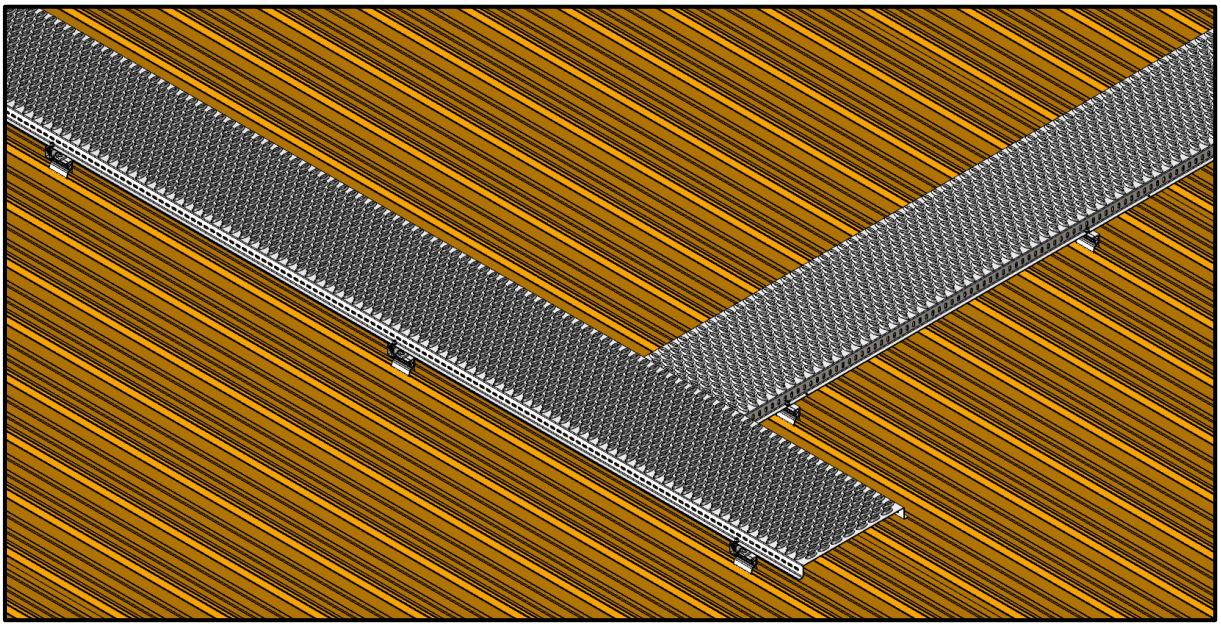
www.axestruct.com VAT no.: 4470284136 Reg. no.: 2018/528173/07

# Installation Manual

IM_AXE_RT_WW

Roof Top Walkway System

V0.01



Declaration

- Only the highest quality components are used in the mounting system to ensure a trouble-free operation of your solar power system. The following information explains the proper setup of the Axe Struct roof mounting system flat on Klip-Lok, IBR, Corrugated, Zip-Tek, Brownbuilt, Dimondek, Springlok and Craft-Lock sheets
- Any unique structural features must be documented so that the unique features of the roof can be considered when planning the layout.
- Always fasten the bolted connection by turning the bolt head. Do not turn the nut, just hold it.

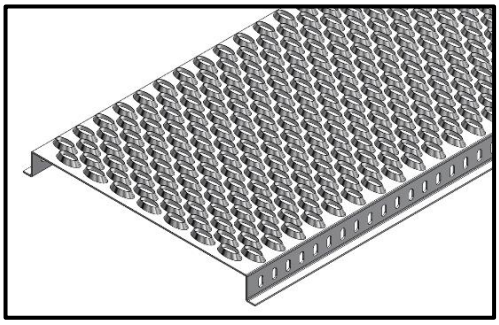
# Contents

## ① Components

Walkway Panel

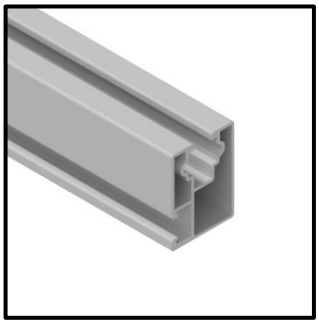
AXE_AL_WW_5700_475_50

Walkway Panels



Rail

AXE_AL_L_R_40_30



Angled Frame

AXE_AL_F_AN_WW

Levelling Walkway Panels

Extension

AXE_AL_EX_WW

Extending Walkway Panels

Craft Lok

AXE_AL_BR_CL_H

Non-penetrating connection to Craft-Lok roof sheets

Corrugated Bracket

AXE_AL_BR_COR_H

Penetrating screw connection to Corrugated roof sheets

Fix Lok Bracket

AXE_AL_BR_FL_H

Non-penetrating connection to Klip-Lok, ProLok and Saflok roof sheets

Hanger Bolt

AXE_AL_BR_HB_H_W

Connection to Corrugated roof sheets

IBR Bracket

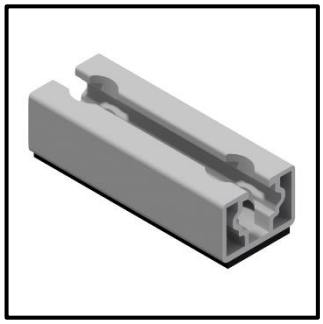
AXE_AL_BR_IBR_H

Penetrating screw connection to IBR roof sheets

Ridge Fix Bracket

AXE_AL_BR_RF_H

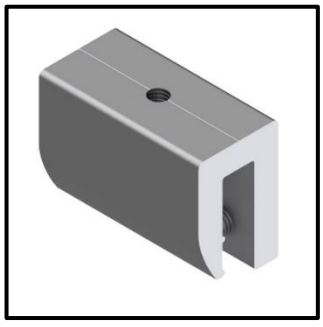
Penetrating screw connection to IBR roof sheets



Pinch Fix Bracket

AXE_AL_BR_PF_H

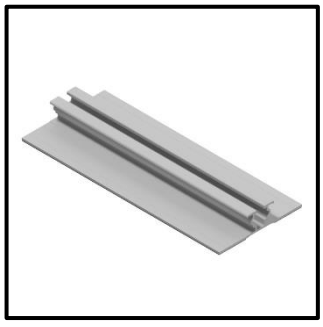
Non-penetrating connection to Craft-Lock, Brownbuilt and Dimondek roof sheets



Rib Surface Bracket

AXE_AL_BR_RS_H

Penetrating screw connection to IBR or Corrugated roof sheets



Spring Lok Bracket

AXE_AL_BR_SL_H

Non-penetrating connection to Spring-Lok roof sheets

Standing Rib Bracket

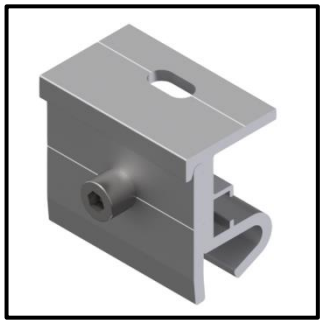
AXE_AL_BR_SR_H

Non-penetrating connection to Zip-Tek, Brownbuilt and Dimondek roof sheets

Novo Tek Bracket

AXE_AL_BR_NT_H

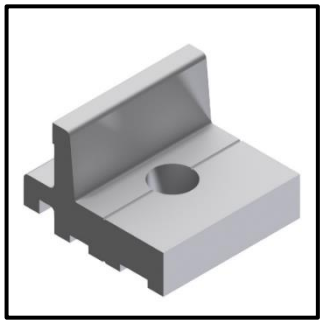
Non-penetrating connection to Novotexi roof sheets



Rail Clip

AXE_AL_CP_RM

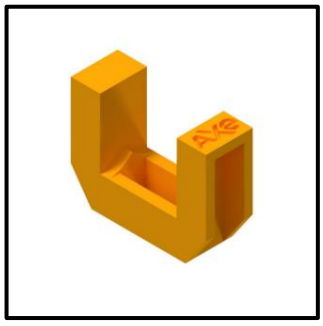
Holding Rail to Bracket



Nut Stopper

AXE_PP_NST_8

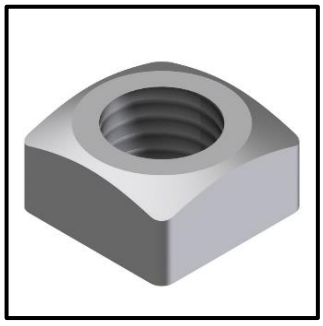
Guiding M8 Square nut into position



M8 Square Nut

AXE_SS_NSQ_8

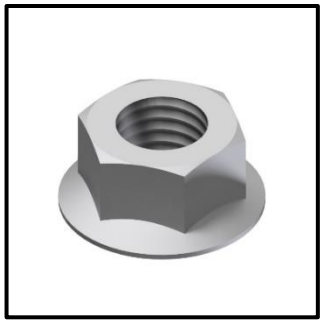
PV Module connection to Rails



M8 Hex-flange Nut

AXE_SS_NHF_8

Connection to Fix Lok Bracket



M8 Hex-cap Screw

AXE_SS_CS_8

PV module or Bracket connection

Self Drilling Tek Screw

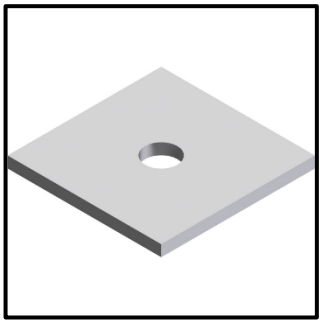
AXE_SP_ST_6.3

Bracket connection

M8 Clamp Washer

AXE_AL_WC_8

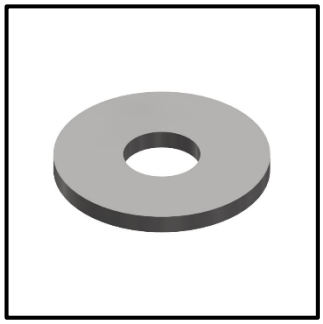
Clamping Walkway panel



M8 Flat Washer

AXE_SS_WF_8

PV module or Bracket connection



M8 Spring Washer

AXE_SS_WS_8

PV module or Bracket connection

Torque settings

The specified settings below are assumed to have a dry application. Should a lubrication agent or anti-seizing be used, 80% of the below-listed values would apply. Fastening should cease when aluminium sections start to visually deform.

| Size | Stainless Steel (N.m) | Galvanized Grade 8.8 |
|---|---|---|
| M8 | 18 N.m | N/A |
| M10 | 38 N.m | N/A |
| M12 | 60 N.m | 100 N.m |
| M16 | 150 N.m | 245 N.m |
| M20 | 300 N.m | 510 N.m |
| M24 | N/A | 900 N.m |

Seizing (Galling) Prevention

Copper slip paste should be applied to all threaded connections, specifically stainless-steel fasteners. This will prevent fasteners from seizing and promote good practice. A further step to prevent seizing is to tighten fasteners at low rpm, without interruptions and apply steady pressure.

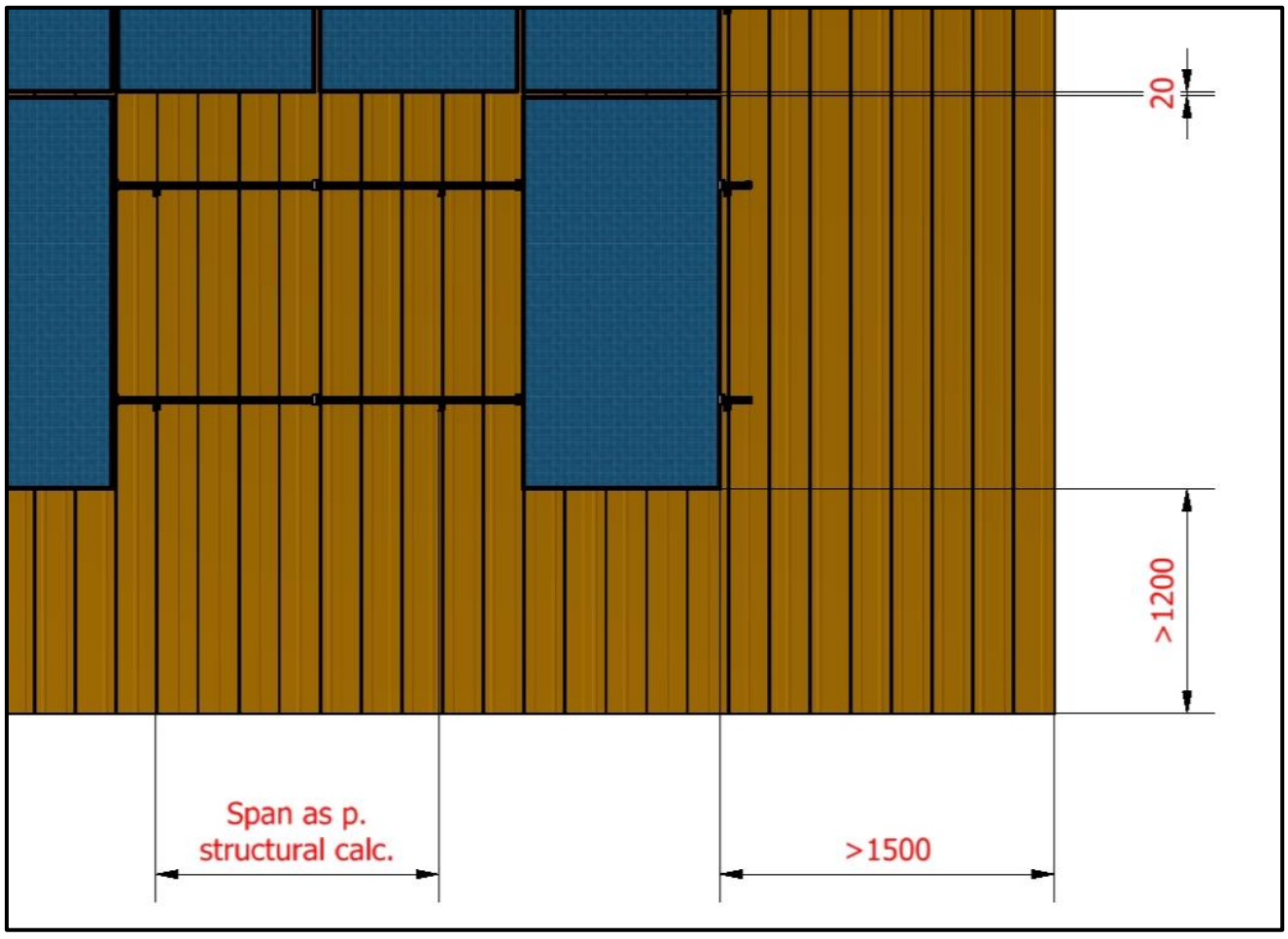
## ② Layout positioning

The structural stability of the PV system must be verified before installation. In addition, the building must support the additional weight safely.

The bracket span varies per selected PV module and site conditions. The distance must be determined by structural analysis.

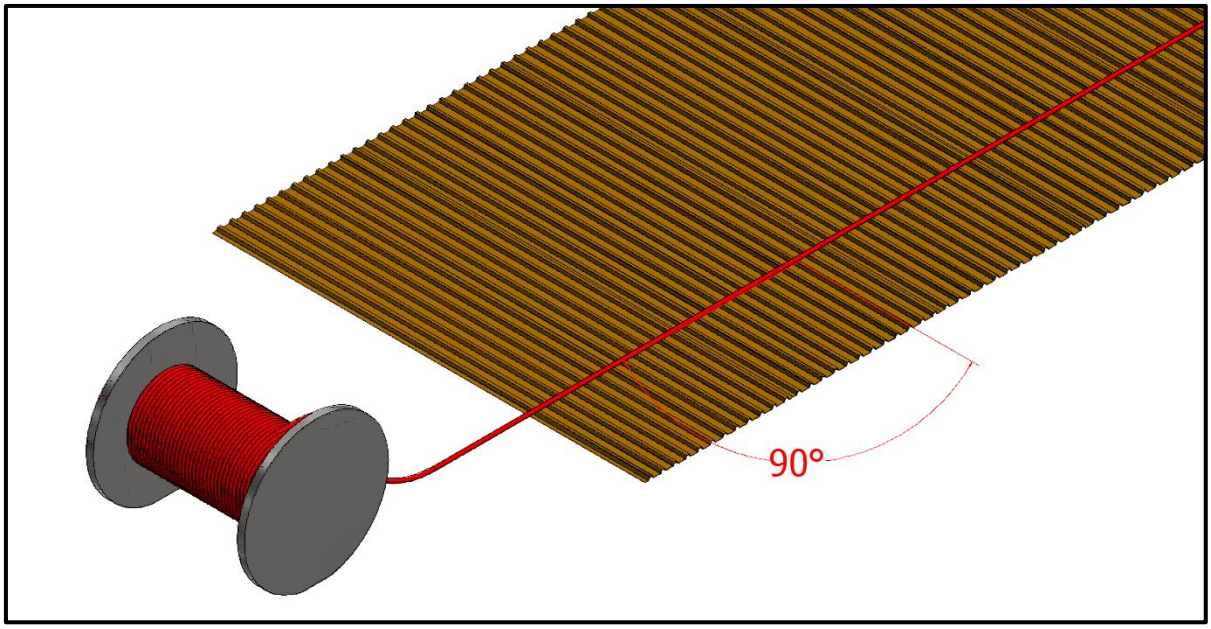
The corner and edge areas of roofs are subject to air turbulence. Therefore, 1.2 m (or Building height / 5) from the longitudinal side of the building and 1.5 m (or Building height / 4) from the narrow side of the building must be kept clear.

A minimum distance of 20 mm must be kept between PV modules. The Mid Clamps can be used to maintain this distance.



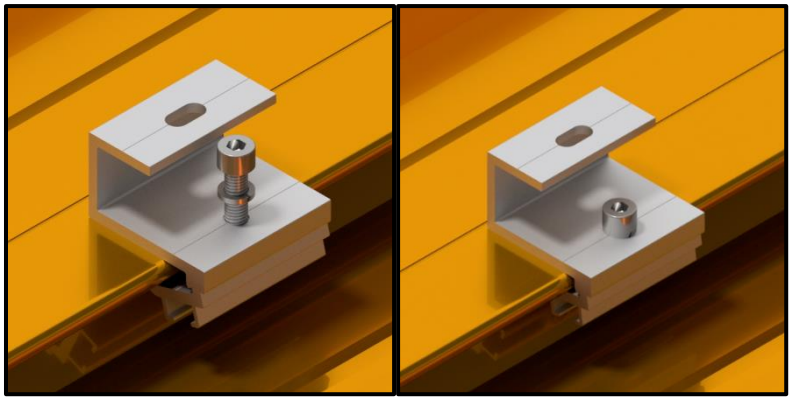
## ③ Roof Brackets

Mark out the positions of roof brackets. Brackets must be in a straight line and 90° to the roof ribs.



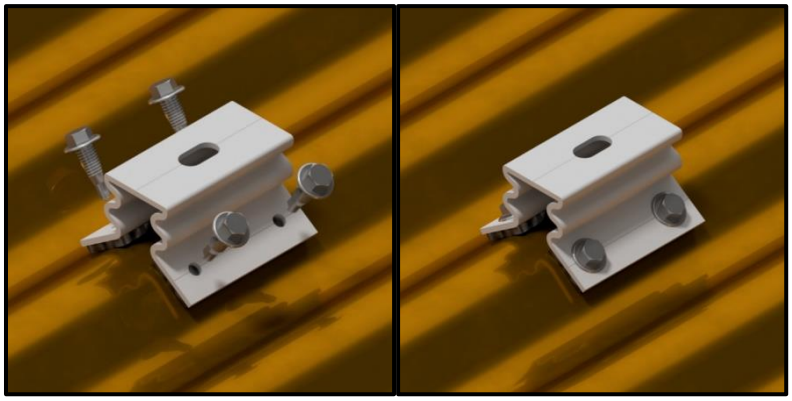

**Craft Lok:**

Connect brackets to the roof ribs by fastening the M8 Hex-Cap Screw.



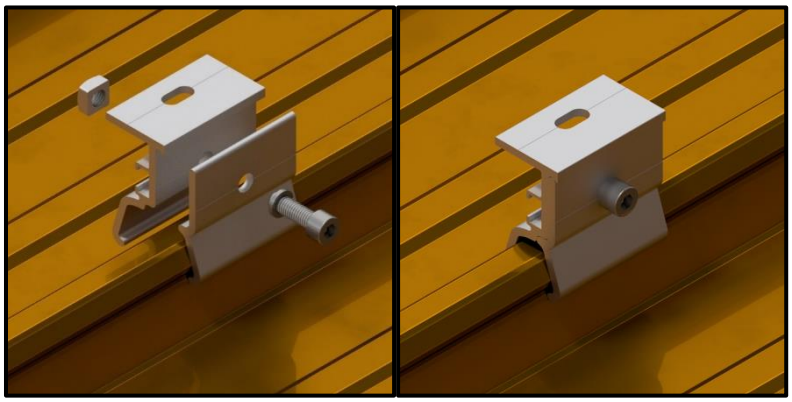
**Corrugated:**

Connect brackets to the roof ribs by penetrating the roof sheets with the M6.3 screws.



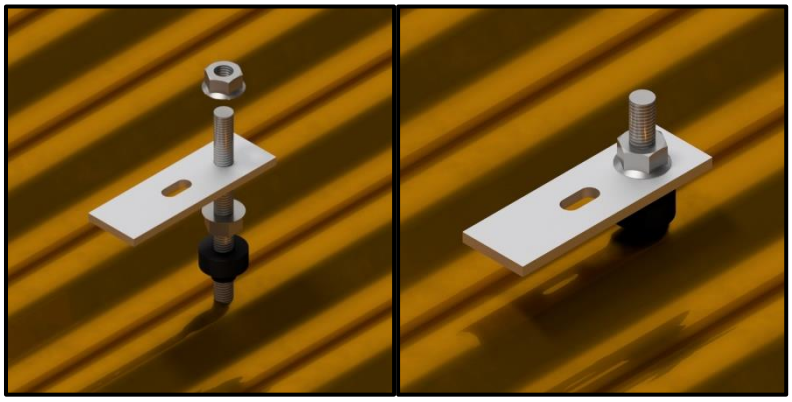
**Fix Lok:**

Connect brackets to the roof ribs by fastening the M8 Hex-Cap Screw.



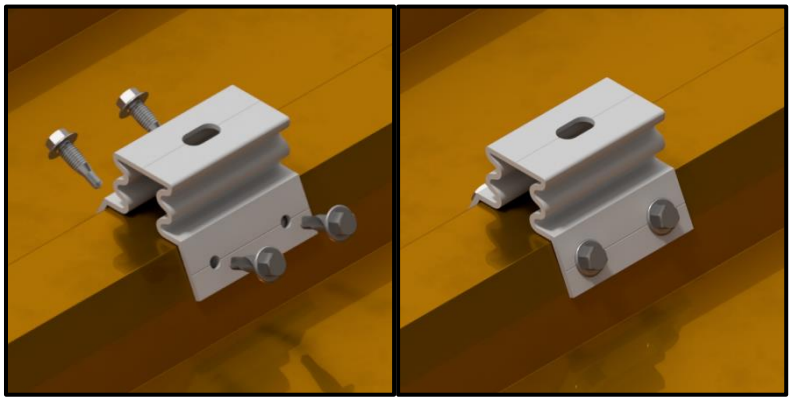
**Hanger Bolt:**

Connect the Hanger Bolt to the roof's substructure. Tighten the M8 Hex-flange Nuts to secure the plate.



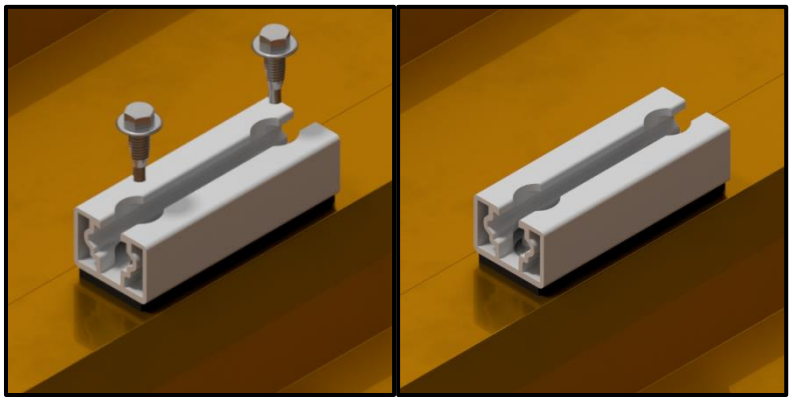
**IBR:**

Connect brackets to the roof ribs by penetrating the roof sheets with the M6.3 screws.



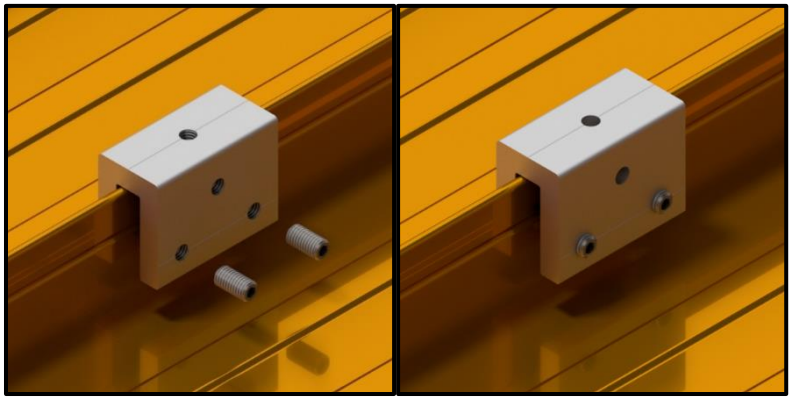
**Ridge Fix:**

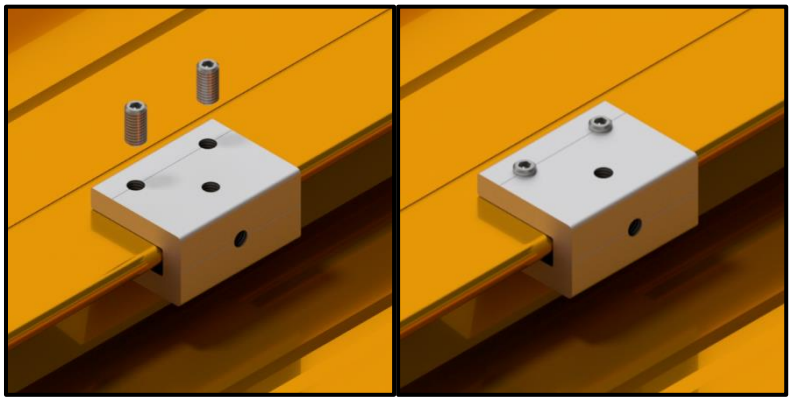
Connect brackets to the roof ribs by penetrating the roof sheets with the M6.3 screws.



**Pinch Fix:**

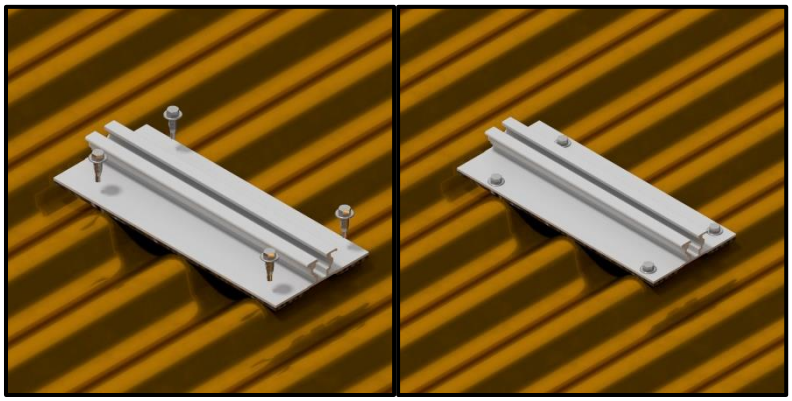
Connect brackets to the roof ribs by fastening the M8 Set Screws.





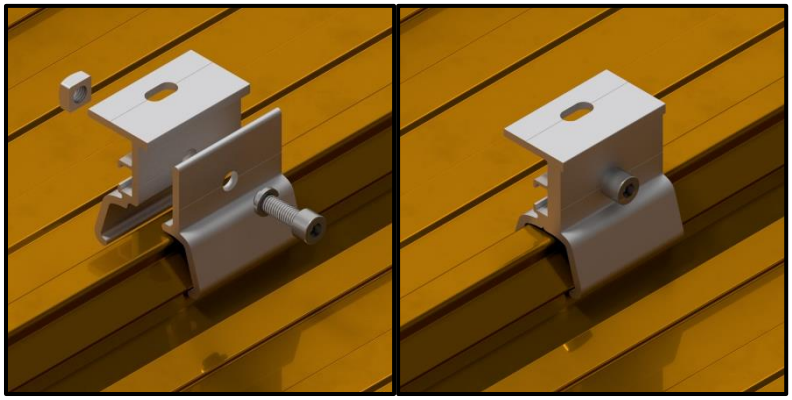
**Rib Surface:**

Connect brackets to the roof ribs by penetrating the roof sheets with the M6.3 screws.



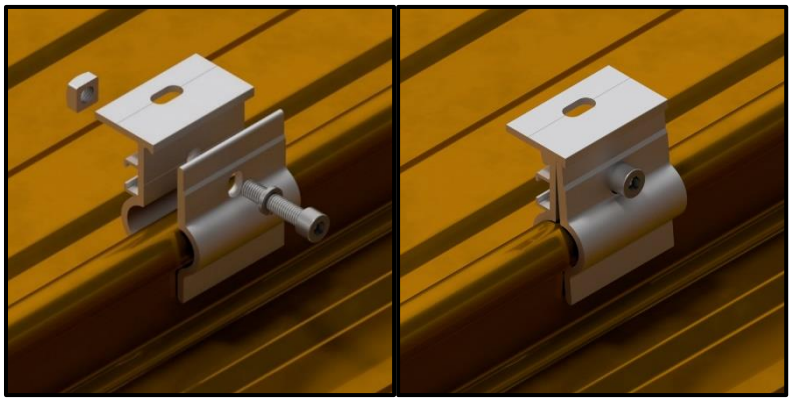
**Spring Lok:**

Connect brackets to the roof ribs by fastening the M8 Hex-Cap Screw.



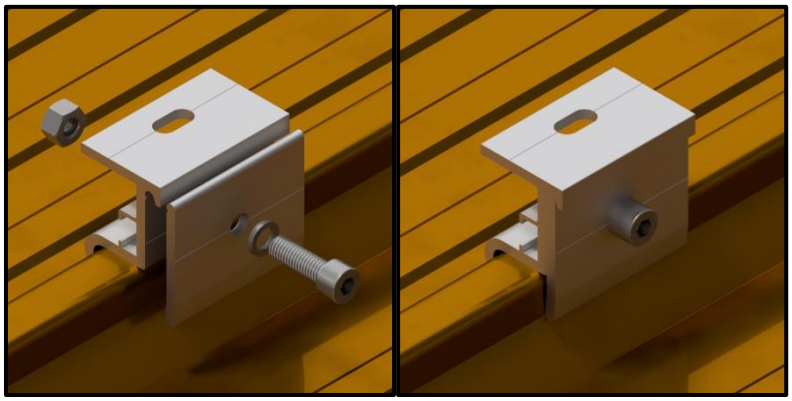
**Standing Rib:**

Connect brackets to the roof ribs by fastening the M8 Hex-Cap Screw.



**Novo Tek:**

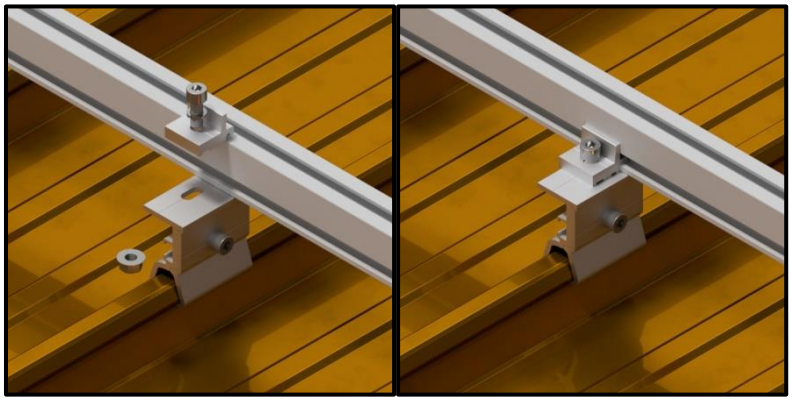
Connect brackets to the roof ribs by fastening the M8 Hex-Cap Screw.



## ④ Parallel Assembly

Two brackets will be aligned and fixed in place, at intervals matching the spacing of the ribs on the roof. These brackets will act as the base for the rails supporting the walkway. A rail piece will then be installed on the two aligned brackets. The rails will span across the ribs, connecting one rib to another, and providing a stable framework for the walkway.

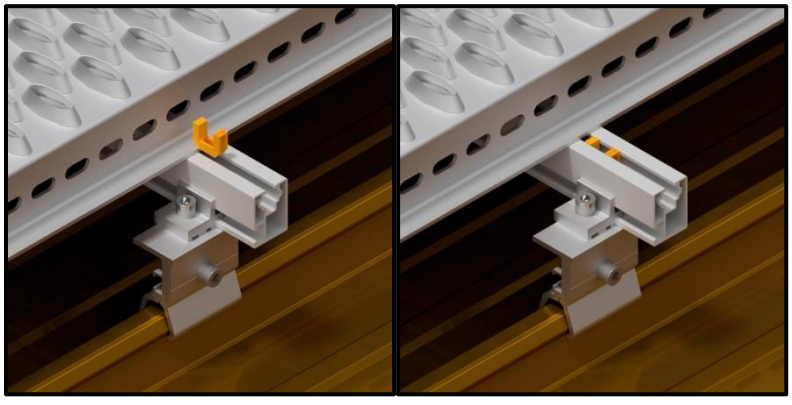
1. Use an M8x25 Hex-Cap Screw, M8 Spring Washer, M8 Hex-flange Nut and Rail Clip to fix the rail to each bracket.



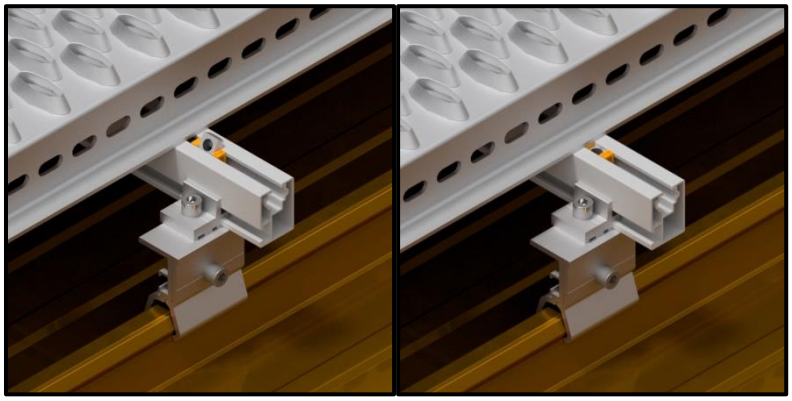
The walkway panel will be mounted on the rails. The panels will rest on the rails, distributing the load across the roof's ribs, making the walkway safe and sturdy for foot traffic.

2. Place the walkway panel in position on the rails.

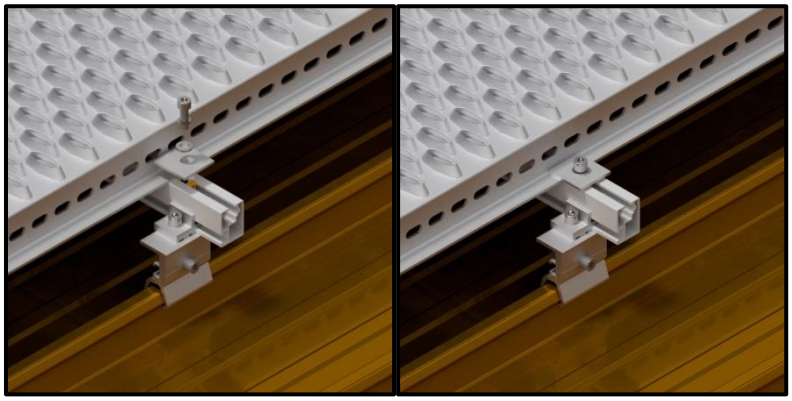
3. Position an M8 Nut Stopper near the edge of the walkway panel.



4. Insert an M8 Square Nut into each M8 Nut Stopper.



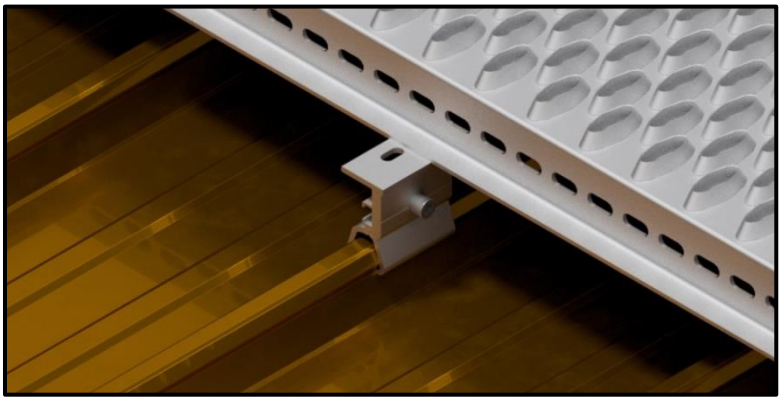
5. Use an M8x20 Hex-Cap Screw, M8 Spring Washer, M8 Plain Washer and M8 Clamp Washer to secure the walkway in place.



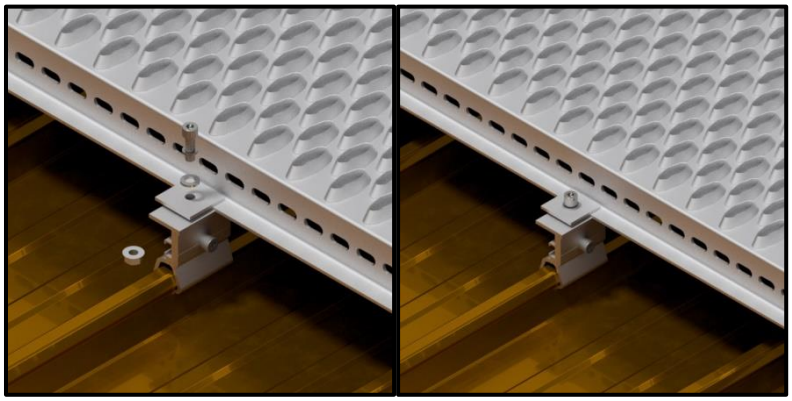
## ⑤ Perpendicular Assembly

Two brackets will be placed on the same rib and fixed in place; the width of the walkway panel will determine the spacing between the brackets.

1. Place the walkway panel in position on the brackets.



2. Use an M8x25 Hex-Cap Screw, M8 Spring Washer, M8 Plain Washer, M8 Clamp Washer and M8 Hex-flange Nut to secure the walkway in place.

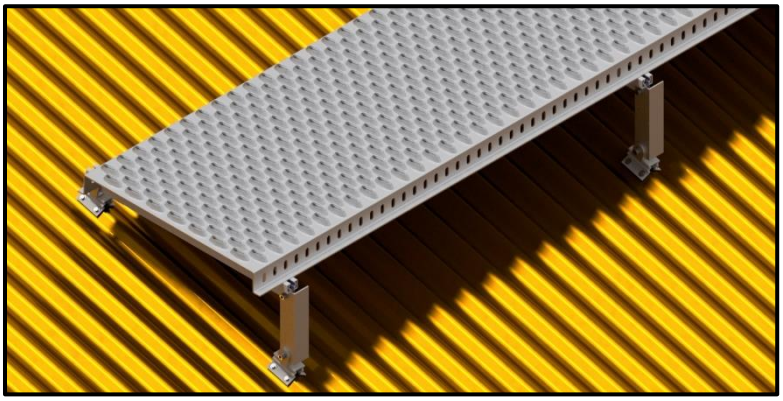


## ⑥ Angled Assembly

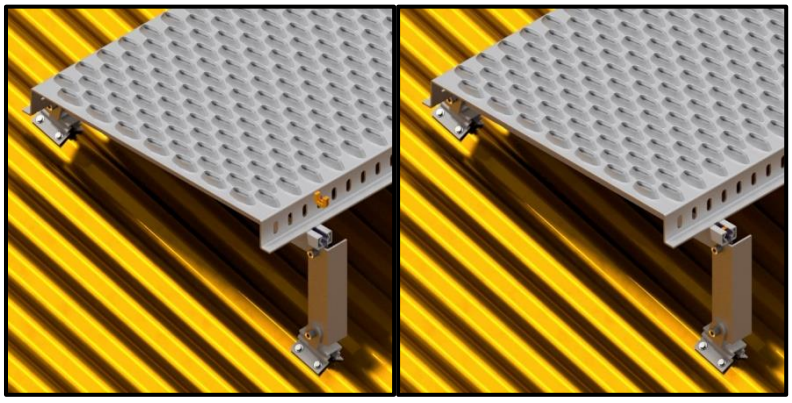
Two brackets will be placed on the same rib and fixed in place; the width of the walkway panel and the levelling angle will determine the spacing between the brackets. The angle frames will be connected to the brackets to level the walkway.

1. Use an M8x25 Hex-Cap Screw, M8 Spring Washer and M8 Hex-flange Nut to connect the angle frame to the brackets.

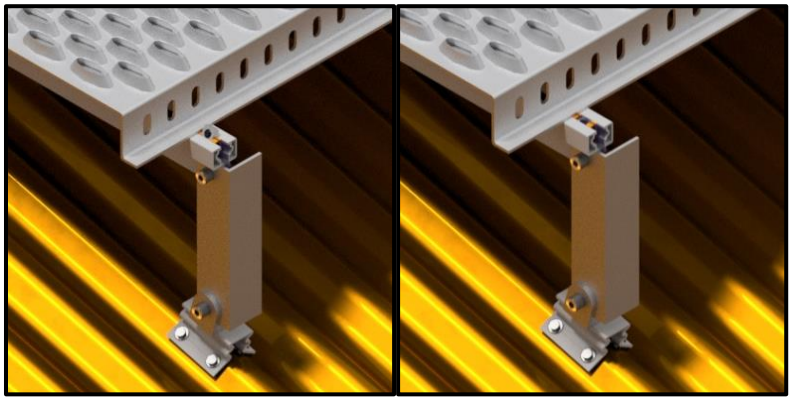
2. Place the walkway panel in position on the angle frames.



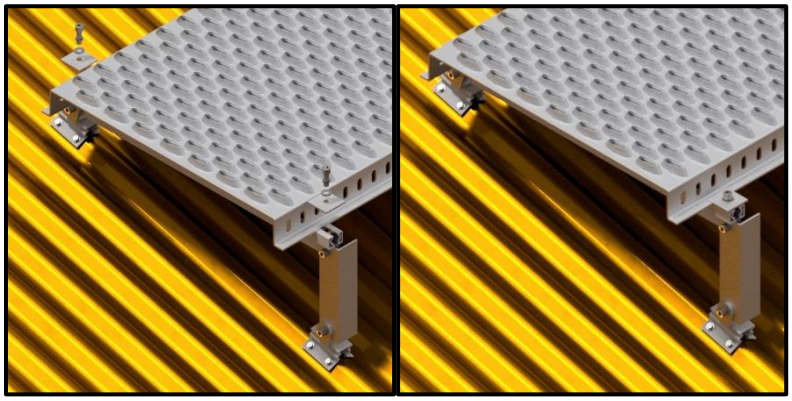
3. Position an M8 Nut Stopper near the edge of the walkway panel.



4. Insert an M8 Square Nut into each M8 Nut Stopper.



5. Use an M8x20 Hex-Cap Screw, M8 Spring Washer, M8 Plain Washer and M8 Clamp Washer to secure the walkway in place.



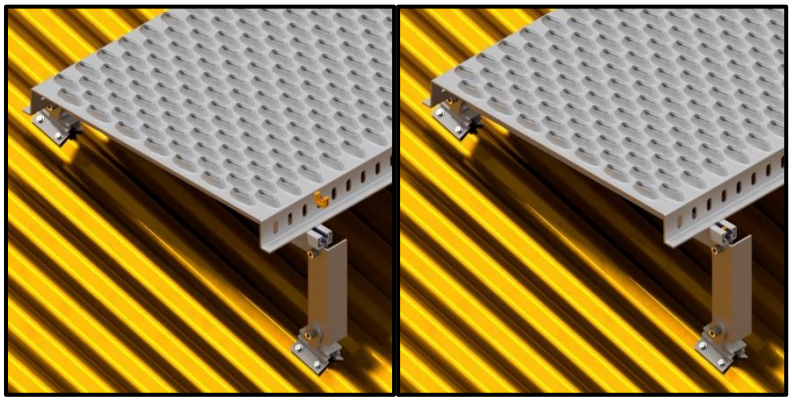
## ⑦ Steps Assembly

Two brackets will be placed on the same rib and fixed in place; the width of the walkway panel and the levelling angle will determine the spacing between the brackets. The angle frames will be connected to the brackets to level the walkway and create the steps.

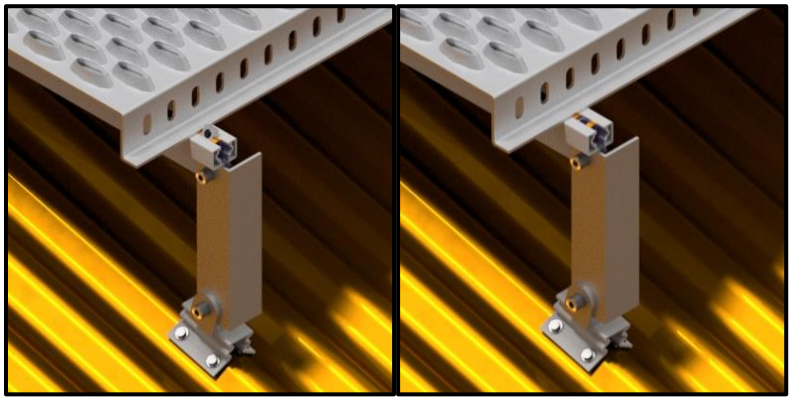
1. Use an M8x25 Hex-Cap Screw, M8 Spring Washer and M8 Hex-flange Nut to connect the angle frame to the brackets.

2. Place a shortened section of the walkway panel in position on the angle frames.

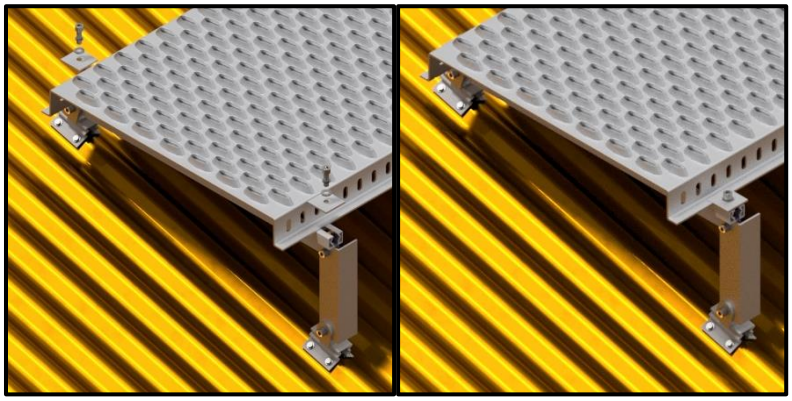
3. Position an M8 Nut Stopper near the edge of the walkway panel.



4. Insert an M8 Square Nut into each M8 Nut Stopper.

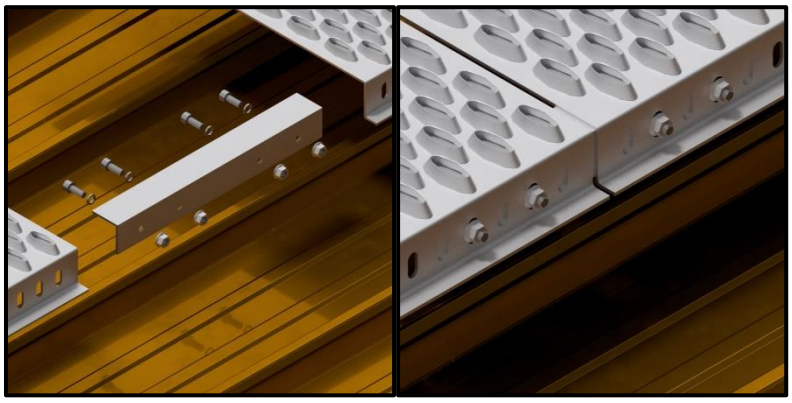


5. Use an M8x20 Hex-Cap Screw, M8 Spring Washer, M8 Plain Washer and M8 Clamp Washer to secure the walkway in place.



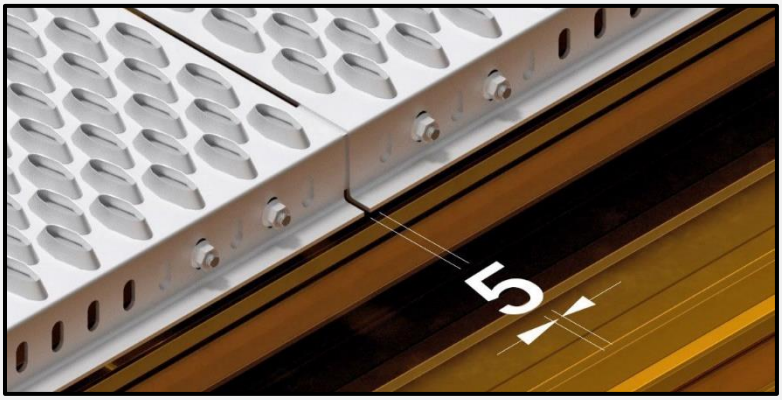
## ⑧ Joining Walkways

Use the Extension to join two walkway panels. First, align the walkway panels, then place the Extension over the joint. Secure the walkway extension to the panels using 4x M8x25 Hex-Cap Screw, M8 Spring Washer and M8 Hex-flange Nut



Thermal Expansion Gap

If the total walkway connection is 20 meters or longer, a 5mm thermal expansion gap should be maintained at one of the connections.



## ⑨ Maintenance

The products are to be inspected annually in the form of a visual inspection of the whole installation. Axe Struct must be notified of any first appearances of rust and abnormal deformations.

Annual spot checks are to be done on fasteners to ensure that the minimum required torque moment specified in this Manual is met.

## ⑩ Liability

Axe Struct can accept no liability for damage arising due to improper use, installation, operation or maintenance. Liability is further excluded if Axe Struct is not at fault due to gross negligence or intent.

The text and images in this Installation Manual correspond to state of the art upon printing. Subject to change.