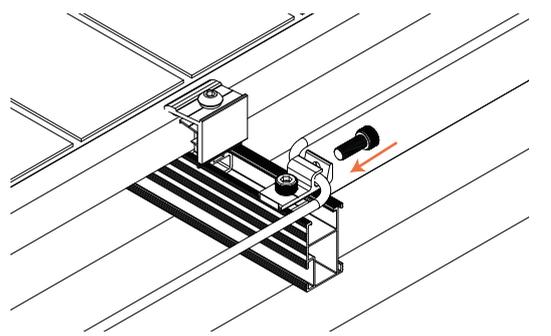
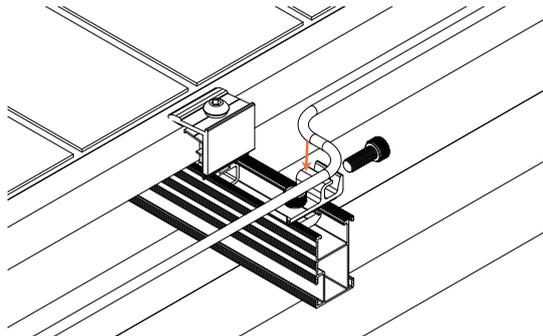


8. Grounding lug and cable installation

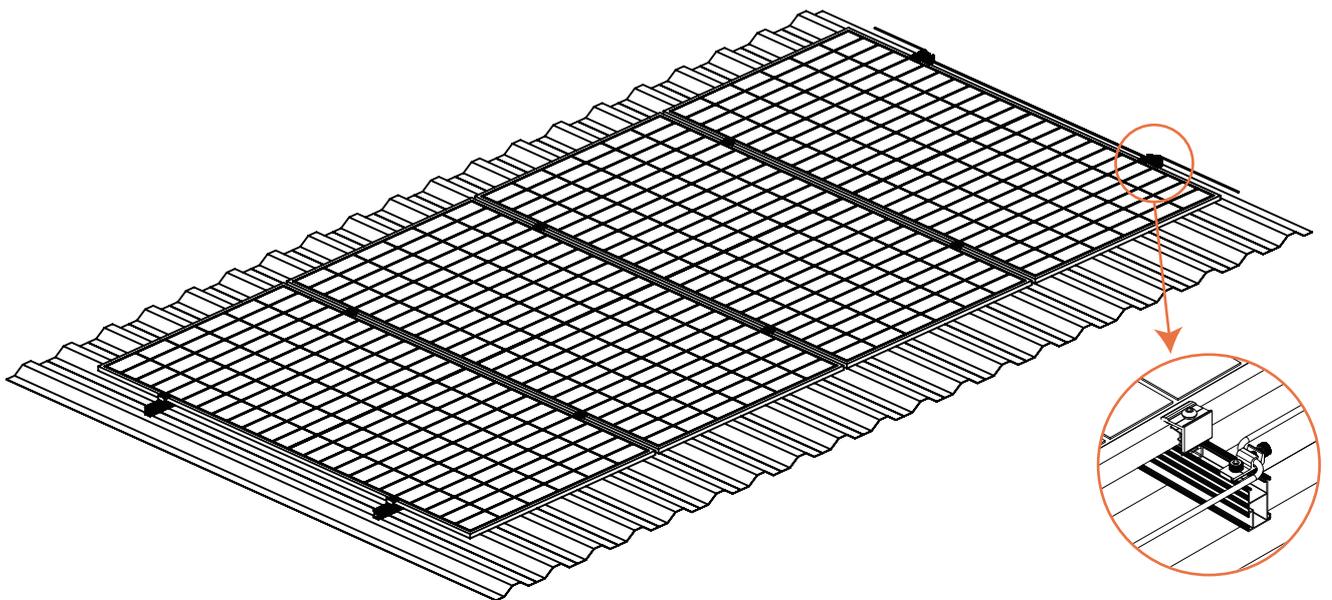
Fix the grounding lug at the end of TR rail



Put the cable in the grounding lug and tighten the screw



Installation check



9. Grounding Components & Electrical Diagram

