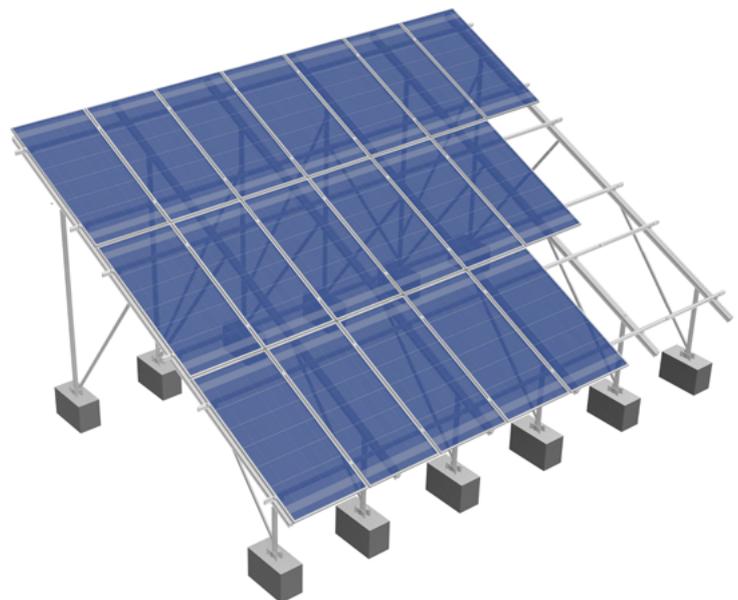
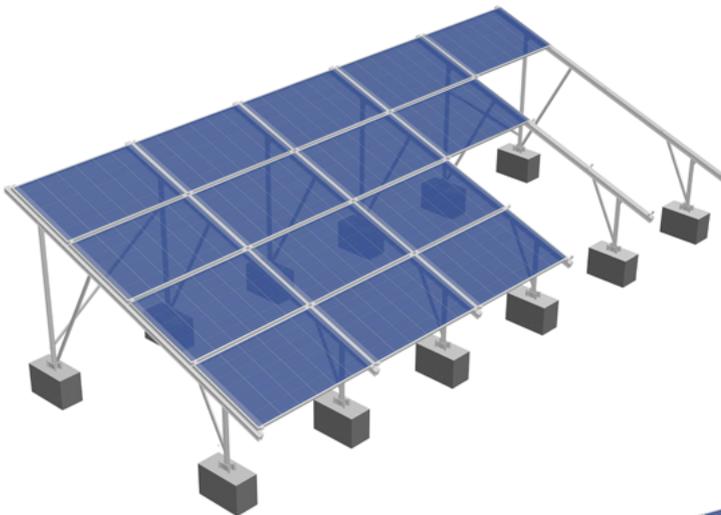
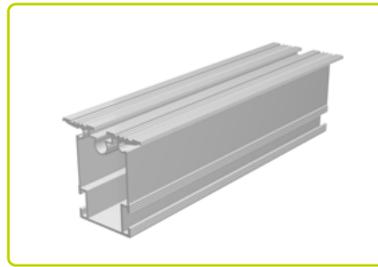




## Assembly Instructions

### S:FLEX DELTA CONCRETE

For outdoor, concreted area and flat roof



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Read these installation guidelines carefully before installing the S:FLEX mounting system and retain them for future reference!

These installation guidelines are only complete with the project-specific implementation plans (project report)!

With the S:FLEX DELTA CONCRETE we offer you a modular and flexible system for flat concrete roofs and open spaces. The system offers the possibility to build over obstacles. Thus, an optimized performance per area can be achieved. The S:FLEX DELTA CONCRETE offers excellent rear ventilation and finds an optimal application especially for hot regions.

All components of the system are basically made of aluminum and stainless steel. Their high degree of corrosion resistance ensures a long service life and offers the possibility of complete recycling.

## 1.1 Intended use

With the S:FLEX DELTA CONCRETE, PV systems can be installed in south or east-west orientation with a module inclination angle of up to 20°. The system is designed for transverse mounting as well as for upright mounting of the modules. The variable components allow the use of almost all commercially available modules (framed modules and frameless modules (additional module rail) and is particularly suitable for bifacial modules, as no shading is caused by rails behind them during transverse mounting. The system is suitable for simple installation on concrete.

Any other use in this regard is considered misuse of the product. Observance of the information in these installation guidelines in particular, is a prerequisite for intended use. S:FLEX GmbH accepts no liability for damage resulting from non-observance of the installation guide or from misuse or incorrect use of the product.

## 1.2 About this document

These installation instructions describe the installation of the S:FLEX DELTA CONCRETE system on concrete. It must be ensured that only current and complete installation instructions are used for the installation process.

### 1.3 Warnings

The warning texts provided in these installation guidelines relay safety-related information. They are:



**Unless observed, there is a major risk of injury as well as a risk of death.**



**Failure to observe this may lead to property damage.**

### 1.4 General information – standards and guidelines

Each photovoltaic system must be installed in compliance with the specifications of these installation instructions and the project report.

These installation instructions are based on the state of the art and many years of experience in how our systems can be installed on site. It must be ensured that only up-to-date and complete installation instructions are used for installation and that a printout of the installation instructions is kept in the immediate vicinity of the system. We reserve the right to make technical changes.

The project report is part of the installation instructions and is prepared on a project-specific basis. All information in the project report must be adhered to. In the project report, the static calculations are carried out on a site-specific basis. The design and planning of the S:FLEX mounting systems must be carried out with the S:FLEX software.

Since individual project-related special features must be taken into account for each roof, expert clarification must always be provided prior to installation. Before installation, the PV system designer must ensure that the existing roof covering and roof substructure are designed for the additional loads that will occur. The installer must check the condition of the roof substructure, the quality of the roof covering and the maximum load-bearing capacity of the roof structure.

For this purpose, contact a specialist tradesman or structural engineer directly on site.

When installing the PV systems, always ensure that the module manufacturer's installation instructions are followed. In particular, it must be checked whether the module manufacturer's specifications regarding the module clamping specifications (number of clamping points, clamping surface and clamping area on the module) are adhered to. If this is not the case, the customer must obtain the module manufacturer's declaration of consent before installation or the frame must be adapted to the module manufacturer's specifications.

The requirements for lightning and overvoltage protection of mounting systems for PV systems must be established in accordance with DIN and VDE regulations. The specifications of the responsible power supply company must be complied with.

Care must be taken to ensure that the PV system to be installed does not impair the effect of the existing lightning protection system. It must also be ensured that the PV system is designed in such a way that it can be included in the protected area of the building lightning protection system. Separation distances between the PV system and the lightning protection system must be taken from the relevant regulations and complied with.

The applicable fire protection regulations must be observed during installation. Fire protection walls must not be built over, fire protection sections must be observed and corresponding spacing regulations must be complied with.

If changes are made to the roof covering, the manufacturer's regulations must be observed. During and after installation, the frame parts must not be walked on or used as climbing aids. There is a risk of falling and the roof covering underneath could be damaged.

It must be ensured by the creator of the photovoltaic system prior to installation that the installation is carried out strictly in accordance with national and site-specific building regulations, occupational safety and accident prevention regulations, standards and environmental protection regulations.

Every person who installs S:FLEX PV mounting systems is obliged to independently inform themselves about all rules and regulations for professionally correct planning and installation and also to comply with them during installation. This also includes obtaining the current status of rules and regulations.

The installation of the PV system may only be carried out by appropriately trained specialists.



**All system components must be checked for damage before installation. Damaged components must not be used!**



**Installation of the S:FLEX substructure and the PV system may only be carried out by trained specialists. System components must not be used as step ladders. The modules must not be stepped on. When working on roofs, there is a risk of falling off and falling through roofs. A fall can result in injury or death. Ensure that appropriate climbing aids and fall-protection equipment (e.g. scaffolding) are provided as well as protection from falling parts.**



**Before installation, check the building statics and the structure/condition of the roof substructure. The specifications in the installation instructions and the project report must be observed during installation. Failure to observe the specifications in the installation instructions and the project report may result in damage to the PV system and the building.**

## 1.5 Description of the system

The S:FLEX Delta Concrete offers suitable solutions for a range of different requirements:

### System features of S:FLEX Delta Concrete

Application:	Concrete
Module type:	Framed, frameless, bifacial
Module orientation:	Transverse, upright
Module inclination:	max. 20°
Module field length:	max. 12 x 4 modules in landscape format max. 12 x 3 modules in portrait format
Max. load:	5.4 kN/m <sup>2</sup>
Connection:	Bolt anchor
Material:	Aluminum EN AW-6063 / T6, stainless steel
Colour:	Natural, press blank



**The module manufacturer's installation instructions must always be observed. All of the manufacturer's specifications relating to installation on the roofing must be observed.**

## Mounting and base rails

The S:FLEX pitched roof system is available with aluminium mounting rails of different thickness to ensure the system corresponds optimally to the requirements of the location and the installation situation.

The S:FLEX Delta Concrete base rail has hammerhead channels on the side for connection to the Delta Concrete Top. Module brackets, end brackets, cross connectors or brackets can be attached from above using click technology or hammerhead connection.



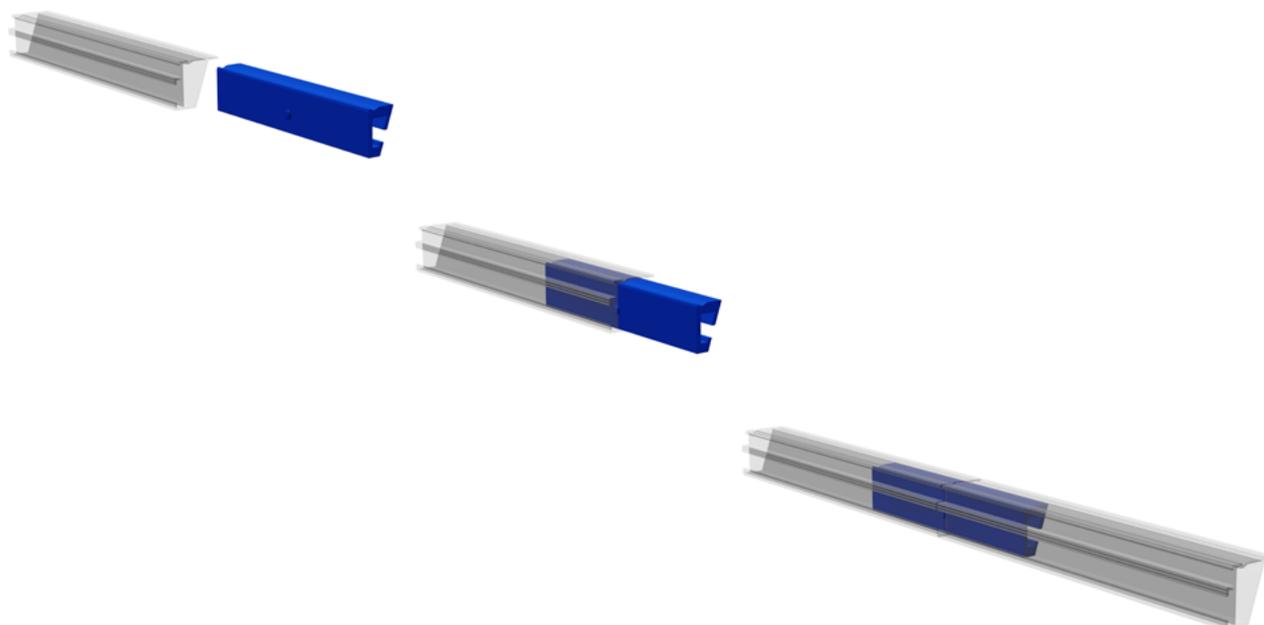
**ST-HK 9/50**



**Delta Concrete base rail**

## Rail splices

In addition to the basic installation, the splice technology allows a system orientation without a reduction in the load-bearing capacity in the area of the splices, since they have the same static values as the associated mounting rail. The same applies to the Delta Concrete base rail.



## Earthing

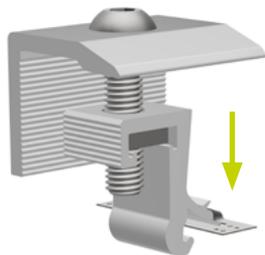
Equipotential bonding between the individual system components must be ensured in accordance with the respective country-specific guidelines and standards. System-specific properties (see splice technology) among other things can be used for this purpose.

This installation instruction does not include an earthing concept and must be calculated or compiled by the installer in accordance with the applicable standards and guidelines.

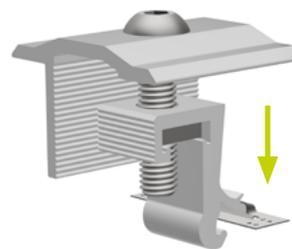


**The earthing system is not a lightning protection system! When installing a lightning protection system, a specialist company must be consulted and a project-specific lightning protection plan drawn up. The module manufacturer's installation instructions must always be observed.**

The module grounding is done via the module frames. Additional earthing of the modules can be achieved via the grounding plate by mounting it under the mid clamps. Before earthing the module, the corresponding specifications issued by the module manufacturer must be followed.



EH HK 25-45 E



MH HK 25-45 E

### 2.1 System components

#### ① Frame substructure

Delta Concrete Base



Delta Concrete Top



Delta Concrete FS 9/40



Delta Concrete Base rail

Delta Concrete Base rail l=2380 mm  
Delta Concrete Base rail l=1190 mm

Further lengths on request.



Delta Concrete Splice



#### ② Mounting rails

Rail HK 9/50 l=3300  
Rail HK 9/50 l=6200



#### ③ Splices

Splice HK 9/50



#### ④ End clamp

EH HK 25-45  
l=40



EH HK 25-45  
l=40 E



#### ⑤ Mid clamp

MH HK 25-45  
l=40



MH HK 25-45  
l=40 E



#### ⑥ Diagonal DC

DC Diagonal l = 1000  
DC Diagonal l = 1500  
DC Diagonal l = 2000  
DC Diagonal l = 2500

#### ⑦ Angle as Crossbar connector

Angle 60 mm M10



#### ⑧ Bolt anchor (optional)

M12 x 180  
M12 x 200



### 2.2 Foundations

The distances between the support structure and the number of fixing points required (Delta Concrete Base and Delta Concrete Top) are derived from the information in the project report.

Support spacing = module length + 1 cm.

A straightedge can be used for alignment. The bases can be used as drilling jigs.

The support structure is fastened directly to the foundations. For this purpose, the bolt anchors are fixed into the foundations with the Delta Concrete Base.

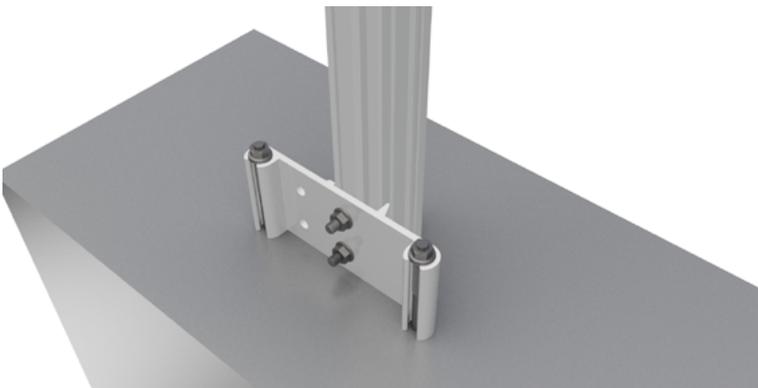
Install the bolt anchors: Drill hole in foundation, blow out dust, drive in bolt, place support structure, place washer and tighten nut.

Drilling depth: 90 mm/ 110 mm

Diameter of drill hole: 12 mm

Each support structure must be fastened to one base each with 2 bolt anchors.

Depending on the information from the project report, two bases per support may also be necessary.



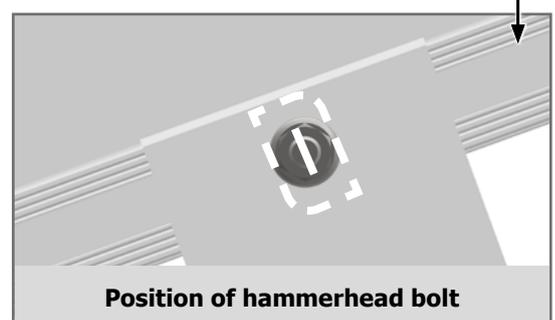
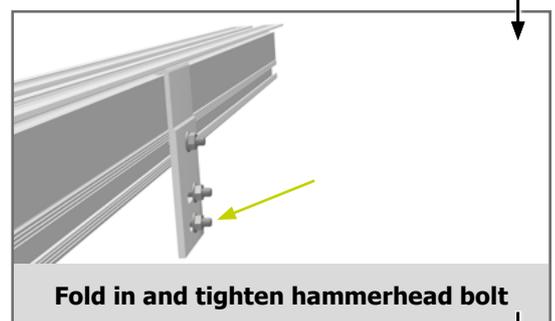
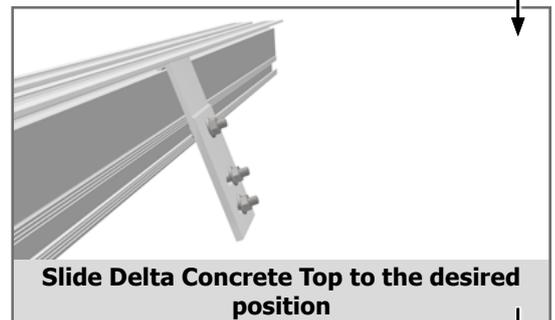
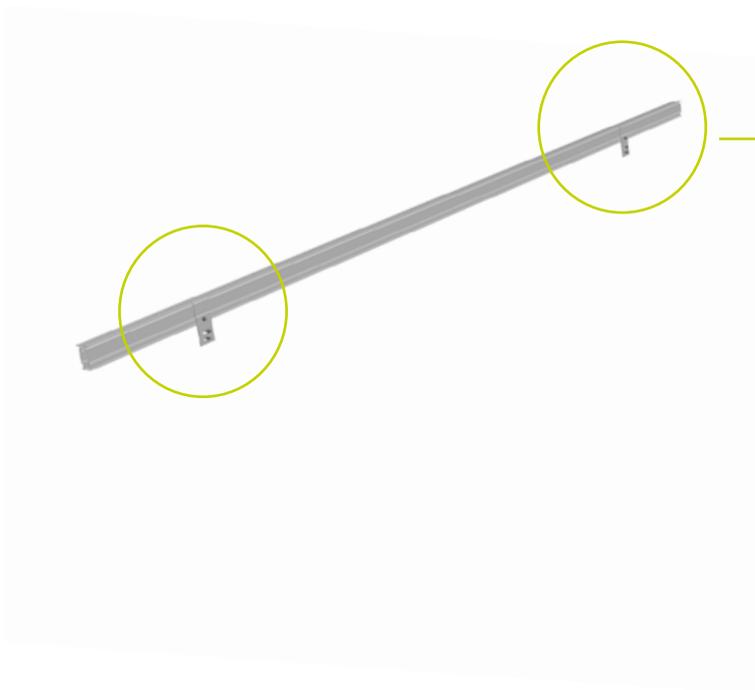
**Use 2 bolt anchors per base.**

### 2.3 Assembly of the support structure

When installing the support structure, the Delta Concrete base rails may need to be cut to size and connected in accordance with the project report.

Each Delta Concrete Top must be equipped with 3 hammerhead bolts each. Care must be taken that the hammer head points in the direction of the sheet metal protrusion.

In order to slide the Delta Concrete Top smoothly in the Delta Concrete base rail, the Delta Concrete Top must be lifted slightly. Slide the Delta Concrete Top to the correct position according to the project report and tighten the hammerhead bolt (tightening torque 12-15 Nm). Depending on the information from the project report, two tops per column may also be necessary.



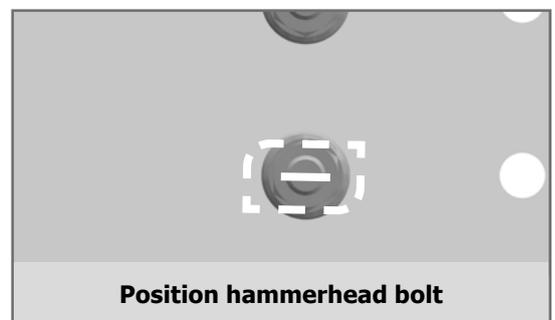
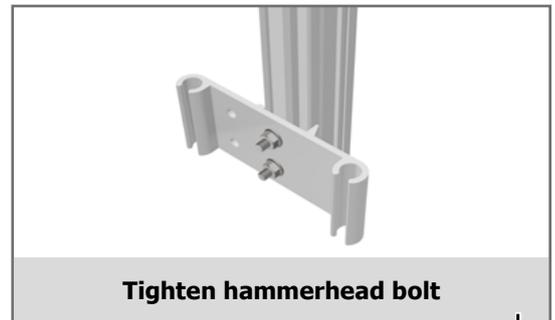
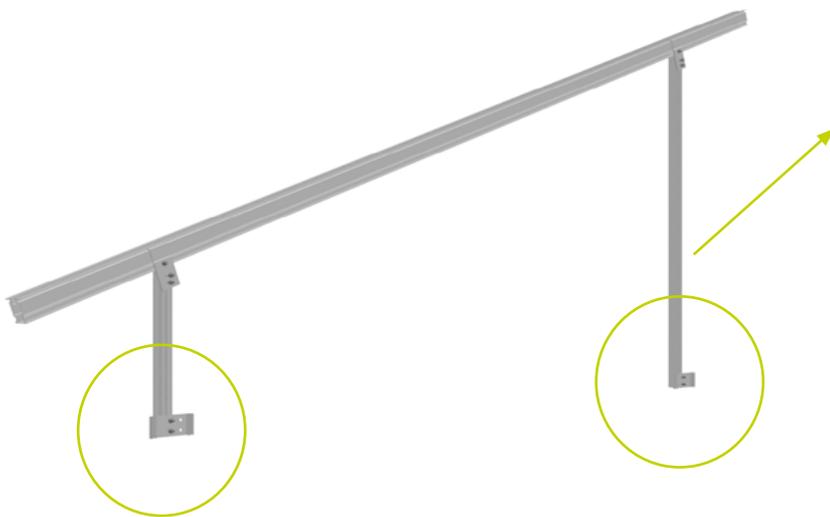
**Check the alignment of the hammerhead bolts. The hammerhead bolt is only correctly mounted if the vertical notch is visible.**

The Delta Concrete FS 9/40 posts must be cut to size according to the project report.

Each Delta Concrete Base must be equipped with 2 hammerhead bolts each. Care must be taken that the hammer head points in the direction of the sheet metal protrusion.

Care must be taken to ensure proper alignment of the Delta Concrete Base. The hammerhead bolt channels on the Delta Concrete FS 9/40 posts must face outward. Tighten the lower hammerhead bolt.

The upper hammerhead bolt is tightened (tightening torque 12-15 Nm) after the diagonal is mounted (see below).

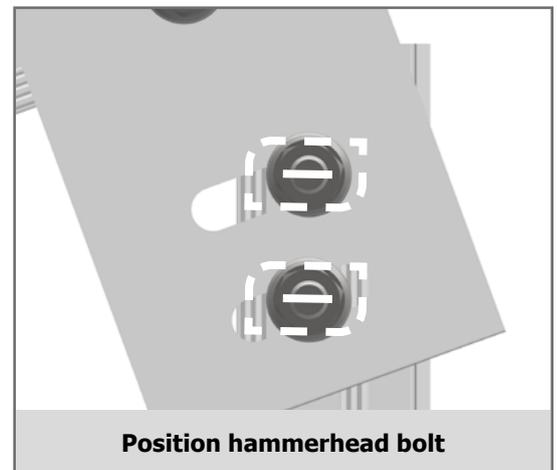
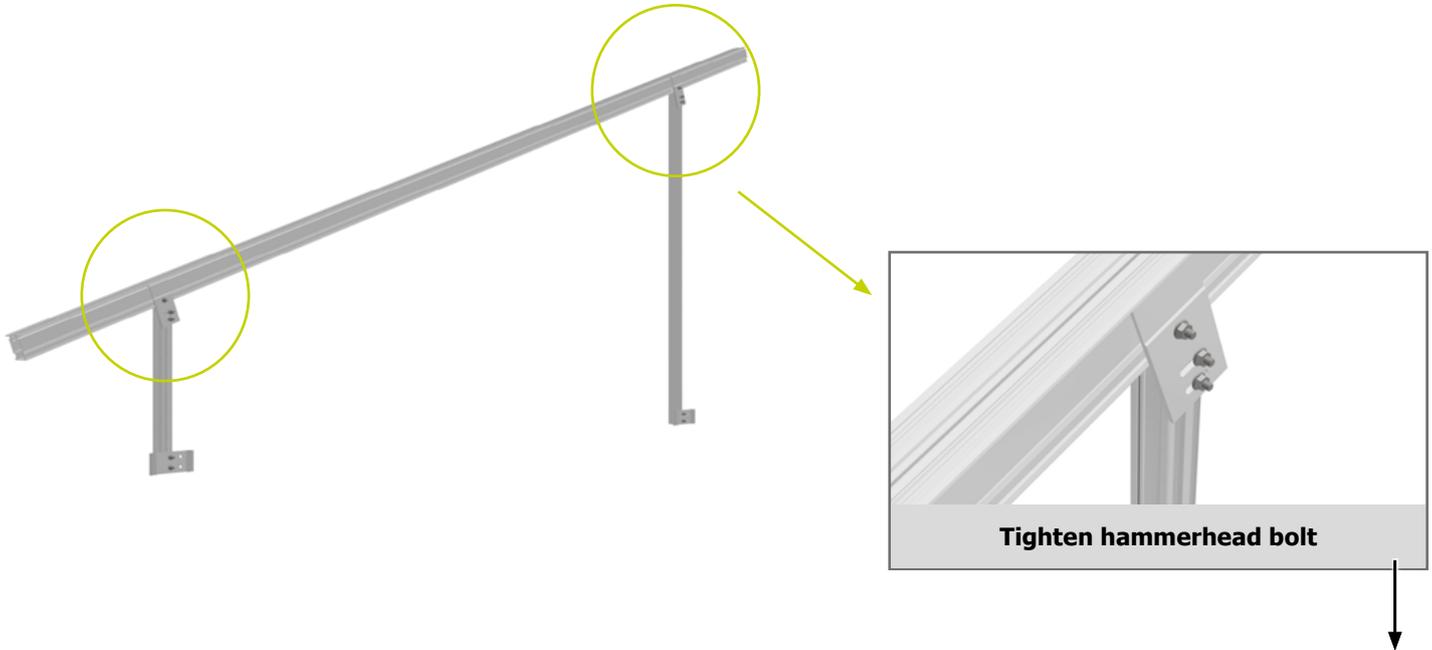


**Check the alignment of the hammerhead bolts. The hammerhead bolt is only correctly mounted if the vertical notch is visible.**

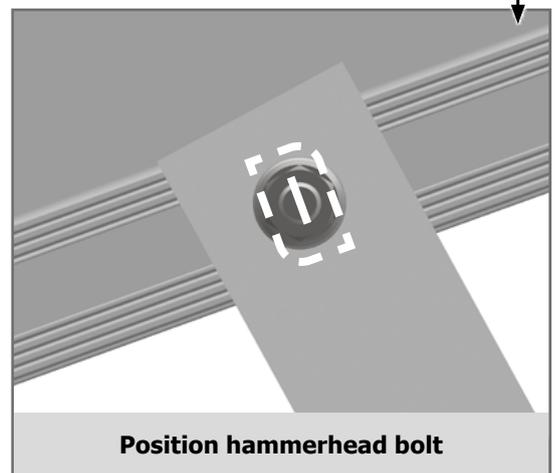
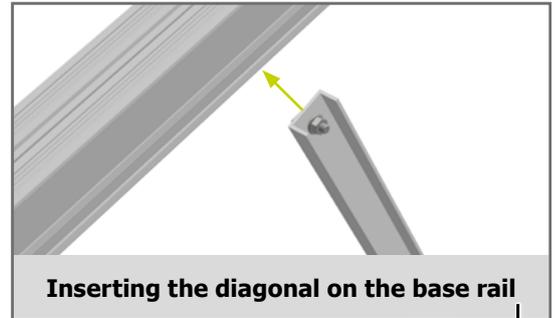
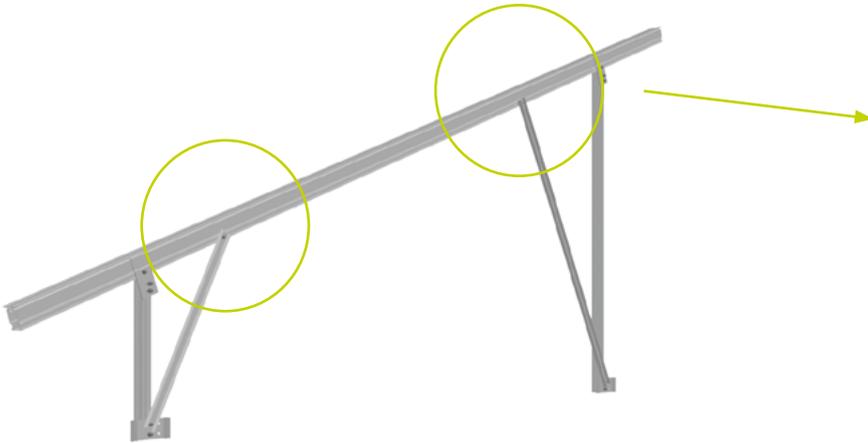


**The sheet metal protrusion of the base must be inserted into the correct notch of the support.**

The pre-assembled Delta Concrete FS 9/40 mullions are fastened by means of hammerhead bolt.  
Tighten the hammerhead bolt (tightening torque 12-15 Nm).

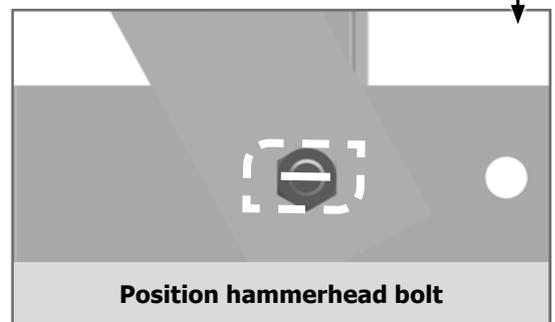
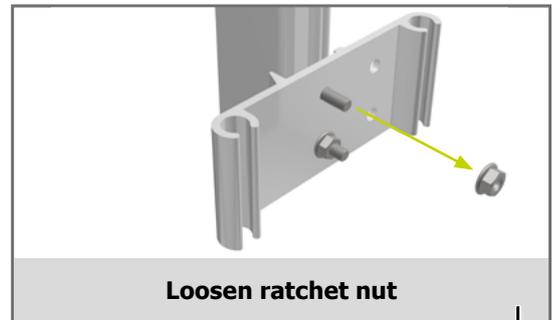
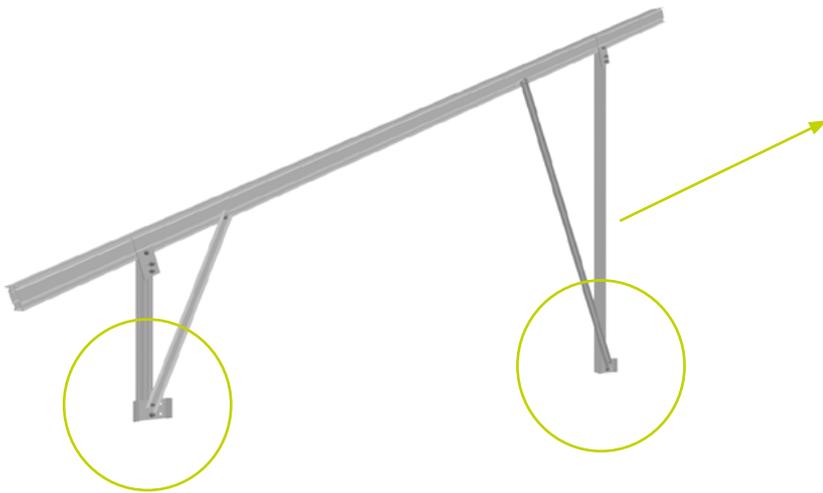


Fit the diagonals with one hammerhead bolt each and thread them onto the base rail. Tighten the hammerhead bolt (tightening torque 12-15 Nm).



**Check the alignment of the hammerhead bolts.  
The hammerhead bolt is only correctly mounted  
if the vertical notch is visible.**

Then connect the diagonals to the respective base. To do this, loosen the locking nut of the upper hammerhead bolt on the base, connect the diagonal to the base and tighten the hammerhead bolt (tightening torque 12-15 Nm).

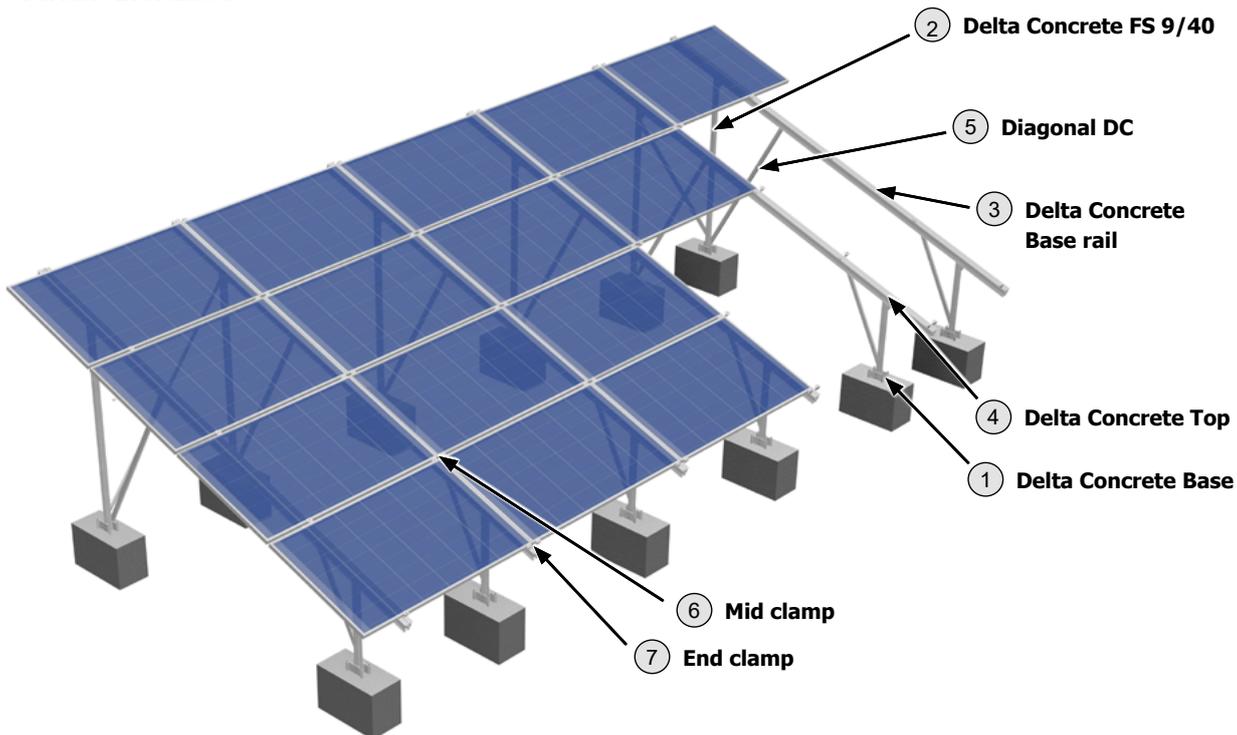


**Check the alignment of the hammerhead bolts.  
The hammerhead bolt is only correctly mounted  
if the vertical notch is visible.**

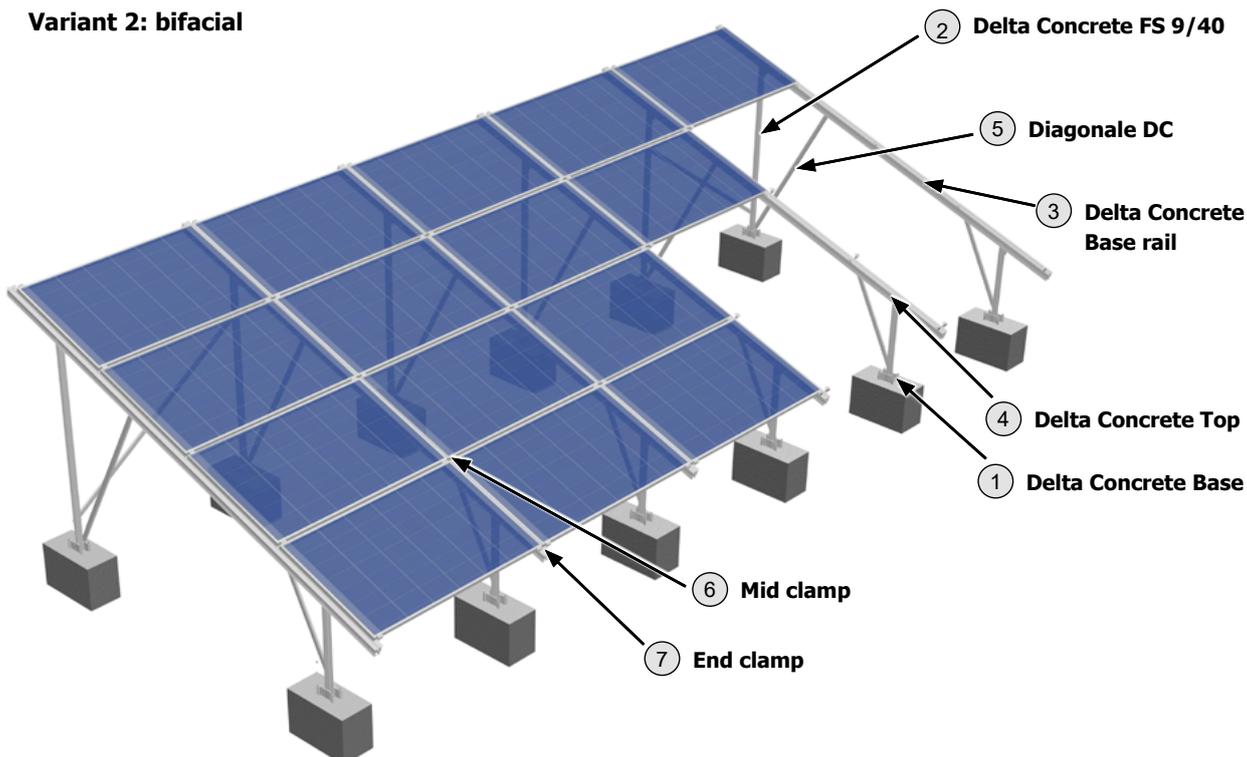
#### 2.3.1 Single-layer installation with framed PV modules in transverse installation

The installation instructions "Single-layer with framed PV modules in transverse mounting" are only valid together with the instructions in section 2.2. The installer must ensure that only current and complete installation instructions are used for the installation.

##### Variant 1: framed



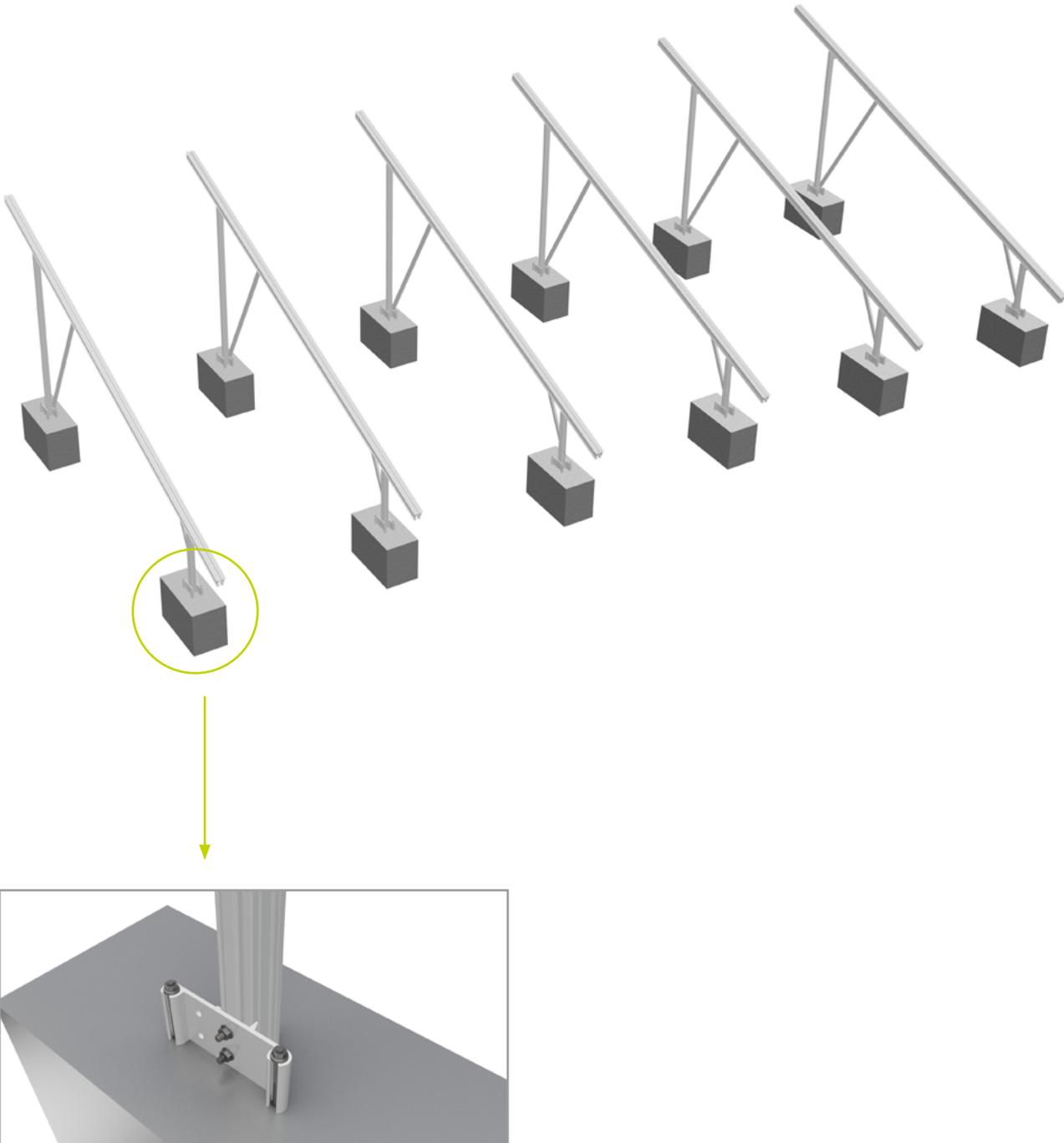
##### Variant 2: bifacial



## 2 Installation of S:FLEX Delta Concrete

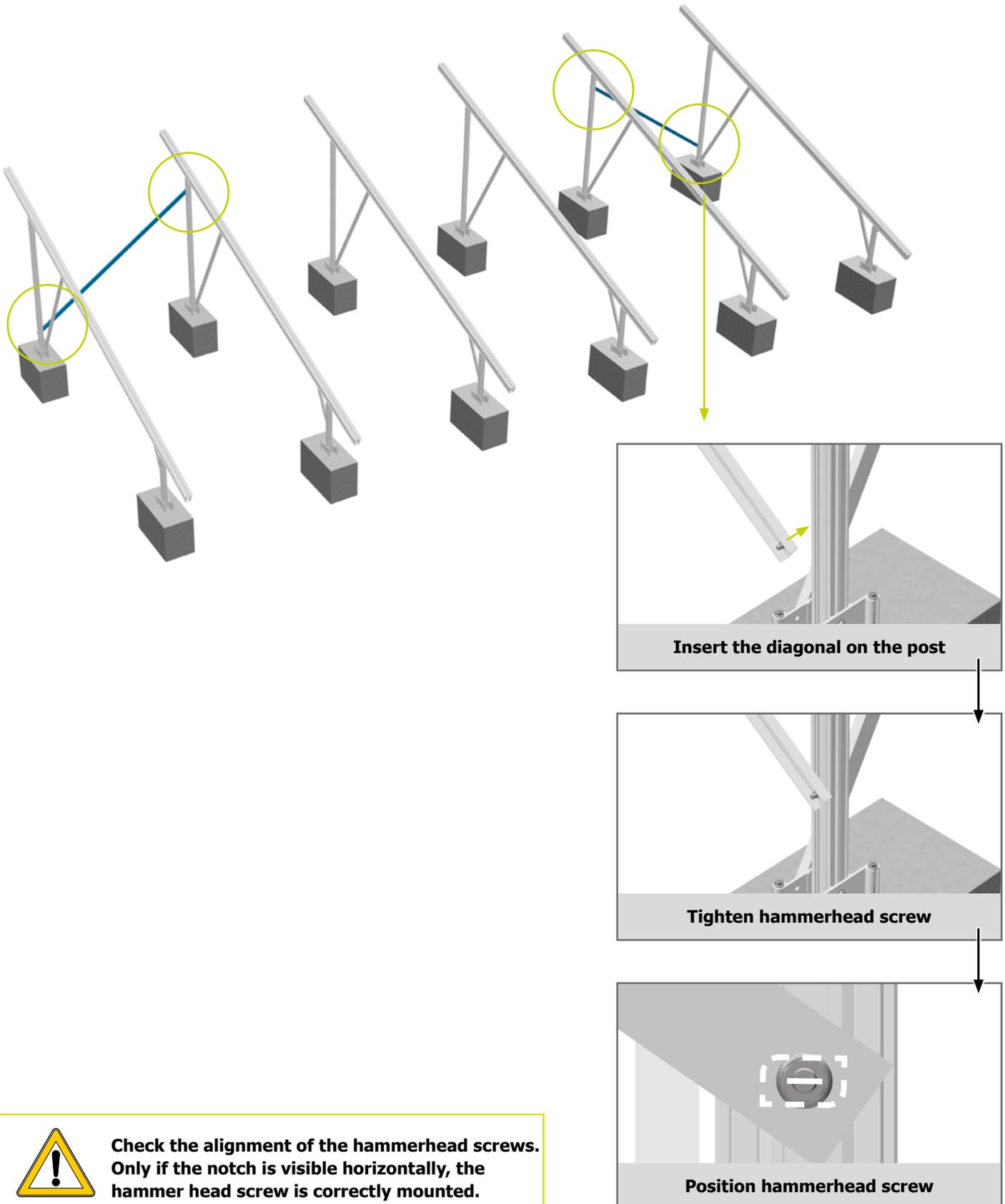
### Install rack single layer

The beam structures are erected as described in Section 2.2.



**Use 2 bolt anchors per base.**

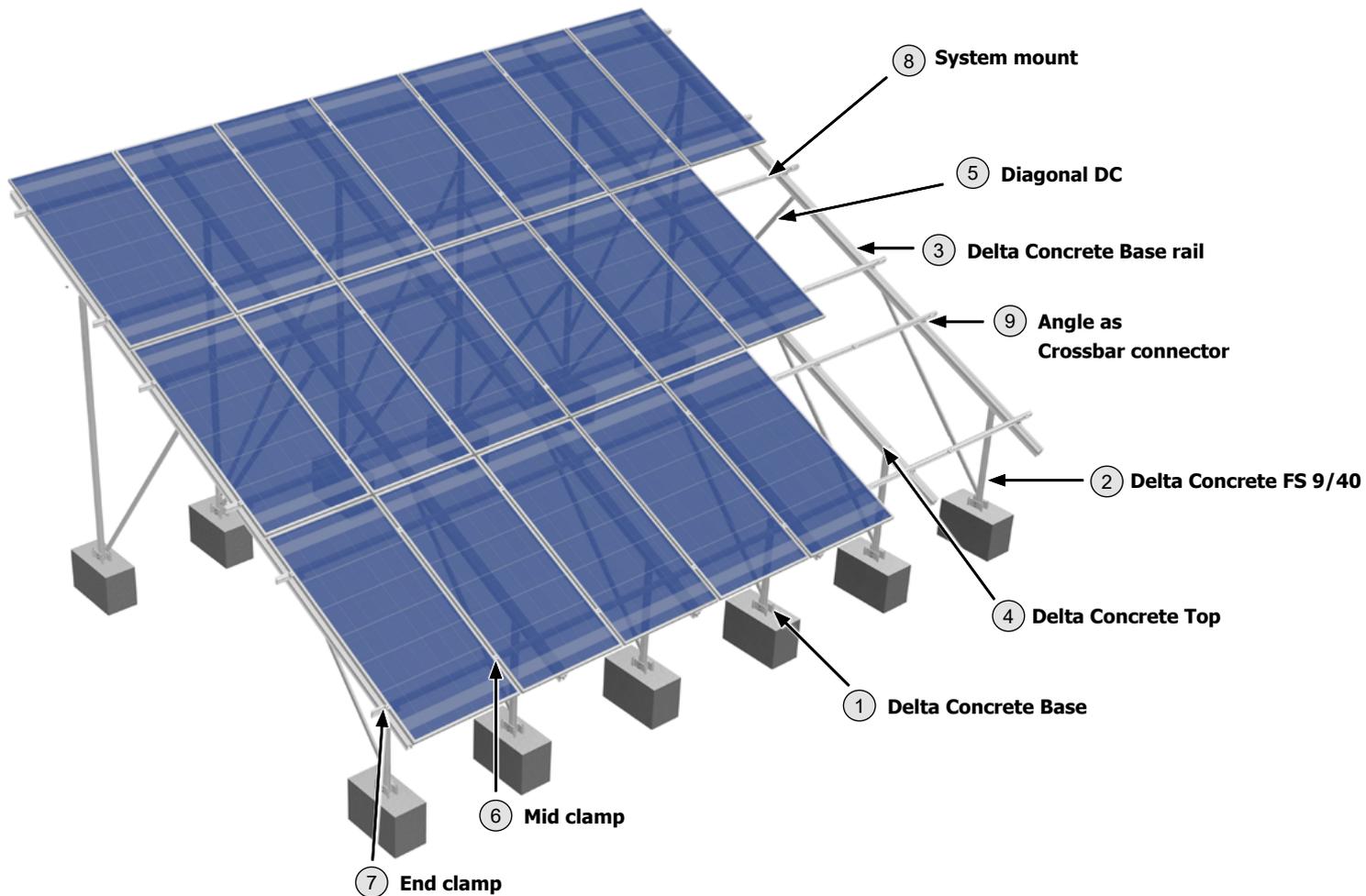
The diagonals are attached to the Delta Concrete FS 9/40 mullions using hammerhead bolts. Tighten the hammerhead bolt (tightening torque 12-15 Nm).



**Check the alignment of the hammerhead screws. Only if the notch is visible horizontally, the hammer head screw is correctly mounted.**

#### 2.3.2 Double-layer mounting with framed PV modules in upright installation

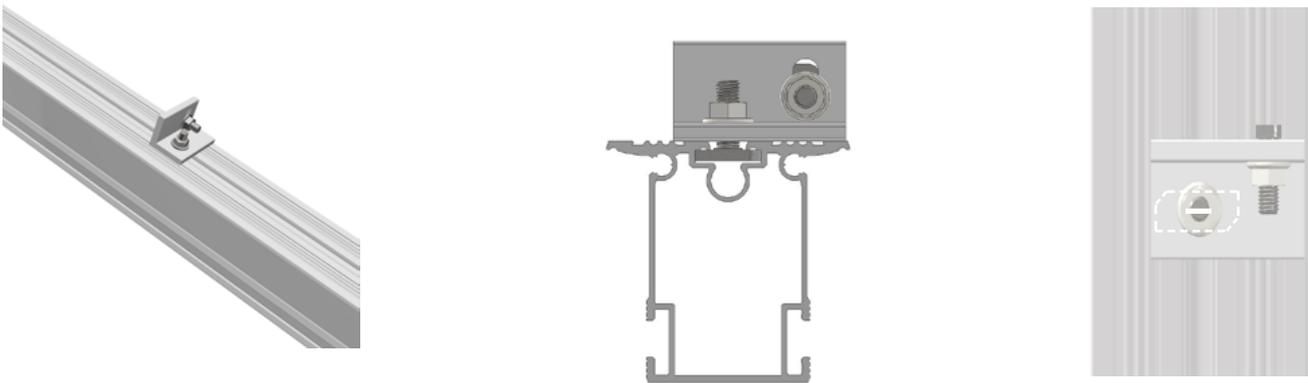
The installation instructions "Double layer with framed PV modules in upright mounting" are only valid together with the instructions in section 2.2. The installer must ensure that only up-to-date and complete installation instructions are used for the installation.



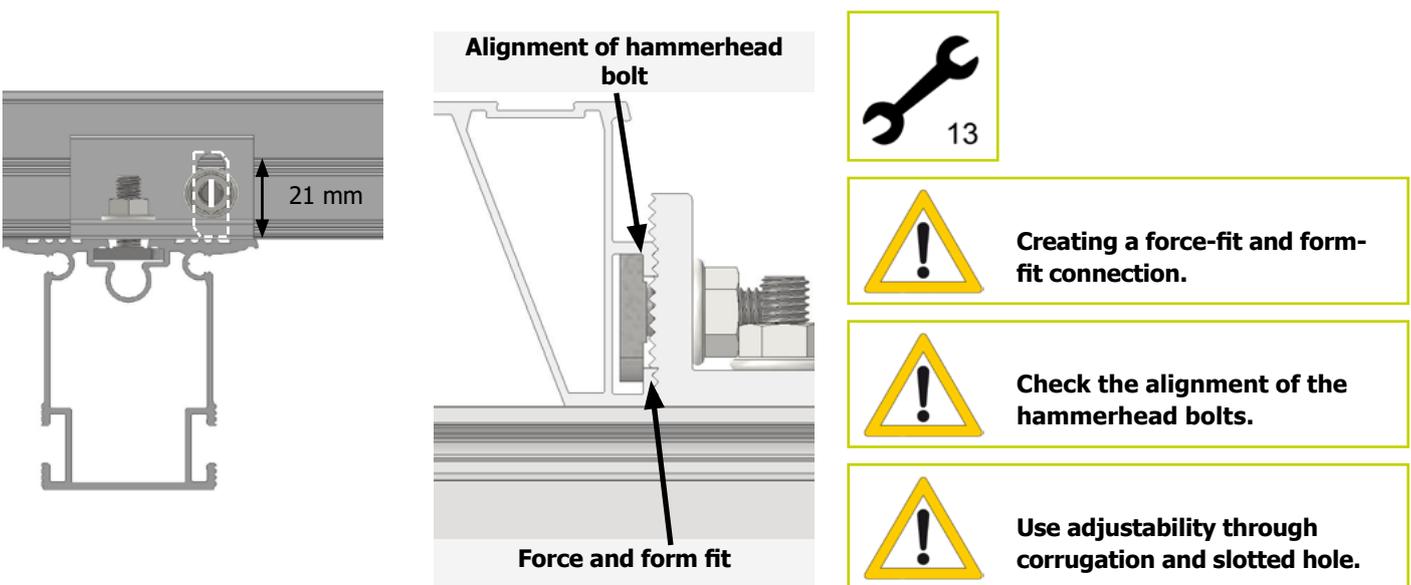
The lower vertical rail layer is assembled as shown in 2.3.1 "Single-layer mounting".

Mount the horizontal mounting rail on the Delta Concrete base rails using the 60 mm M10 angle brackets as cross rail splicers.

The spacing of the horizontal mounting rail is done in compliance with the clamping ranges according to the module installation instructions. To do this, mount the 60 mm M10 bracket on the Delta Concrete base rail using the M8x25 hammerhead bolt and the locking nut. Make sure that the hammerhead bolts are correctly aligned in the channel of the mounting rail (tightening torque 12-15 Nm).



Mount the system mounts to the brackets using the M8x25 hammerhead bolt and the locking nut. Make sure that the hammerhead bolts are correctly aligned in the channel of the system mount (tightening torque 12-15 Nm) and that the system mounts are mounted without tension. Use the adjustability provided by the ribbing of the components and the slotted hole. Make sure that a force-fit and form-fit connection is achieved by the interlocking of the corrugations.



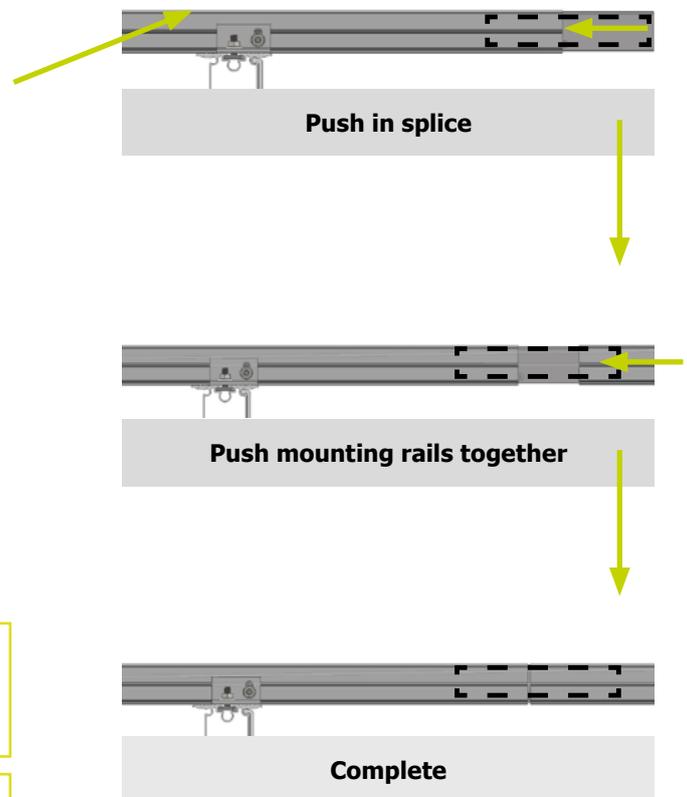
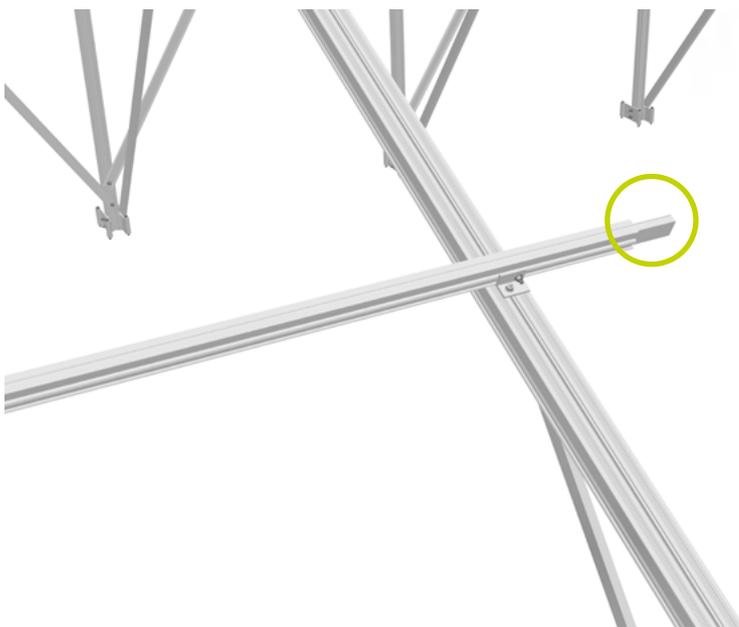
**Make sure that the notch in the hammerhead screw is vertical (at right angles to the rail) after mounting the clamp. Only then is the head of the hammerhead screw correctly inserted into the rail and the angle properly fastened.**

## 2 Installation of S:FLEX Delta Concrete

### Install frame double layer

To join several rails together, the splice with identical static values to the mounting rail is pushed half-way into the previously installed mounting rail. Then push the next mounting rail onto the splice. Use pressure to push the mounting rails together flush. The connection is then complete.

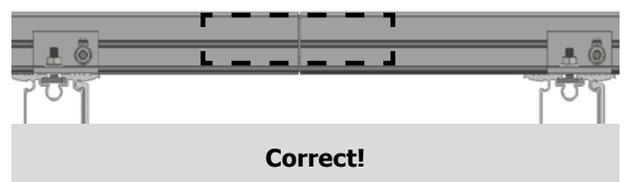
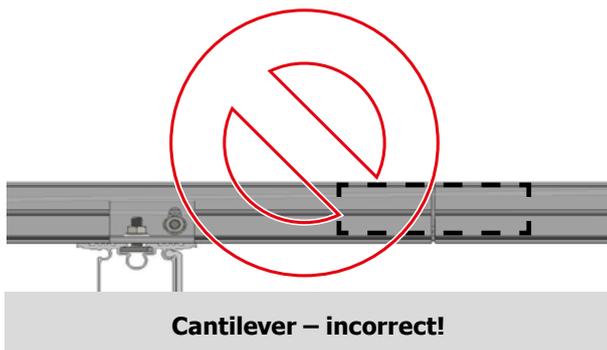
When positioning the splicers, make sure that the system mounts always rest on at least two base rails. Fasten the pushed-on system mount to the base rail using a 60 mm M10 angle bracket as described.



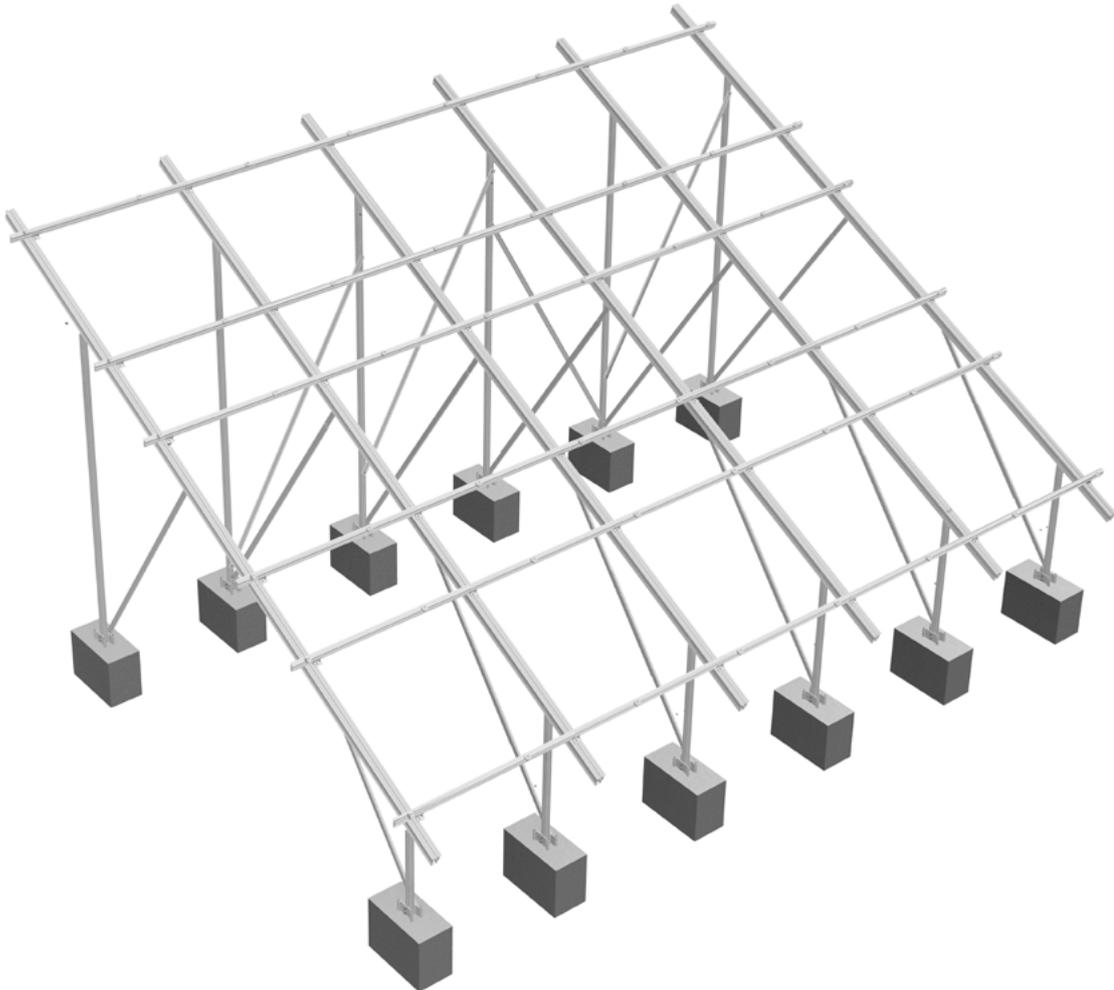
**Push in splice.**



**No cantilevers with splices.  
Position the splices between two roof hooks.**



Completed installation of the mounting-rail layer.



#### 2.4.1 Module mounting transverse framed

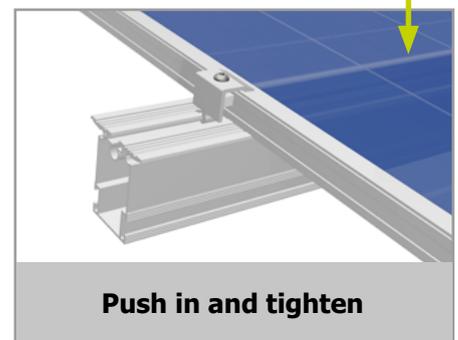
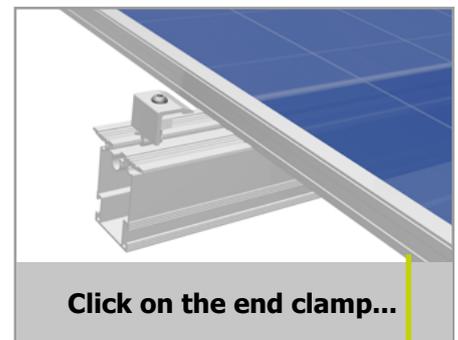
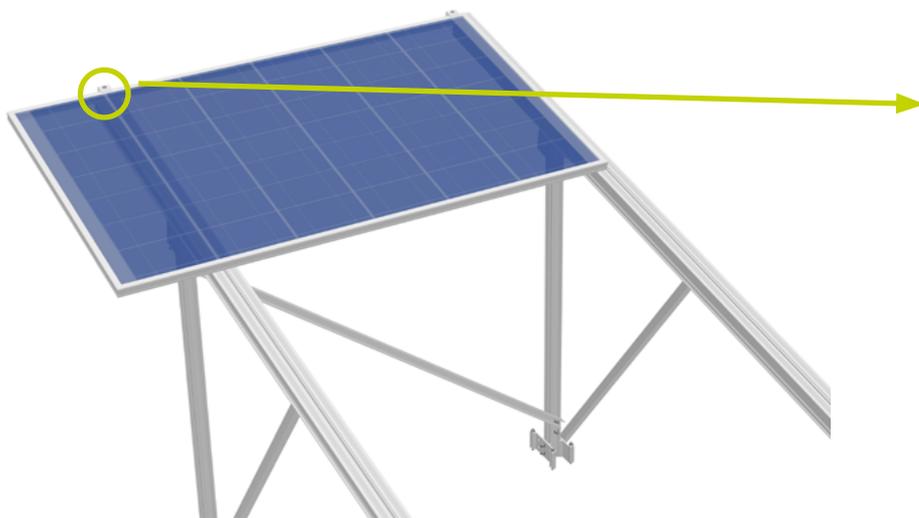


The installation instructions provided by the module manufacturer must be observed, especially with regard to clamping surfaces and clamping areas. S:FLEX GmbH is not liable for damage to the modules and all other consequences resulting from non-compliance with the module manufacturer's installation instructions.

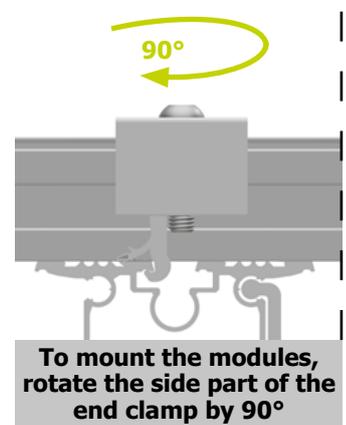
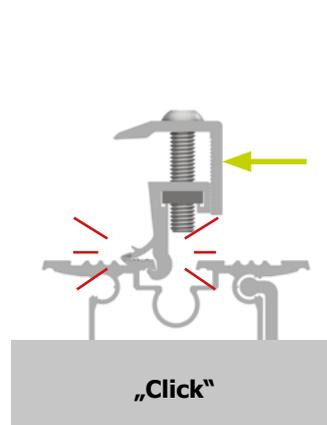
#### Module installation - (end clamp)

Place the module on the mounting rails. Install the end clamps. Click each end clamp on to the mounting rail and push it on to the module. Ensure that the end clamp is clicked of the mounting rail. Now adjust the end clamp to match the height of the module and tighten the screw (torque 8–10 Nm). Pay attention to the prescribed clamping areas and clamping surfaces.

The distance between the module frame and rail end must be at least 35 mm.



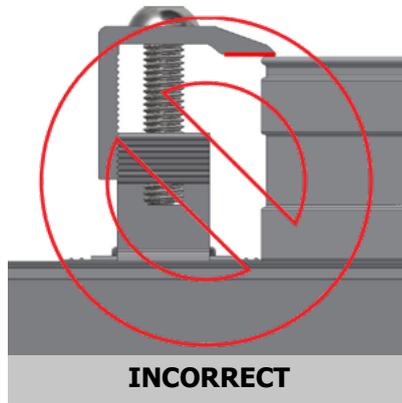
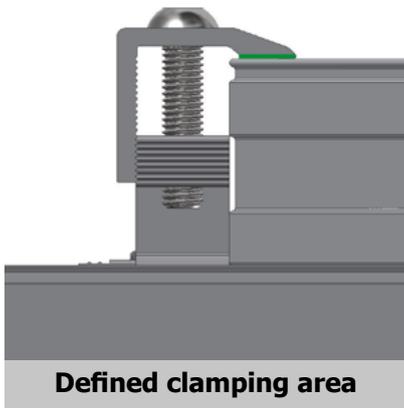
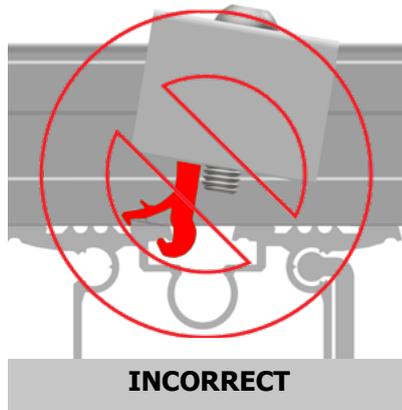
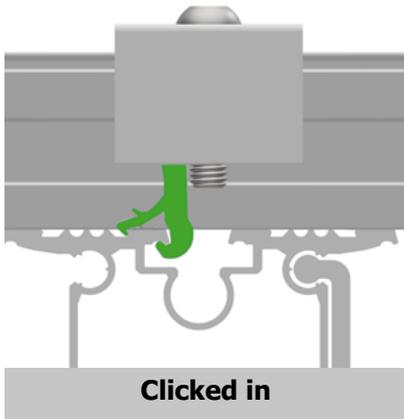
Install the end clamp.



## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse

Ensure that the end clamp clamps the module frame at the clamping area defined by the module manufacturer.



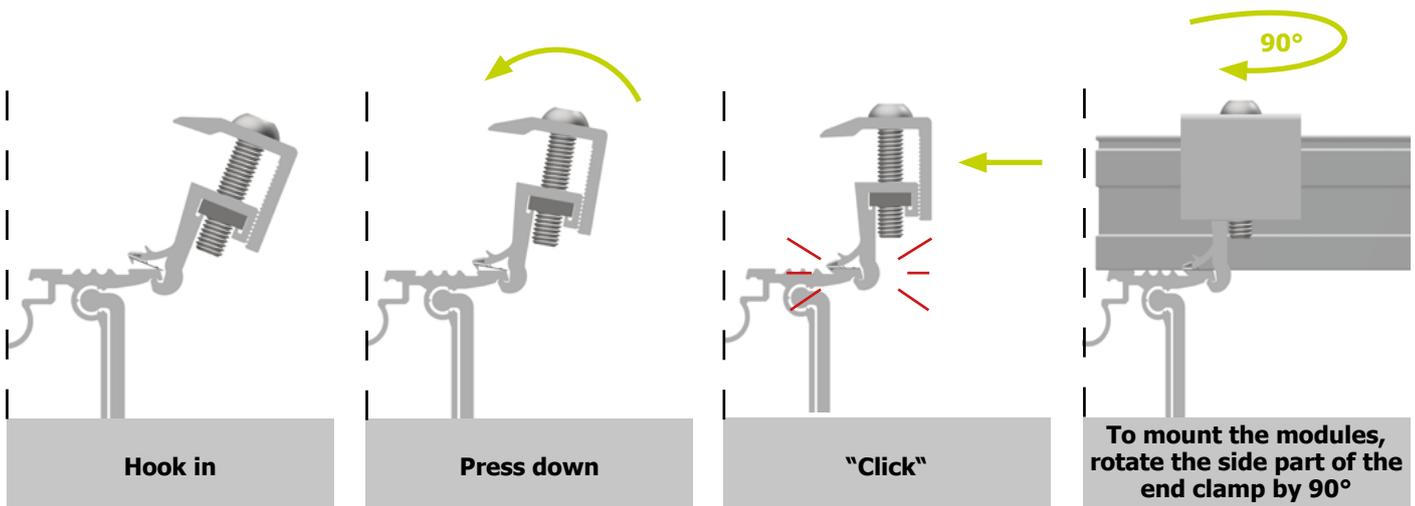
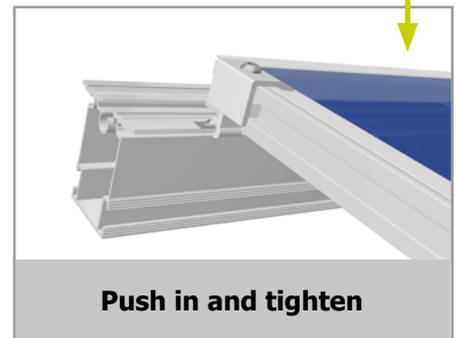
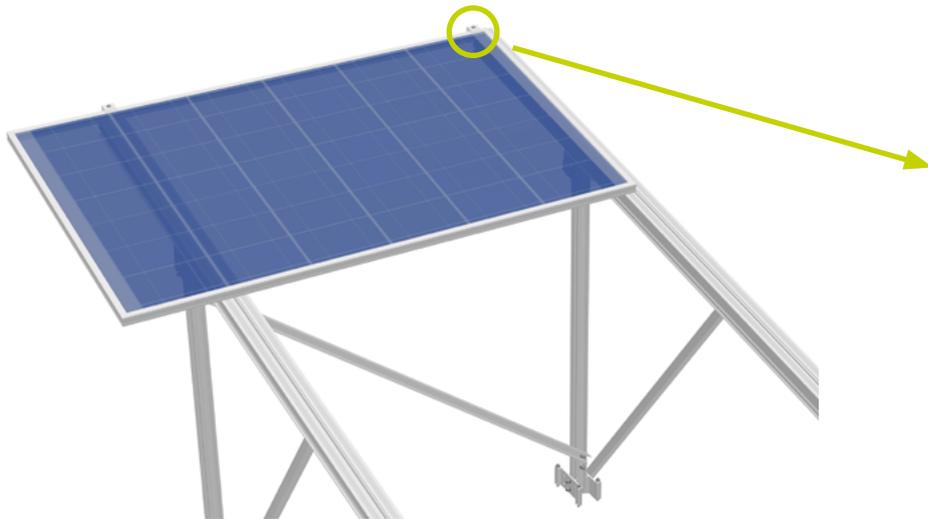
**End clamps are approved for onetime installation. Check the end clamp has been clicked in.**



**Observe the module manufacturer's instructions: Check the defined clamping area.**

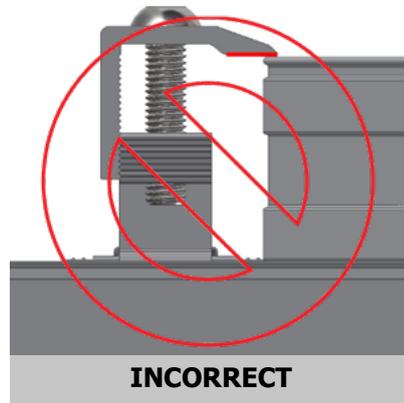
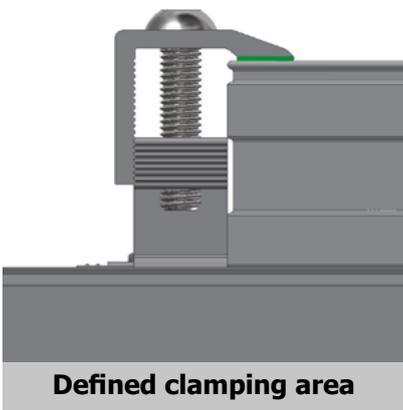
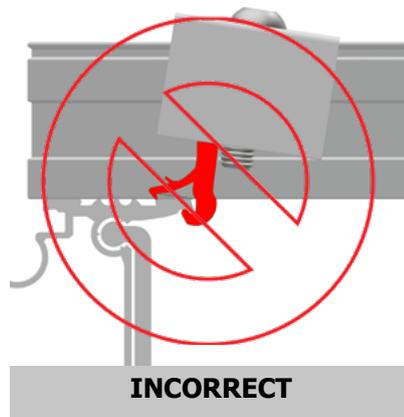
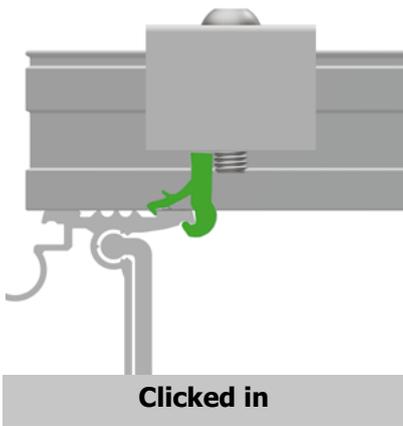
## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse



## 2 Installation of S:FLEX Delta Concrete Module installation transverse

Ensure that the end clamp clamps the module frame at the clamping area defined by the module manufacturer.



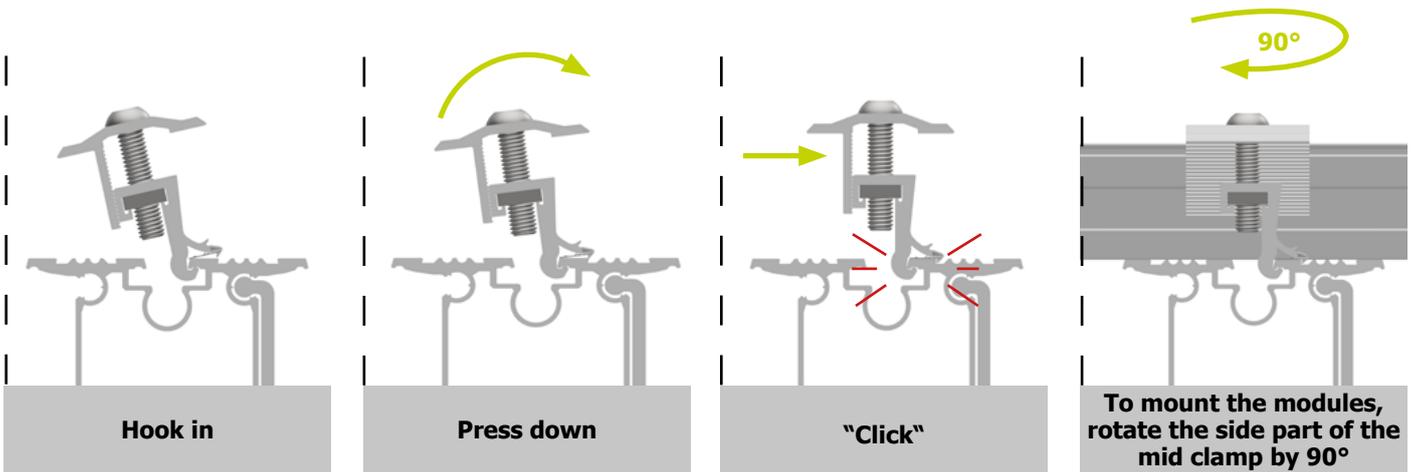
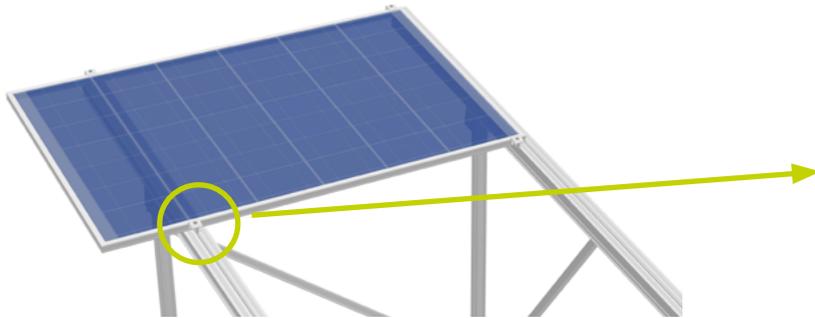
**End clamps are approved for onetime installation. Check the end clamp has been clicked in.**



**Observe the module manufacturer's instructions: Check the defined clamping area.**

#### Module installation - (mid clamp)

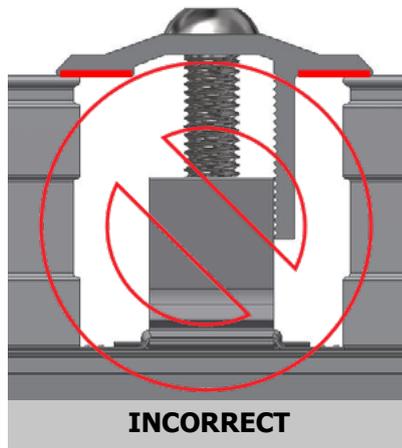
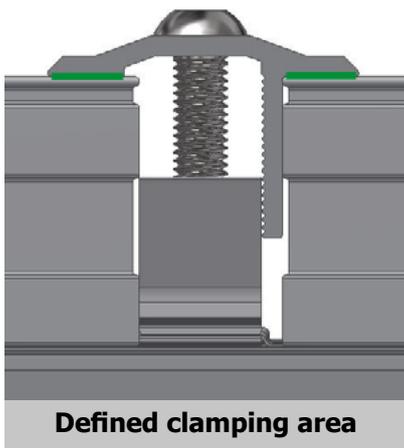
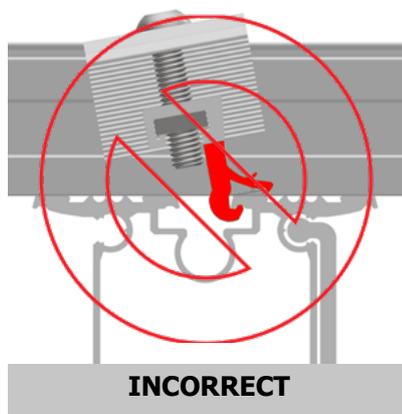
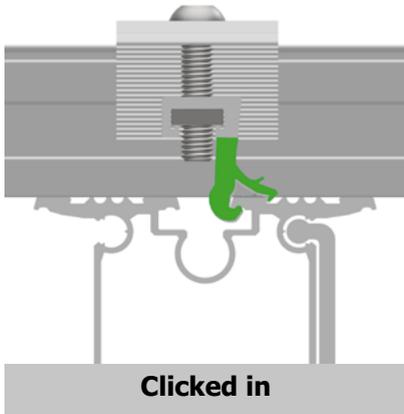
Now install the mid clamps. To do this, click the mid clamps onto the system support and push it onto the module. Make sure that the mid clamps is clicked onto the mounting rails.



## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse

Ensure that the mid clamp clamps the module frame at the clamping area defined by the module manufacturer.

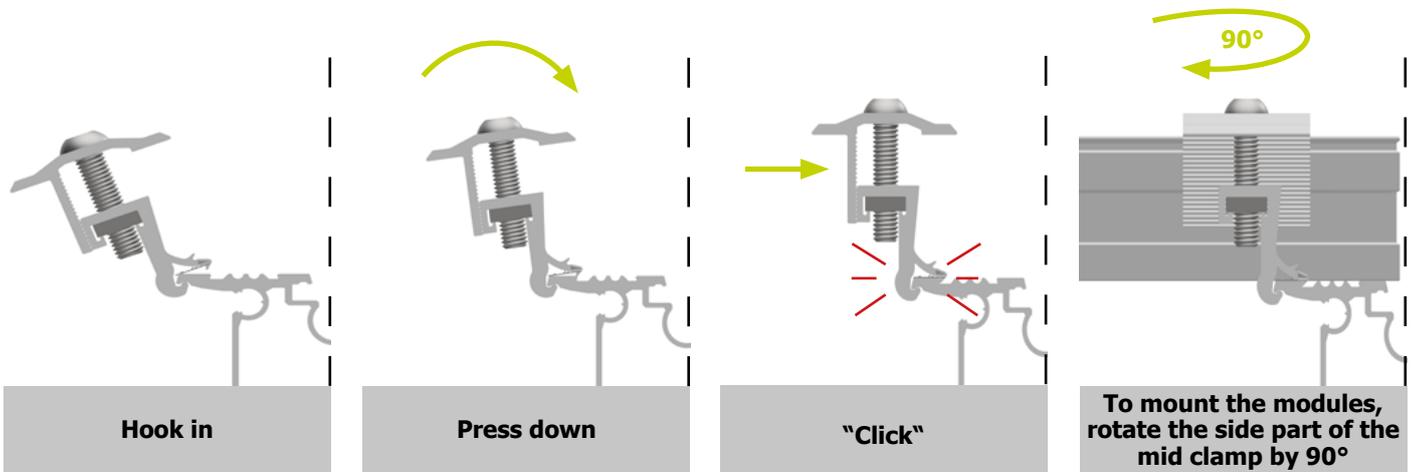
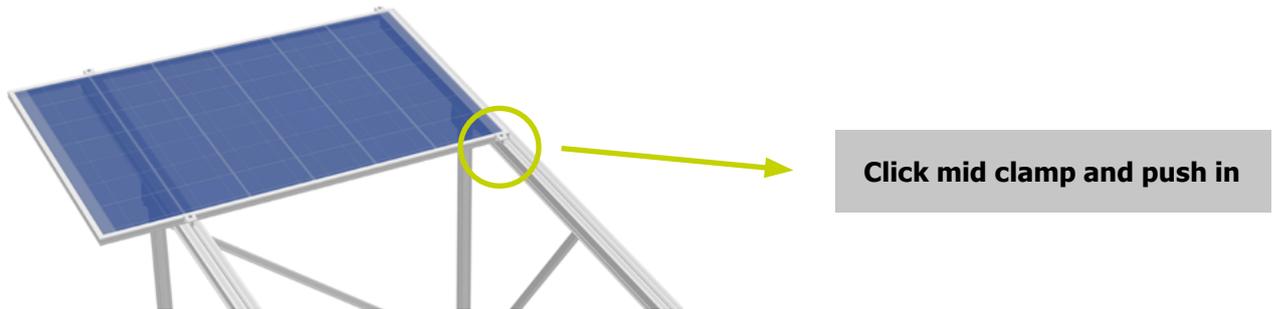


**Mid clamps are approved for onetime installation. Check the mid clamp has been clicked in.**

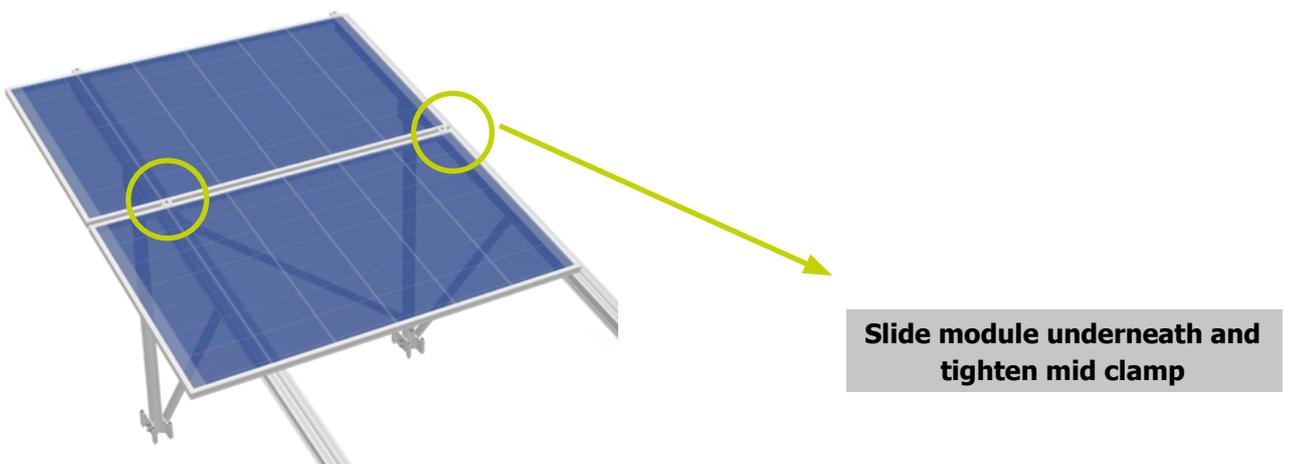


**Observe the module manufacturer's instructions: Check the defined clamping area.**

## 2 Installation of S:FLEX Delta Concrete Module installation transverse



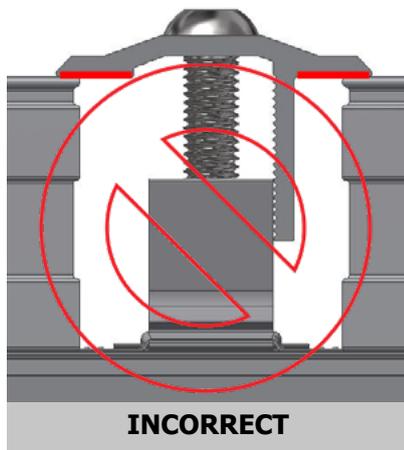
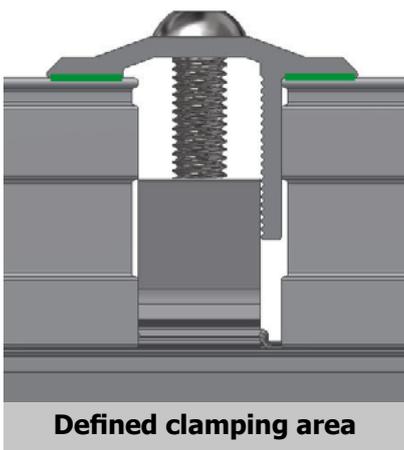
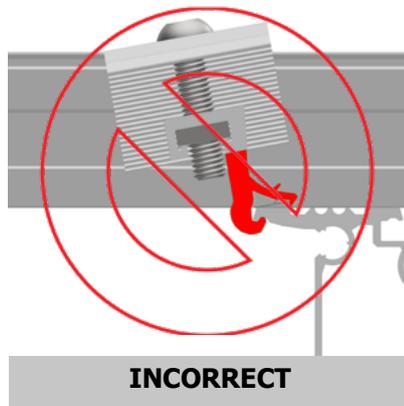
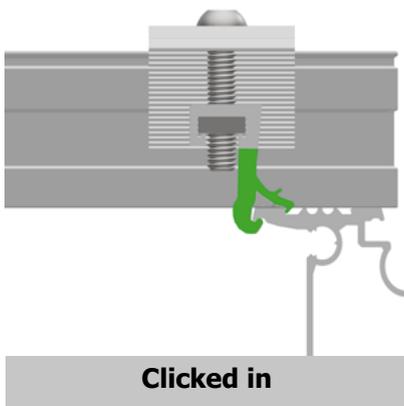
Align the upper row of modules with the aid of a guide or levelling instrument.  
Now slide the next module underneath the mid clamp, adjust the mid clamp to the height of the module's frame and tighten the screw (tightening torque 8–10 Nm).



## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse

Ensure that the mid clamp clamps the module frame at the clamping area defined by the module manufacturer.



**Mid clamps are approved for onetime installation. Check the mid clamp has been clicked in.**



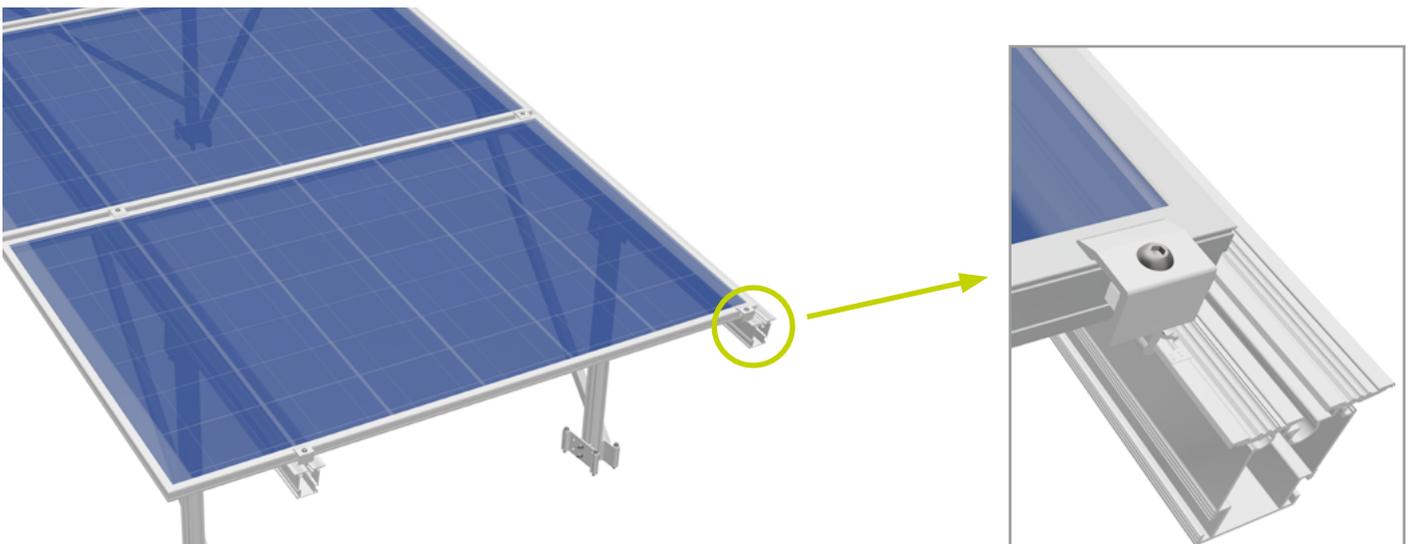
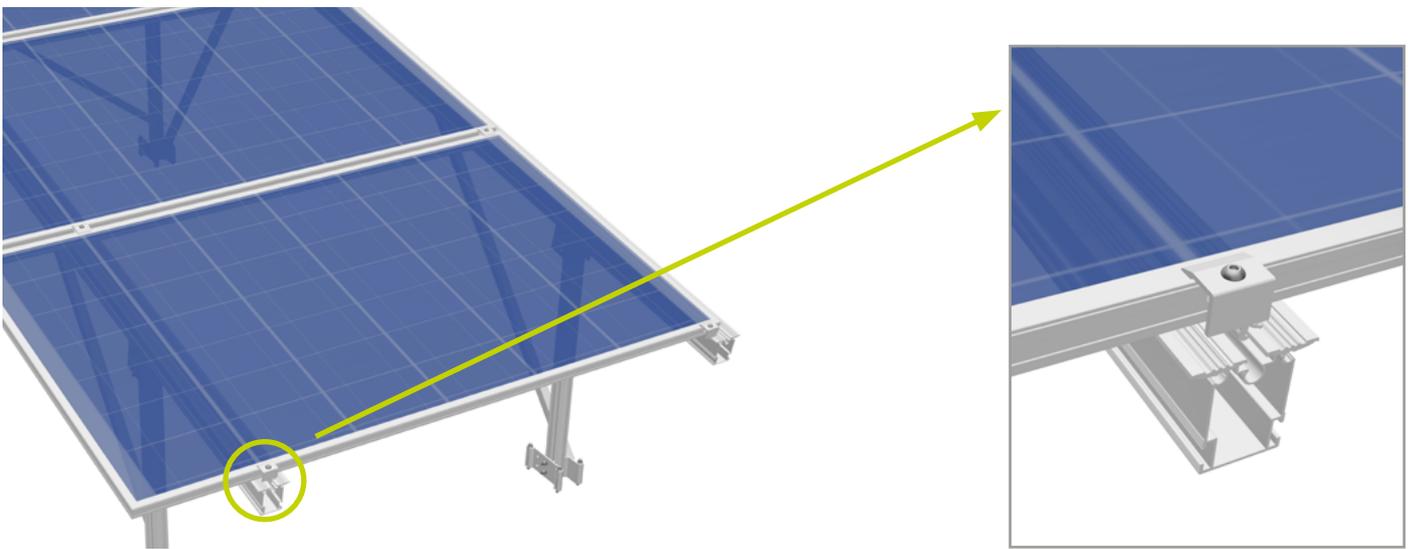
**Observe the module manufacturer's instructions: Check the defined clamping area.**

#### Module installation – (end clamps at the end of the row)

End clamps and locking clips must be installed on the last module in each row (if applicable, on expansion joints). To do this, click the end clamp onto the mounting rail and push it onto the module. Make sure that the end clamp is clicked onto the mounting rail. Now adjust the end clamp to the module height and tighten the screw (tightening torque 8-10 Nm).

When doing so, ensure that the specified clamping areas and clamping surfaces are observed.

Protruding mounting rail must be shortened parallel to the module frame. The distance between the module frame and the end of the mounting rail must be at least 35 mm.



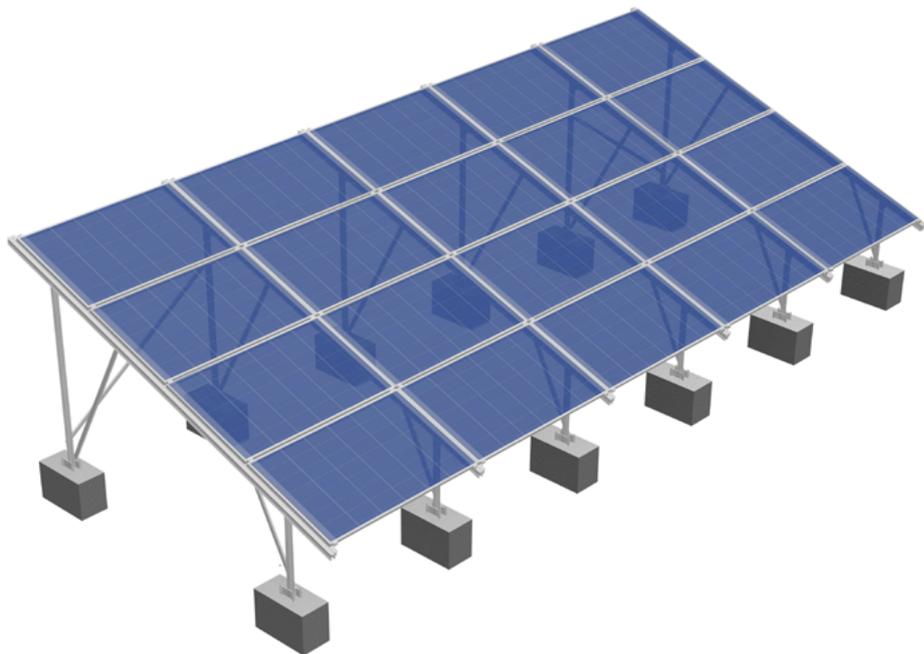
**Install end clamp on the last module.**



## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse

Proceed with the following rows as described.



#### 2.4.2 Module installation transverse bifacial

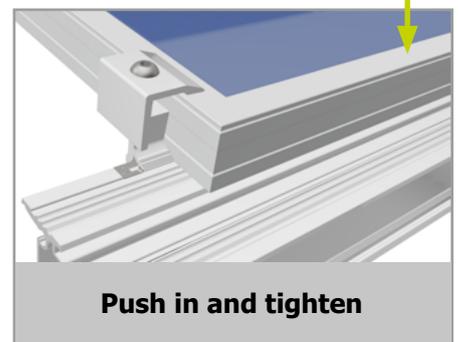
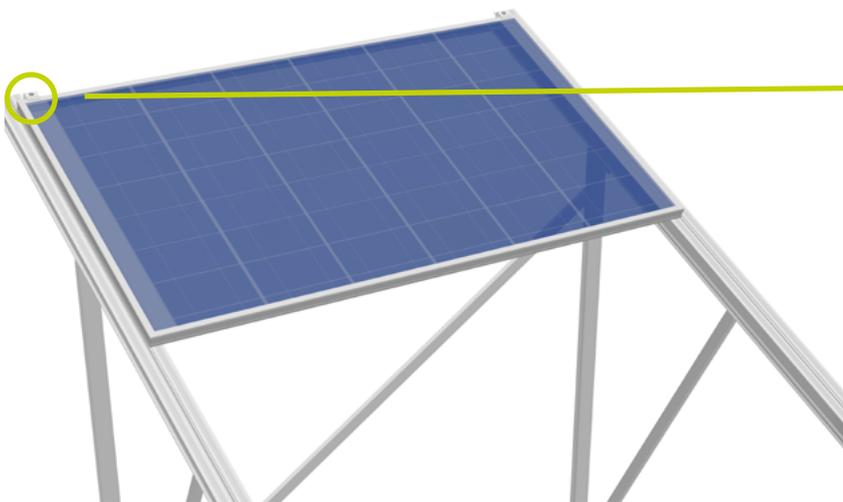


The installation instructions provided by the module manufacturer must be observed, especially with regard to clamping surfaces and clamping areas. S:FLEX GmbH is not liable for damage to the modules and all other consequences resulting from non-compliance with the module manufacturer's installation instructions.

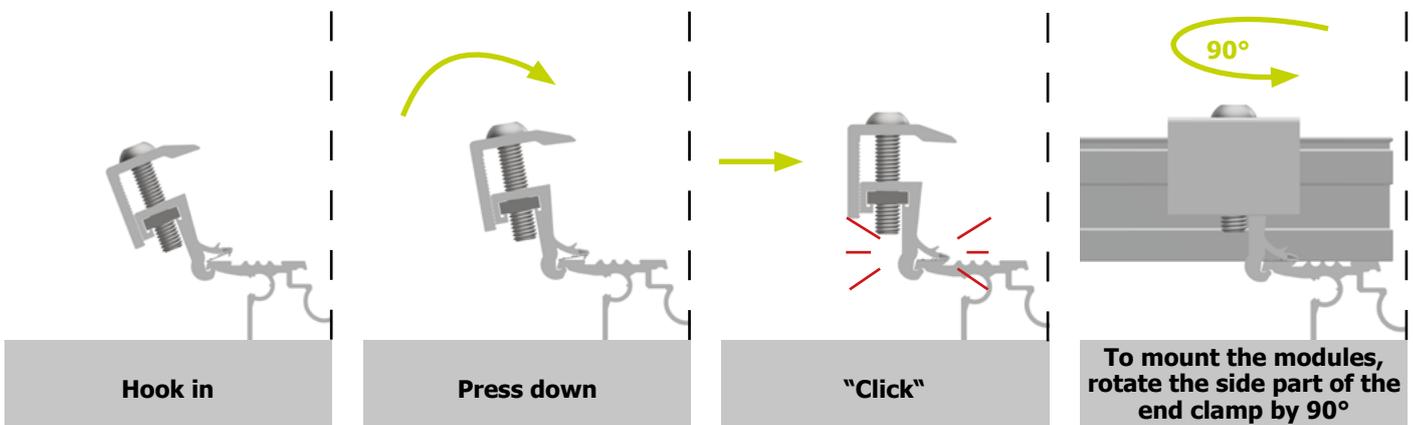
#### Module installation – (end clamps)

Place the module on the mounting rails. Install the end clamps. Click each end clamp on to the mounting rail and push it on to the module. Ensure that the end clamp is clicked of the mounting rail. Now adjust the end clamp to match the height of the module and tighten the screw (torque 8–10 Nm). Pay attention to the prescribed clamping areas and clamping surfaces.

The distance between the module frame and rail end must be at least 35 mm.



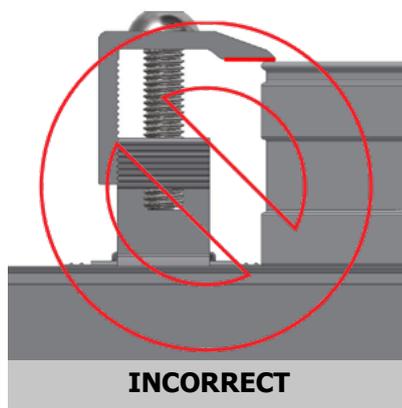
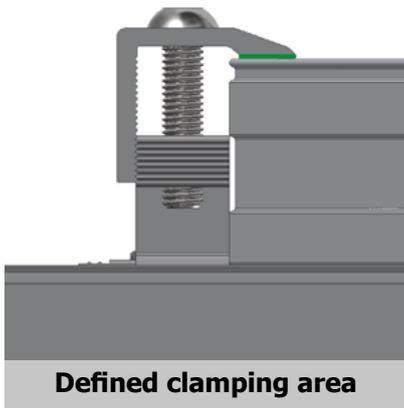
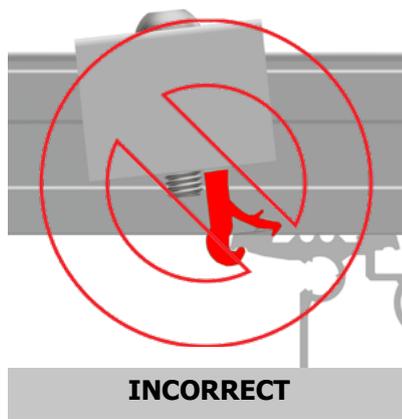
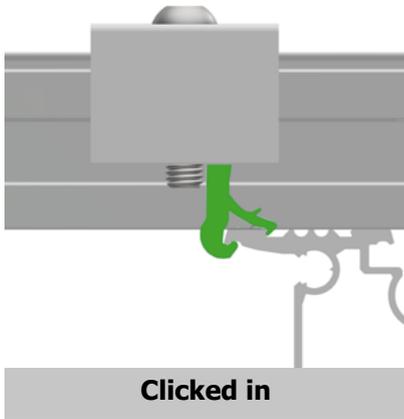
Install the end clamp.



## 2 Installation of S:FLEX Delta Concrete

### Module installation transverse

Ensure that the end clamp clamps the module frame at the clamping area defined by the module manufacturer.



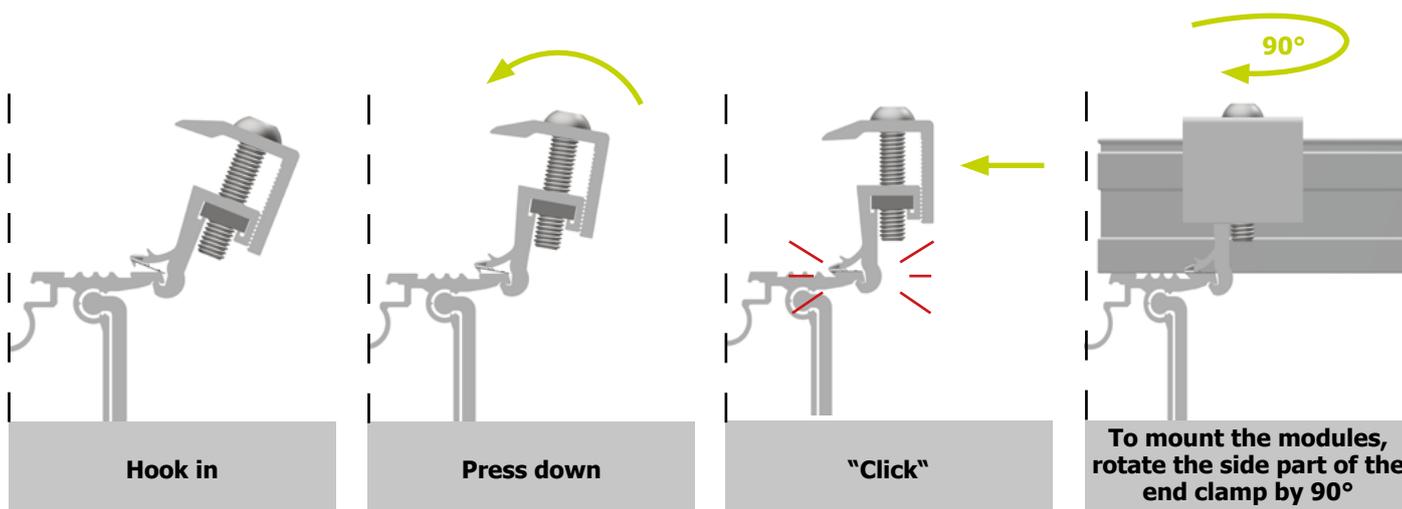
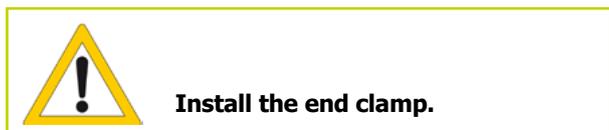
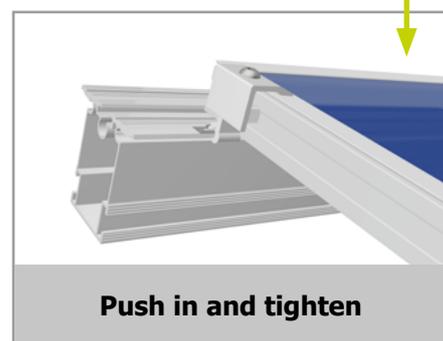
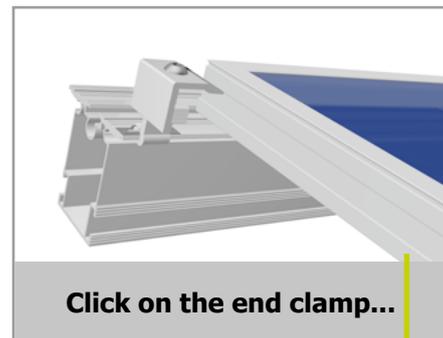
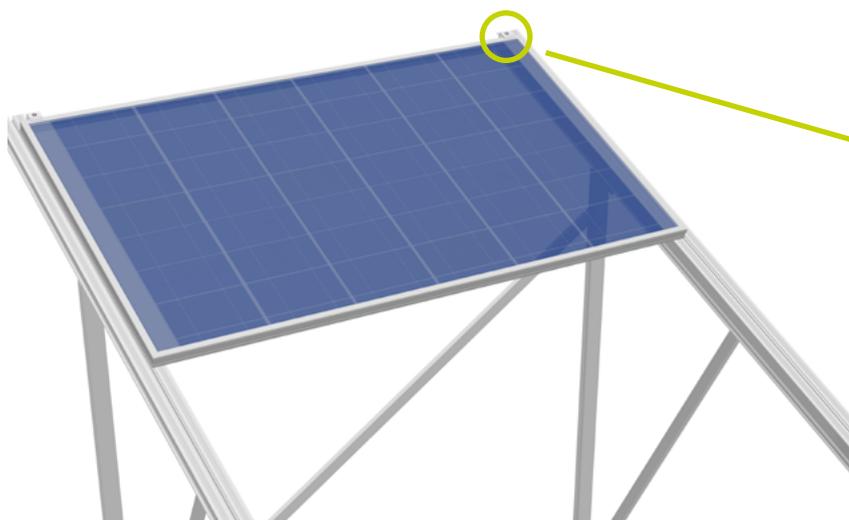
**End clamps are approved for onetime installation. Check the end clamp has been clicked in.**



**Observe the module manufacturer's instructions: Check the defined clamping area.**

## 2 Installation of S:FLEX Delta Concrete

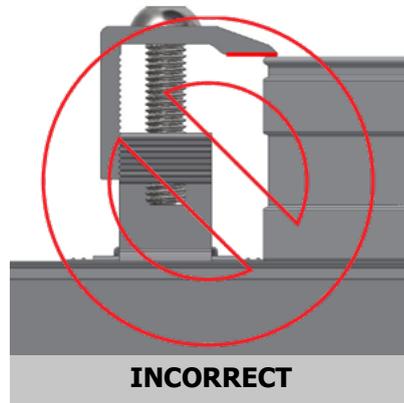
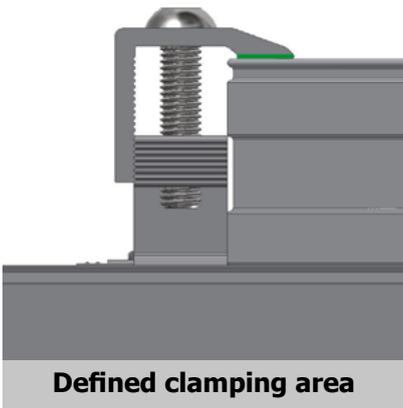
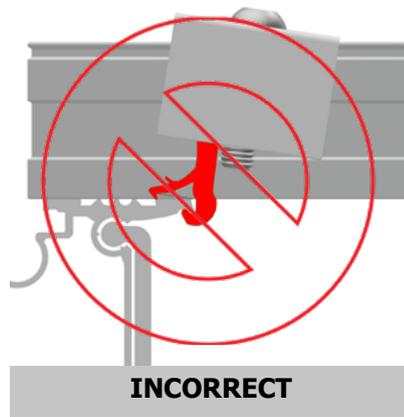
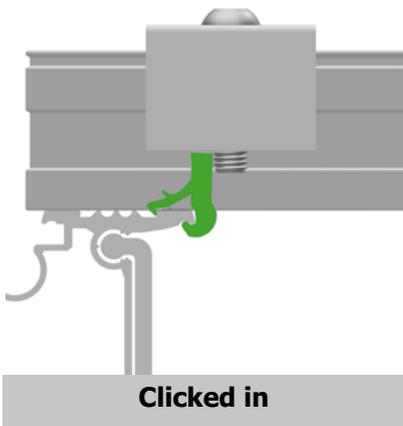
### Module installation transverse



## 2 Installation of S:FLEX Delta Concrete

### Module installation cross

Ensure that the end clamp clamps the module frame at the clamping area defined by the module manufacturer.



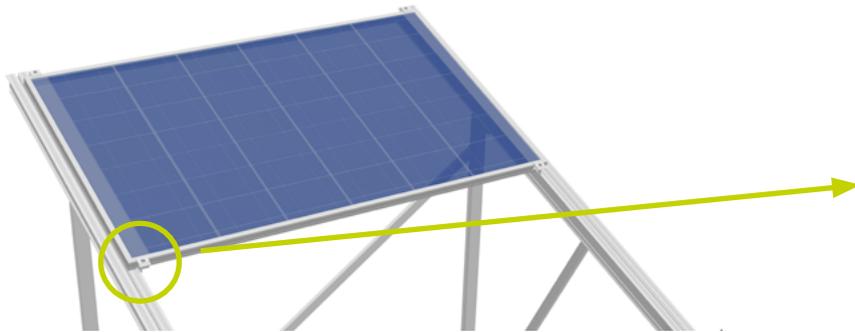
**End clamps are approved for onetime installation. Check the end clamp has been clicked in.**



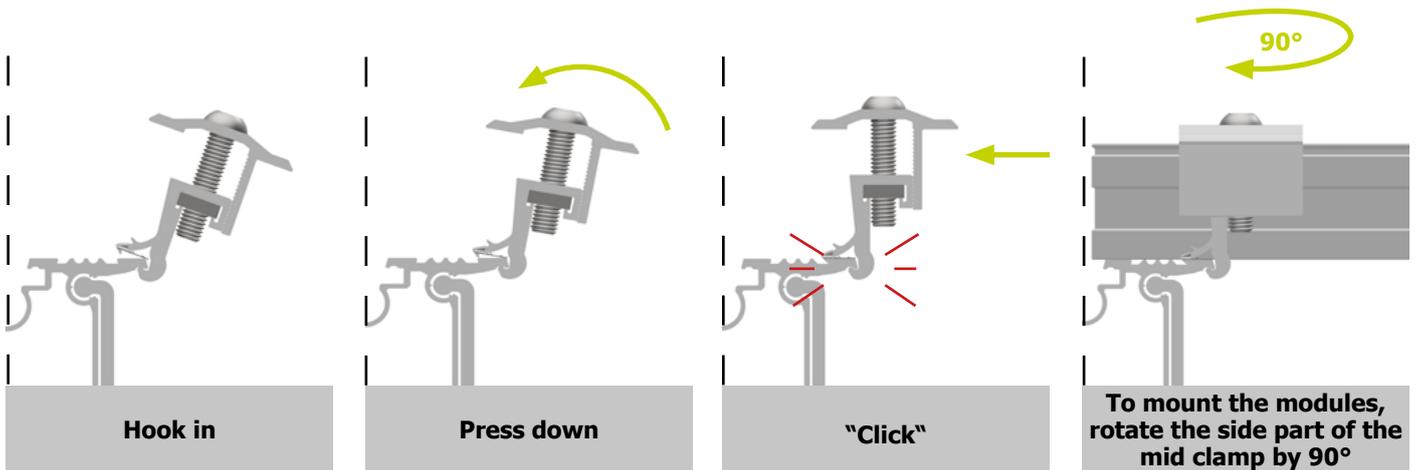
**Observe the module manufacturer's instructions: Check the defined clamping area.**

#### Module installation - (mid clamps)

Now install the mid clamps. To do this, click the mid clamps onto the system support and push it onto the module. Make sure that the mid clamps is clicked onto the mounting rails.



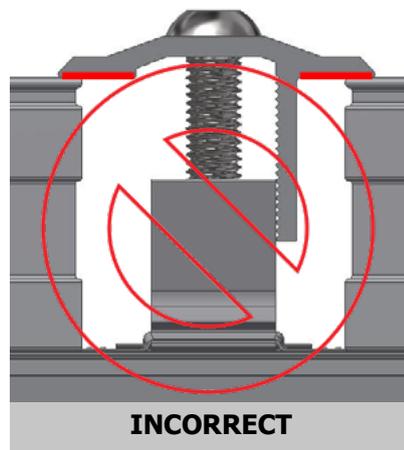
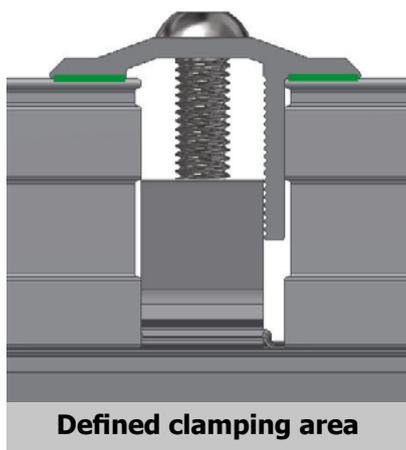
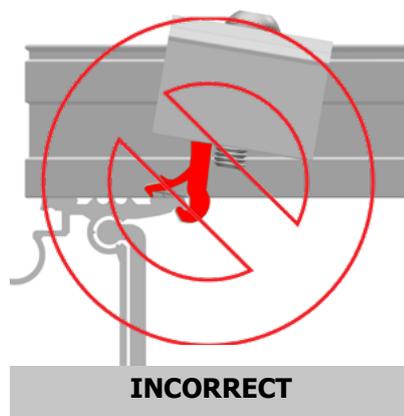
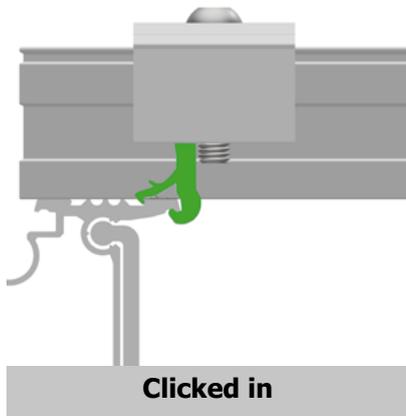
Click mid clamp and push in



## 2 Installation of S:FLEX Delta Concrete

### Module installation cross

Ensure that the mid clamp grips both of the module frames on the clamping surface defined by the module manufacturer.

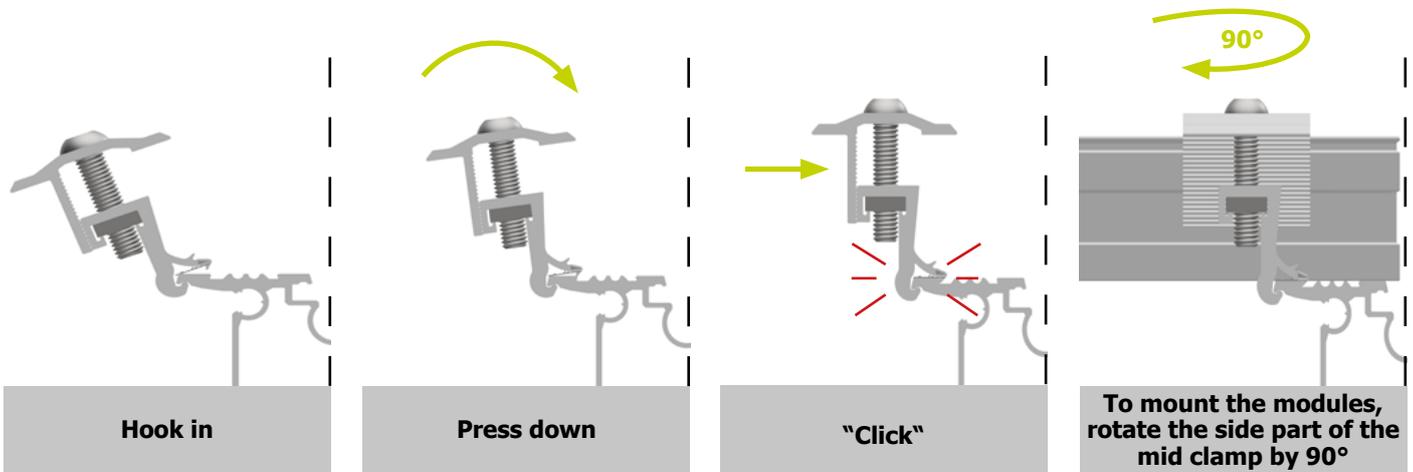
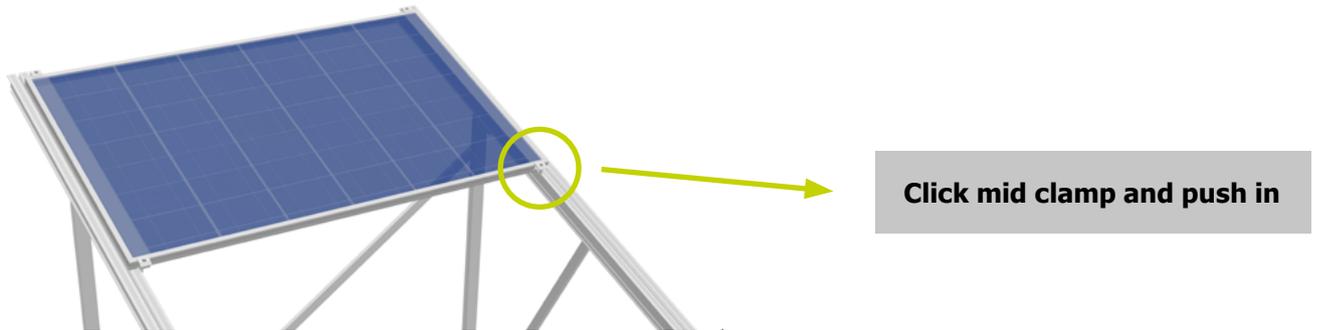


**Mid clamps are approved for onetime installation. Check the mid clamp has been clicked in.**

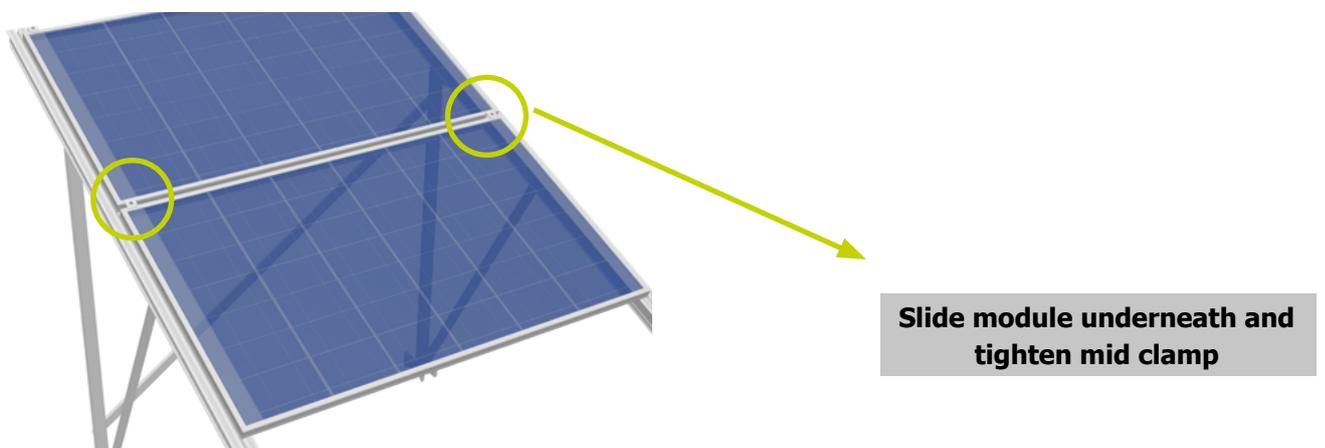


**Observe the module manufacturer's instructions: Check the defined clamping area.**

## 2 Installation of S:FLEX Delta Concrete Module installation cross



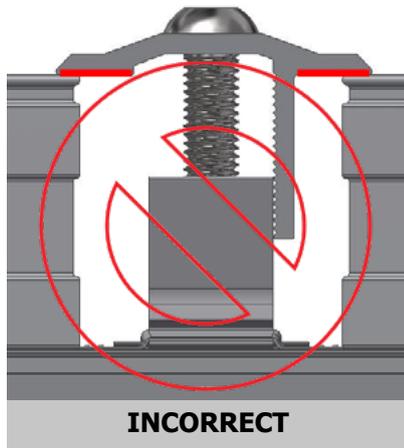
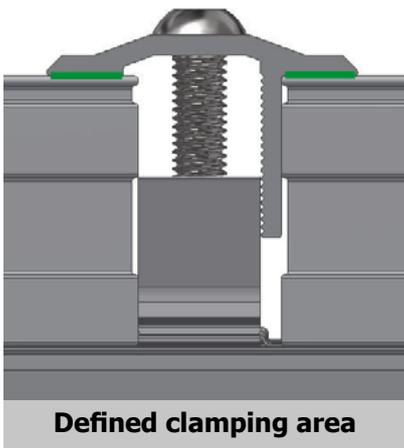
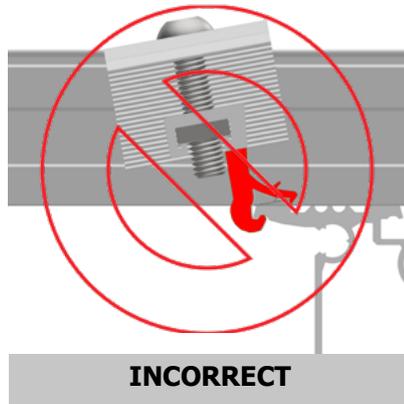
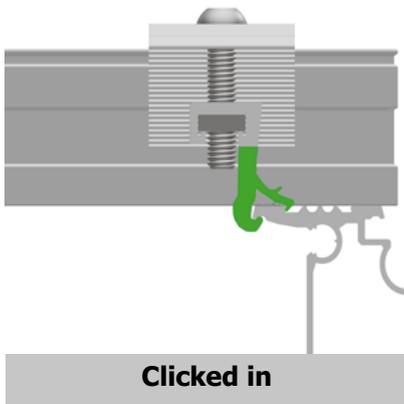
Align the upper row of modules with the aid of a guide or levelling instrument.  
Now slide the next module underneath the mid clamp, adjust the mid clamp to the height of the module's frame and tighten the screw (tightening torque 8–10 Nm).



## 2 Installation of S:FLEX Delta Concrete

### Module installation cross

Ensure that the mid clamp grips both of the module frames on the clamping surface defined by the module manufacturer.



**End clamps are approved for onetime installation. Check the mid clamp has been clicked in.**



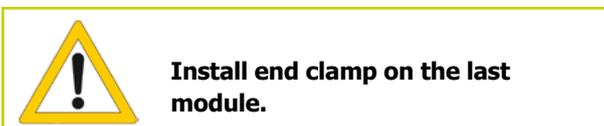
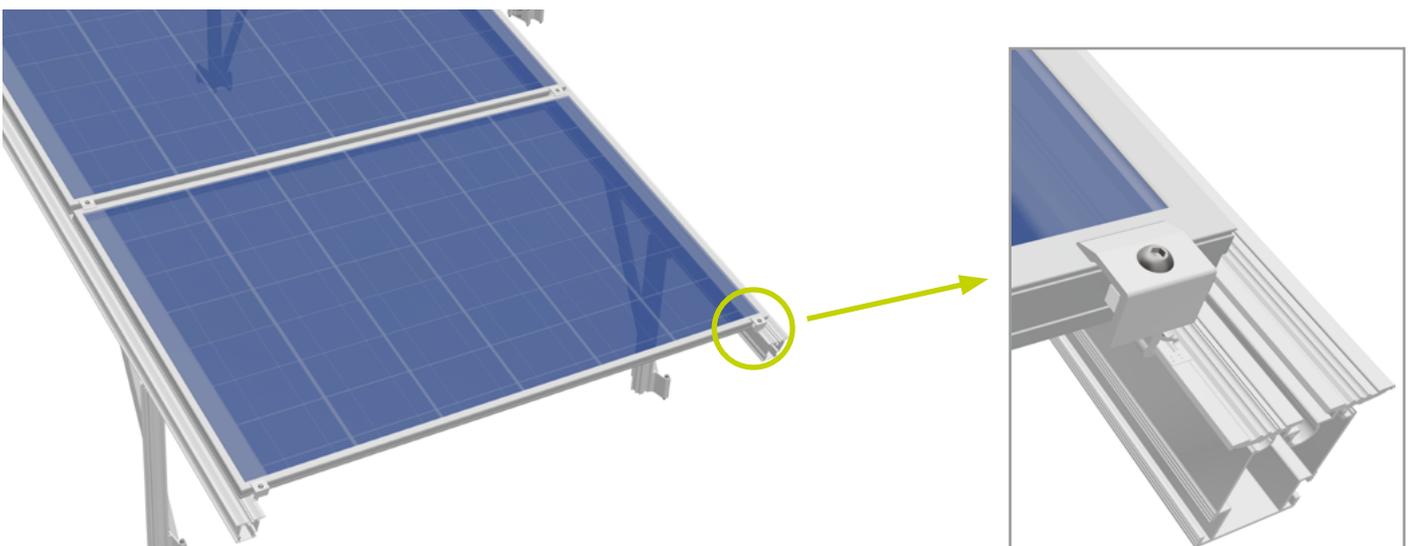
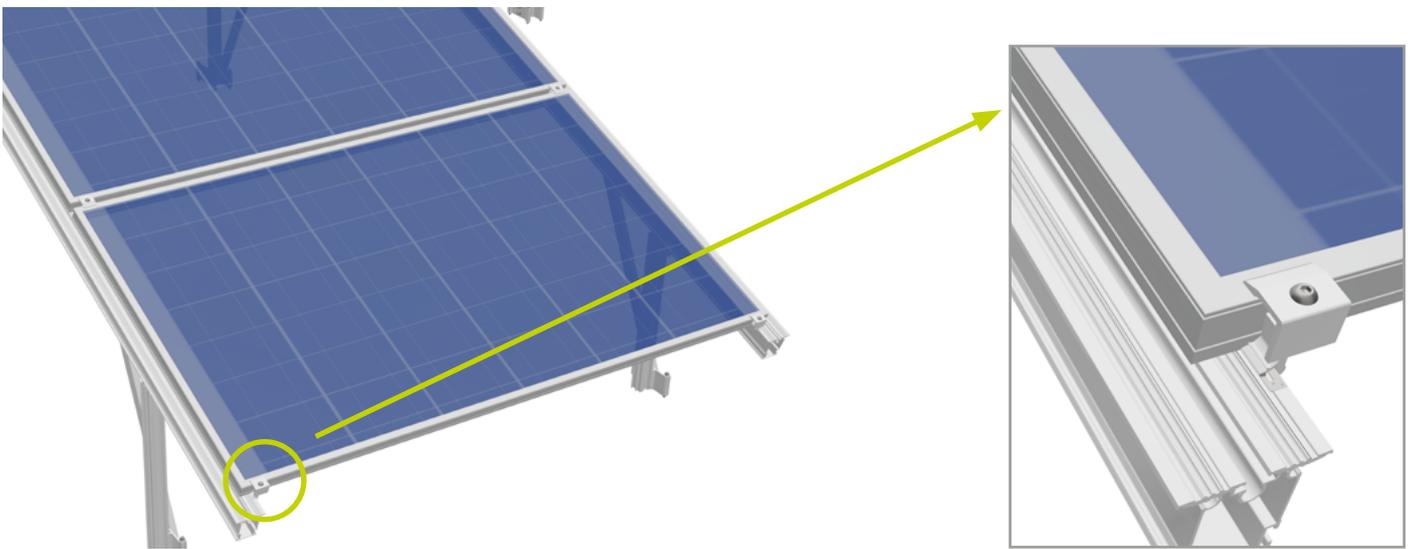
**Observe the module manufacturer's instructions: Check the defined clamping area.**

#### Module installation – (end clamps at the end of the row)

End clamps and locking clips must be installed on the last module in each row (if applicable, on expansion joints). To do this, click the end clamp onto the mounting rail and push it onto the module. Make sure that the end clamp is clicked onto the mounting rail. Now adjust the end clamp to the module height and tighten the screw (tightening torque 8-10 Nm).

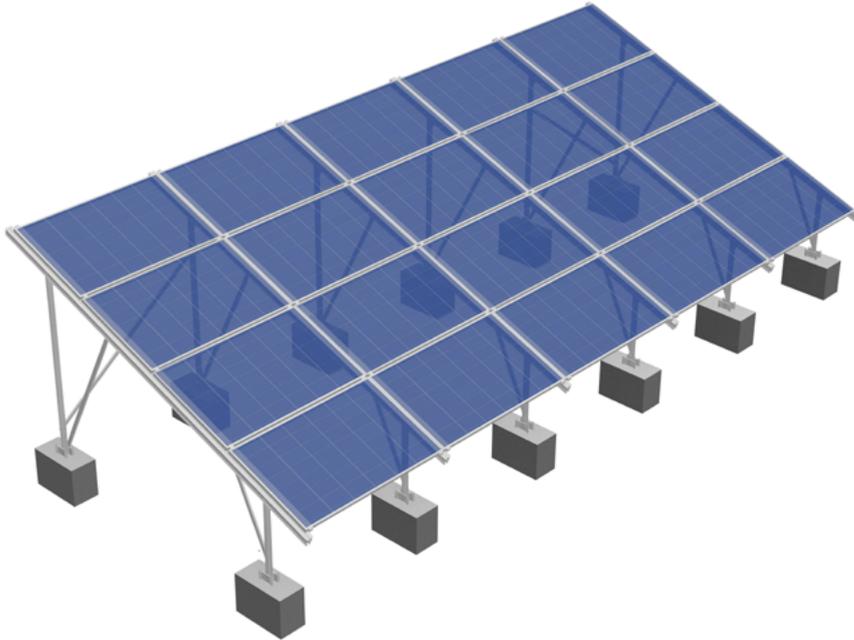
When doing so, ensure that the specified clamping areas and clamping surfaces are observed.

Protruding mounting rail must be shortened parallel to the module frame. The distance between the module frame and the end of the mounting rail must be at least 35 mm.



## 2 Installation of S:FLEX Delta Concrete Module installation transverse

Proceed with the following rows as described.



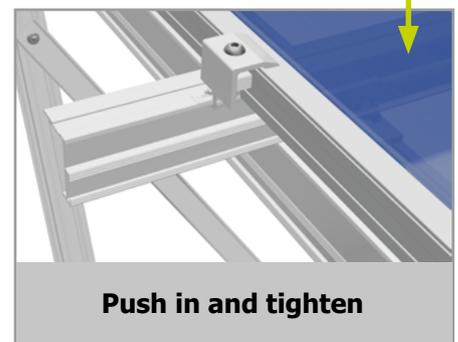
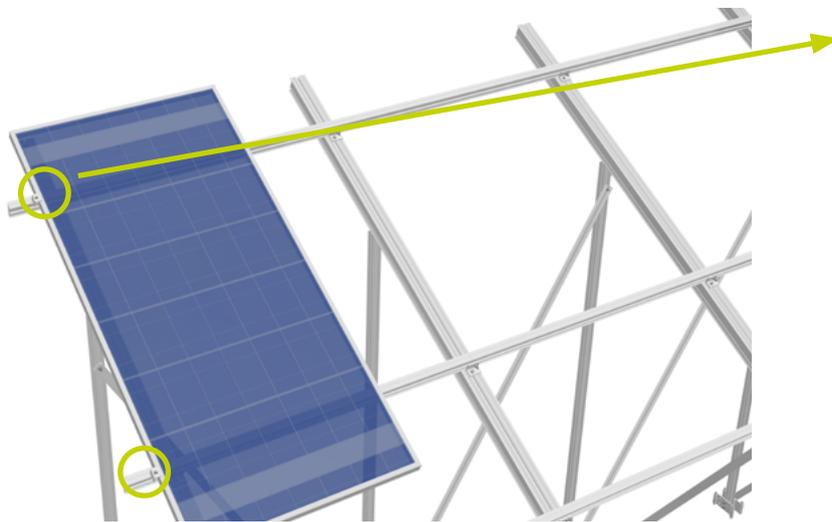
#### 2.4.2 Module installation upright



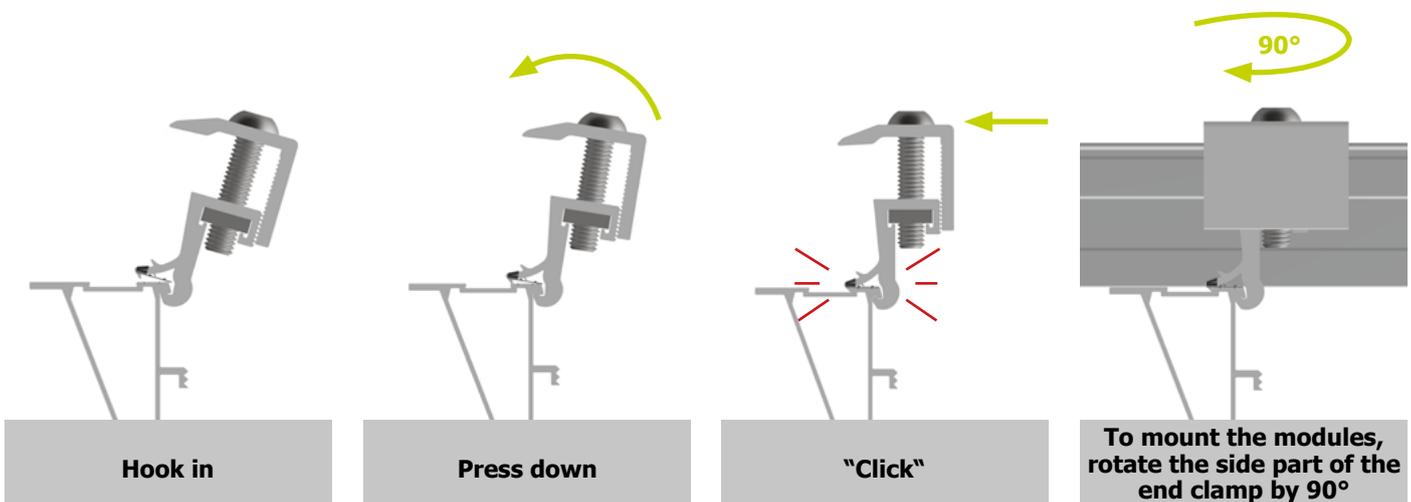
The installation instructions provided by the module manufacturer must be observed, especially with regard to clamping surfaces and clamping areas. S:FLEX GmbH is not liable for damage to the modules and all other consequences resulting from non-compliance with the module manufacturer's installation instructions.

#### Module installation – (end clamps)

Place the module on the mounting rails. Install the end clamps. Click each end clamp on to the mounting rail and push it on to the module. Ensure that the end clamp is clicked of the mounting rail. Now adjust the end clamp to match the height of the module and tighten the screw (torque 8–10 Nm). Pay attention to the prescribed clamping areas and clamping surfaces. The distance between the module frame and rail end must be at least 35 mm.

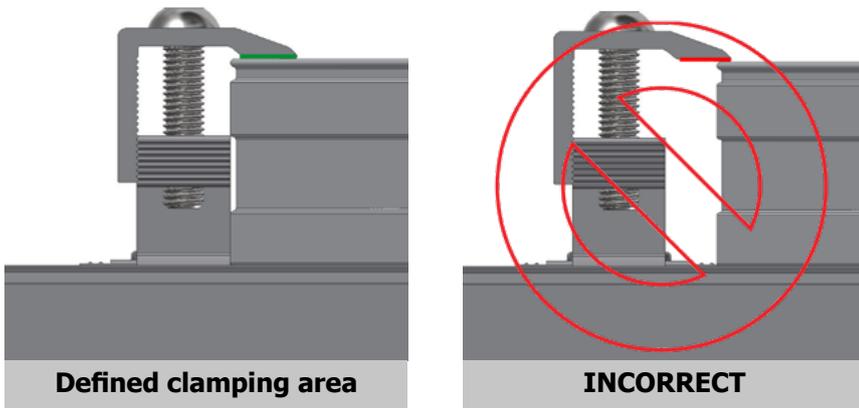
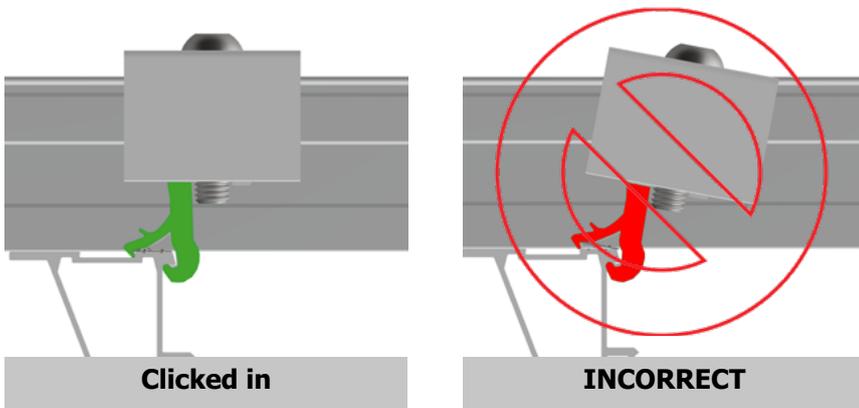


Install the end clamp.



## 2 Installation of S:FLEX Delta Concrete Module installation upright

Ensure that the end clamp clamps the module frame at the clamping area defined by the module manufacturer.



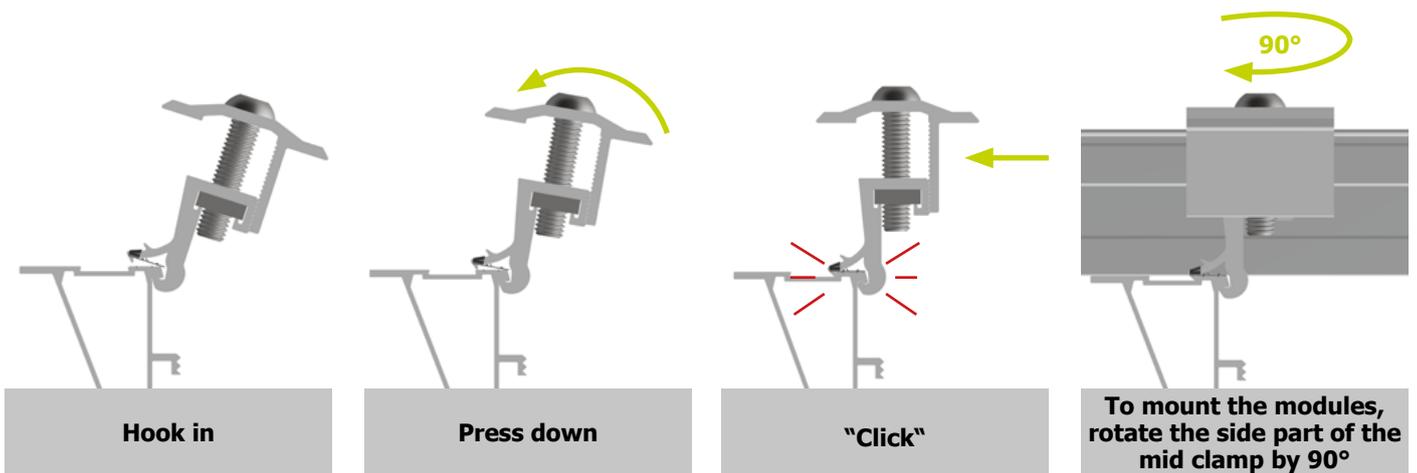
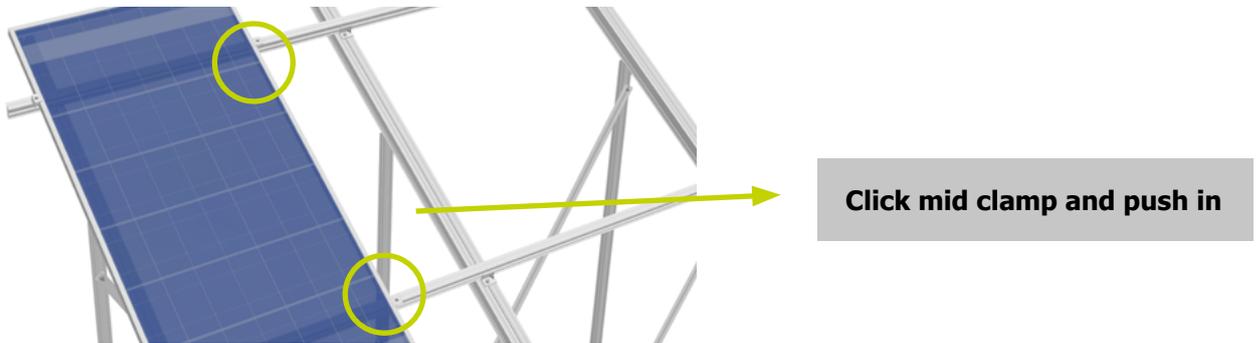
**End clamps are approved for onetime installation. Check the end clamp has been clicked in.**



**Observe the module manufacturer's instructions: Check the defined clamping area.**

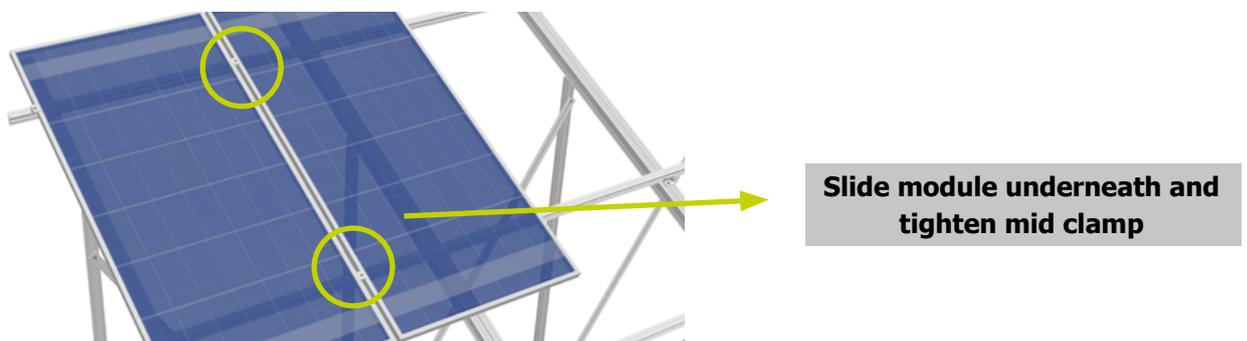
#### Module installation - (mid clamps)

Now install the mid clamps. To do this, click the mid clamps onto the system support and push it onto the module. Make sure that the mid clamps is clicked onto the mounting rails.



Align the upper row of modules with the aid of a guide or levelling instrument.

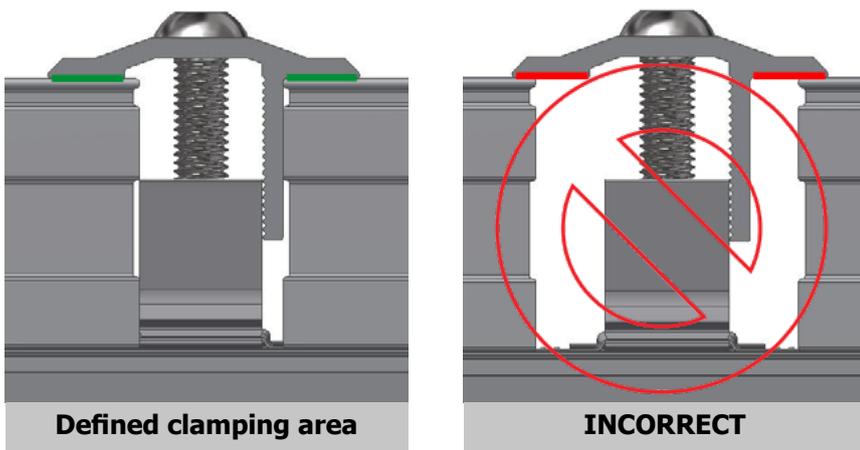
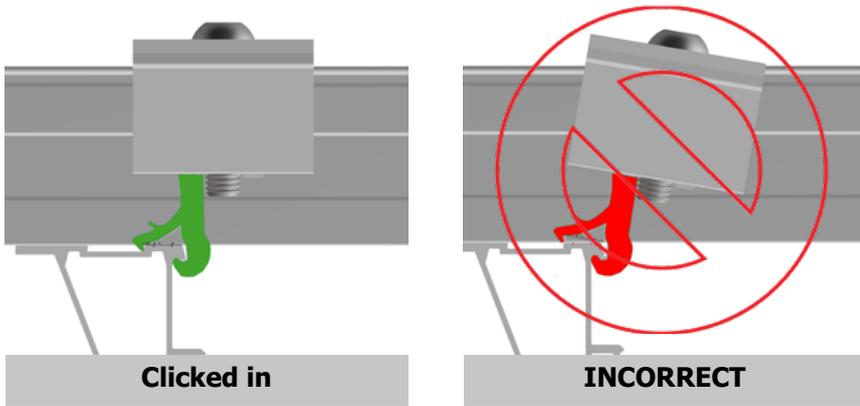
Now slide the next module underneath the mid clamp, adjust the mid clamp to the height of the module's frame and tighten the screw (tightening torque 8–10 Nm).



## 2 Installation of S:FLEX Delta Concrete

### Module installation upright

Ensure that the mid clamp grips both of the module frames on the clamping surface defined by the module manufacturer.



 **End clamps are approved for onetime installation. Check the mid clamp has been clicked in.**

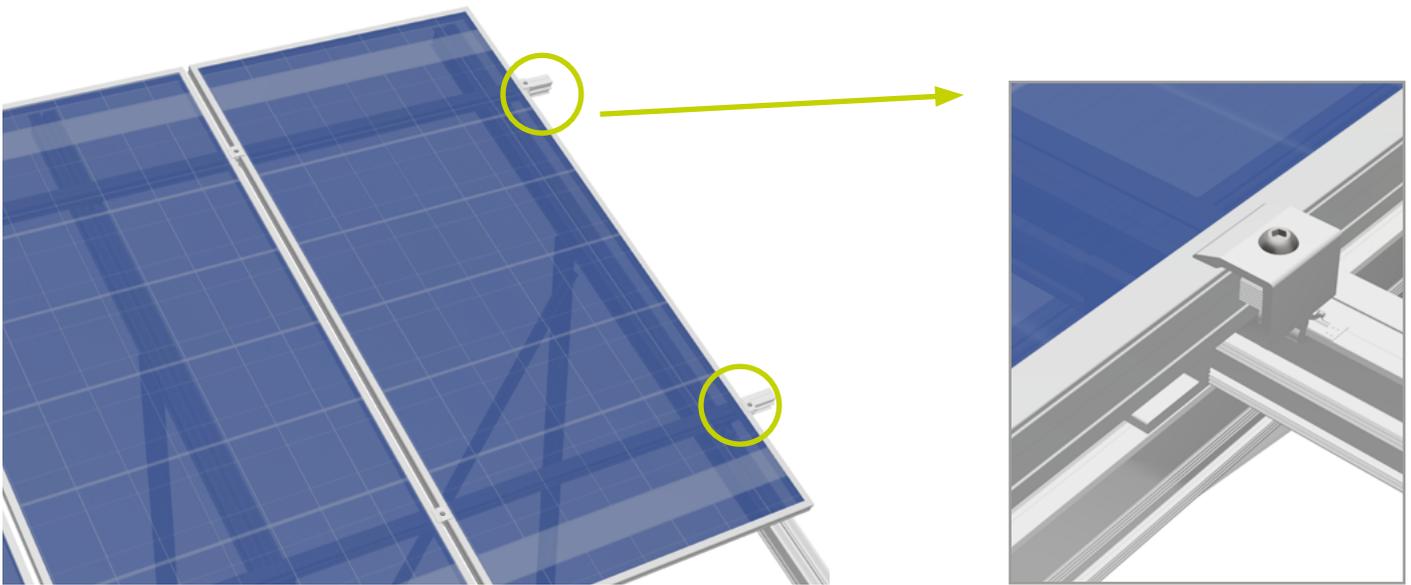
 **Observe the module manufacturer's instructions: Check the defined clamping area.**

#### Module installation – (end clamps at the end of the row)

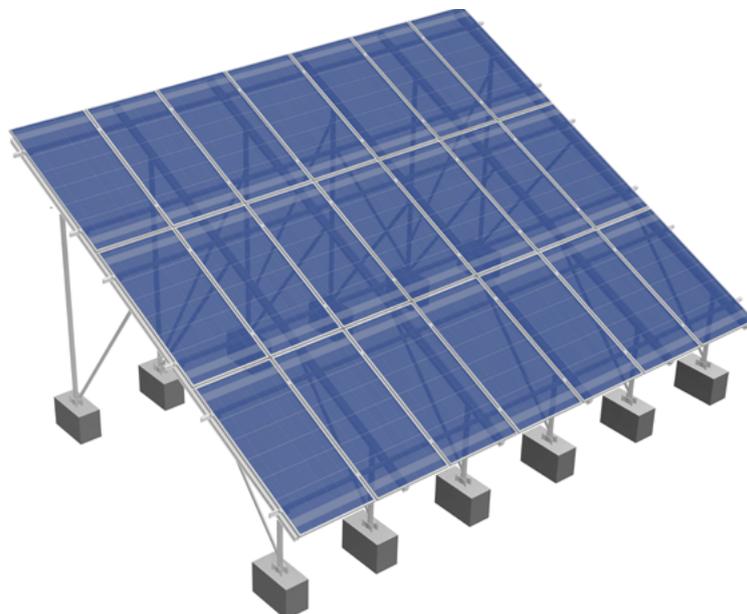
End clamps and locking clips must be installed on the last module in each row (if applicable, on expansion joints). To do this, click the end clamp onto the mounting rail and push it onto the module. Make sure that the end clamp is clicked onto the mounting rail. Now adjust the end clamp to the module height and tighten the screw (tightening torque 8-10 Nm).

When doing so, ensure that the specified clamping areas and clamping surfaces are observed.

Protruding mounting rail must be shortened parallel to the module frame. The distance between the module frame and the end of the mounting rail must be at least 35 mm.



Proceed with the following rows as described.



### 3.1 Disassembly

Disassembly of the S:FLEX mounting system may only be carried out by trained specialist personnel. Observe the same safety instructions, standards and guidelines as provided for the installation. In general, disassembly is carried out in reverse order to the described installation.



**Before disassembly, disconnect the PV modules from the mains network. Disconnect all of the PV modules' electrical cables (string lines and plug connectors) and remove them from the frame system.**



**Remove the modules afterwards and store them safely. Improper disassembly may cause damage to the modules.**



**Dismantle the rack system and store all parts safely. Possible openings in the roof cladding must be closed professionally.**

### 3.2 Disposal

The S:FLEX mounting system is made from aluminium, stainless steel and steel components. These materials can be recycled after disassembly. The frame system must only be disposed of by a specialist waste management company. Observe the applicable national standards and guidelines.

### 4.1 User agreement for use of the S:FLEX Delta Concrete

We expressly point out that the assembly system is sold under a purchase agreement.

Its installation/processing or acquisition by a third party is not carried out in the name of, or on behalf of, S:FLEX GmbH. Installation/processing of the system must be carried out by appropriately qualified personnel and strictly in accordance with the installation instructions.

The design and planning of the system must be undertaken using the S:FLEX Planning Software. S:FLEX GmbH is neither responsible for the project-specific structural analysis of the roof structure, nor for obtaining and documenting the approval of the roof manufacturer for use of the respective fastening system on the roof in question (in the terms of the warranty), nor for correct installation of the fastening system.

S:FLEX GmbH accepts no liability for faults and damage and/or a restricted or limited operational capability of the system which has resulted from incorrect installation and/or installation which was not undertaken in accordance with the installation instructions and/or the project report. In the case of incorrect installation, the buyer's right to assert claims for material defects shall expire.

The system warranty is only valid if all system components were acquired from S:FLEX GmbH.

### 4.2 Warranty / disclaimer

The information regarding dimensioning provided in these instructions is merely suggested values based on prior experience. Binding structural analyses for installation frames can be created using the S:FLEX planning software.

As an installation company, you are responsible for the correct execution of the installation. S:FLEX GmbH is not liable for the dimensional information contained in commercial system quotations.

As the installation company, you are responsible for the mechanical durability of the installed interface connections on the building envelope, in particular also for their watertightness. The components supplied by the company S:FLEX GmbH are designed for the expected loads and in accordance with the currently available technology.

In this context, you must provide the company S:FLEX GmbH with information about all general technical conditions in writing via the project data collection sheet (information about the supporting structure, snow load zone, building heights, wind loads, etc.).

S:FLEX GmbH is not liable if the installed components are not properly handled. Any use close to the sea needs to be clarified with S:FLEX GmbH directly on a case-by-case basis due to the increased risk of corrosion. Provided that the system is handled properly and dimensioned according to the structural conditions and normal environmental and ambient conditions, the company S:FLEX GmbH provides a warranty from transfer of risk to the warranty holder, which guarantees that the metallic components of the racks will remain free from defects with regard to material and workmanship for a period of 10 years. This warranty does not apply to wear parts. For additional information, please refer to the separate warranty provisions.

This applies within the context of the generally prevalent weather and environmental conditions.