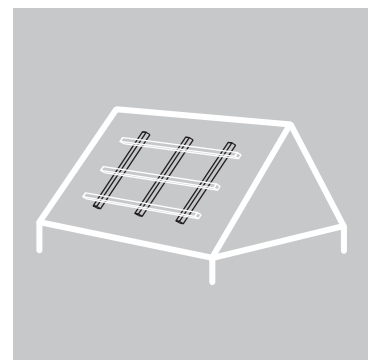
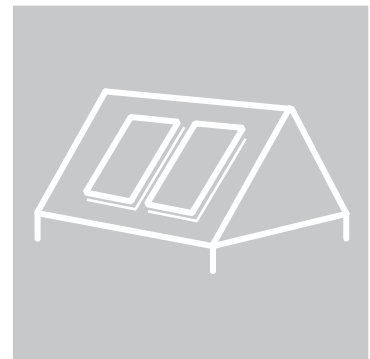


Schüco MSE 210 Cruciform installation



Dear Customer,

Thank you for choosing Schüco solar products and placing your trust in our company.

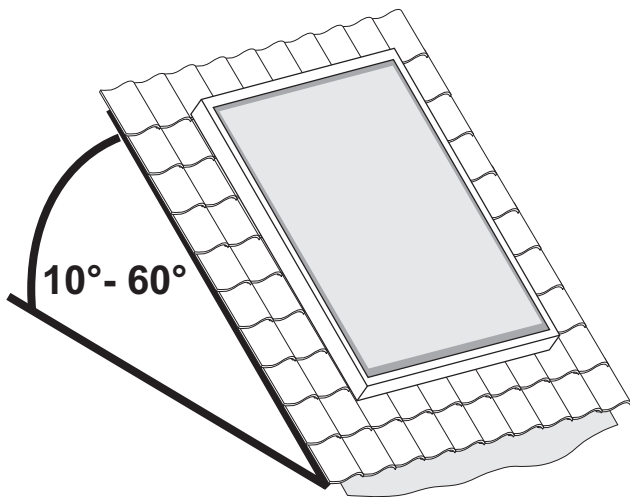
Prior to first installation, we recommend you attend a training course at our training centre or, if this is not possible, that you arrange for on-site training from one of our service engineers.

Before installation, please read the general information and safety guidelines contained in these instructions.

Schüco International KG requires that installation only be carried out by technically qualified and authorised personnel with a recognised qualification (verified by a state or national body) or the appropriate expertise in the relevant technical field.

Product description

The mounting system developed by Schüco is used to securely fix Schüco PV modules to roofs with a roof pitch of 10° to 60°. Please also adhere to the MSE 200 design guide (259 711).



Proper use

The Schüco mounting system for Schüco PV modules has been developed and constructed in line with the latest technology and recognised safety regulations. The mounting systems must only be used in accordance with their stated structural capability.

Alternative use or use beyond this remit is not in accordance with its purpose. The mounting systems are not for mobile use. Sunlight must not be directed onto the surface of the module by reflection or through a lens.

Incorrect use can result in the death or serious injury of the user or a third party, and may damage the appliance, the installation or other material assets. The manufacturer/supplier shall not be liable for any resulting damage. The user alone will bear the risk.

Correct usage also includes adhering to the installation and operating instructions and installation instructions for additional materials.

Accepted practice as usually codified in standards, guidelines, specifications, general and technical regulations laid down by local and national bodies, power supply companies, trade organisations and technical committees in the relevant sector must be followed.

The installation of solar units may make increased demands in terms of watertightness with regard to roof, wall and sealing and this must be taken into account accordingly.

Disposal

Dispose of the packaging in accordance with the relevant laws and technical regulations. Observe the environmental requirements with regard to recycling, re-use and disposal of consumables and components in accordance with DIN EN 378.

List of contents

Product description / correct use / Disposal	2
General information, hazard warnings and safety instructions	3
Explanation of pictograms used / Tools required.....	4
Overview: On-roof range	5
Maximum fixing intervals / Cutting.....	6
Overview: MSE 210 On-Roof Mounting System	7
Installation of rafter-mounted fixing points	8-9
Hanger bolt installation.....	10-11
How to install BP 170 V	12
How to connect BP 170 V mounting rails	13
How to install BP 165 H.....	14
How to connect BP 165 H mounting rails.....	15
Installation of modules.....	16
Fixing intervals	17
Installing the module anti-slip device.....	18
Installing the first module.....	19
Installing the second module.....	20
Connecting the module cables.....	21
Electrical connection; Lightning protection; Handover to the operator	22

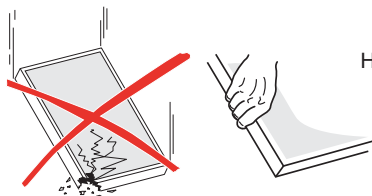
Version 01

Installation instructions:
MSE 210 cruciform installation • Art. No. 259 714 • 01.2010 - 01

Printed in Germany, copyright by Schüco International KG



General information, hazard warnings and safety instructions



Handle modules with care.



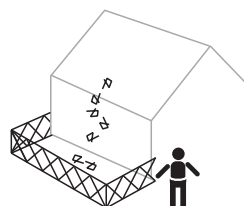
Do not fix safety straps to the mounting system.



Warning: do not damage the cable.
There is a risk of death by electric shock.



Safety straps are also available from Schüco, Art. No.: 221 522 522



Section off the site and secure against falling objects.



Wear protective gloves.

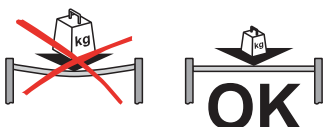


Wear a safety helmet!



Ensure that you have access to a first aid kit.

The existing roof construction must be checked to see that it is in perfect condition (e.g. by a structural engineer, architect, surveyor, etc.).



Do not exceed the maximum roof load. There is a risk of collapse.

Explanation of pictograms used

Dangers



Danger!

Risk of death or injury

Warning!

Risk of damage to health, environment and product.

Important!

Risk of damage to the environment and product



Danger!

Risk of death or injury from electric shock.
Before working with electrical devices, first disconnect the device from the mains (all connections).



Danger!

Risk of scalding!

Information



Important Information!



Materials to be provided by others



Only fix loosely in place



Tighten

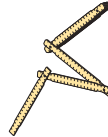


Weight/total weight (kg)

Tools required:



Pencil/chalk



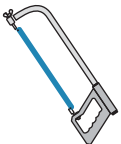
Folding rule/tape measure



Spirit level/plumb line



Screwdriver (flat blade/cross-head)



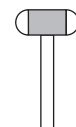
Metal saw
For cutting mounting rails to length



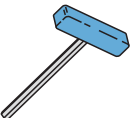
Cordless screwdriver/drill



Allen key; A/F 6
(249 745)



Rubber mallet



Allen key with T-handle; A/F 6
(249 744)




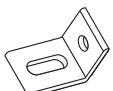
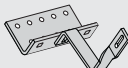
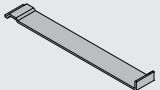

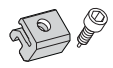

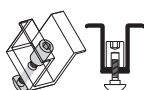




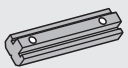





Also required



Suitable hexagon-head wood screws to fix the mounting system to the roof construction.



Overview: On-roof options

	MSE 200 BP 165 H (259 723) L= 6180 mm		M10 hanger bolt 200 mm - (259 583 - PU = 100) 250 mm - (259 786 - PU = 100)
	MSE 200 BP 170 V (259 722) L= 6180 mm		L-shaped mounting bracket (259 665 - PU =100)
	Roof anchor "pantile 10.2" stainless steel, rotated - OneTurn 18 required - (257 130 / 257 131 / 257 787 - 20/100/500 VE)		MSE 210 mounting hooks 360 mm (271 831 - PU =50)
	Roof anchor "pantile 13.1" stainless steel - OneTurn 22 required (259740)		Anti-slip device for frame type 3 (257 117)
	OneTurn with end retaining clamp (For Art. No., see retaining clamps)	alternativ to 271 831	
	OneTurn with intermediate retaining clamp (For Art. No., see retaining clamps)		
	End retaining clamp (For Art. No., see retaining clamps)	alternativ retaining clamps	
	Intermediate retaining clamp (For Art. No., see retaining clamps)		
	MSE 210 cruciform retaining clamp (259 716), inc. punching screw M8x29.5, anchor block and installation instructions for MSE 210 cruciform installation. Ø hole: 9 mm		
	OneTurn 18 (256 494) - 20er VE OneTurn 22 (256 040) - 20er VE		
	Connector including punching screws (257 105)		
	Anti-slip device (256 022)		
	Installation instructions (259 714)		
	Solar cable (231 036 / 231 173 / 231 174)		
	String cable		
	Cable duct (256 041)		



Maximum fixing intervals

Horizontal mounting rails

In general, the system planner configures the system in advance. The maximum distances can be derived from:

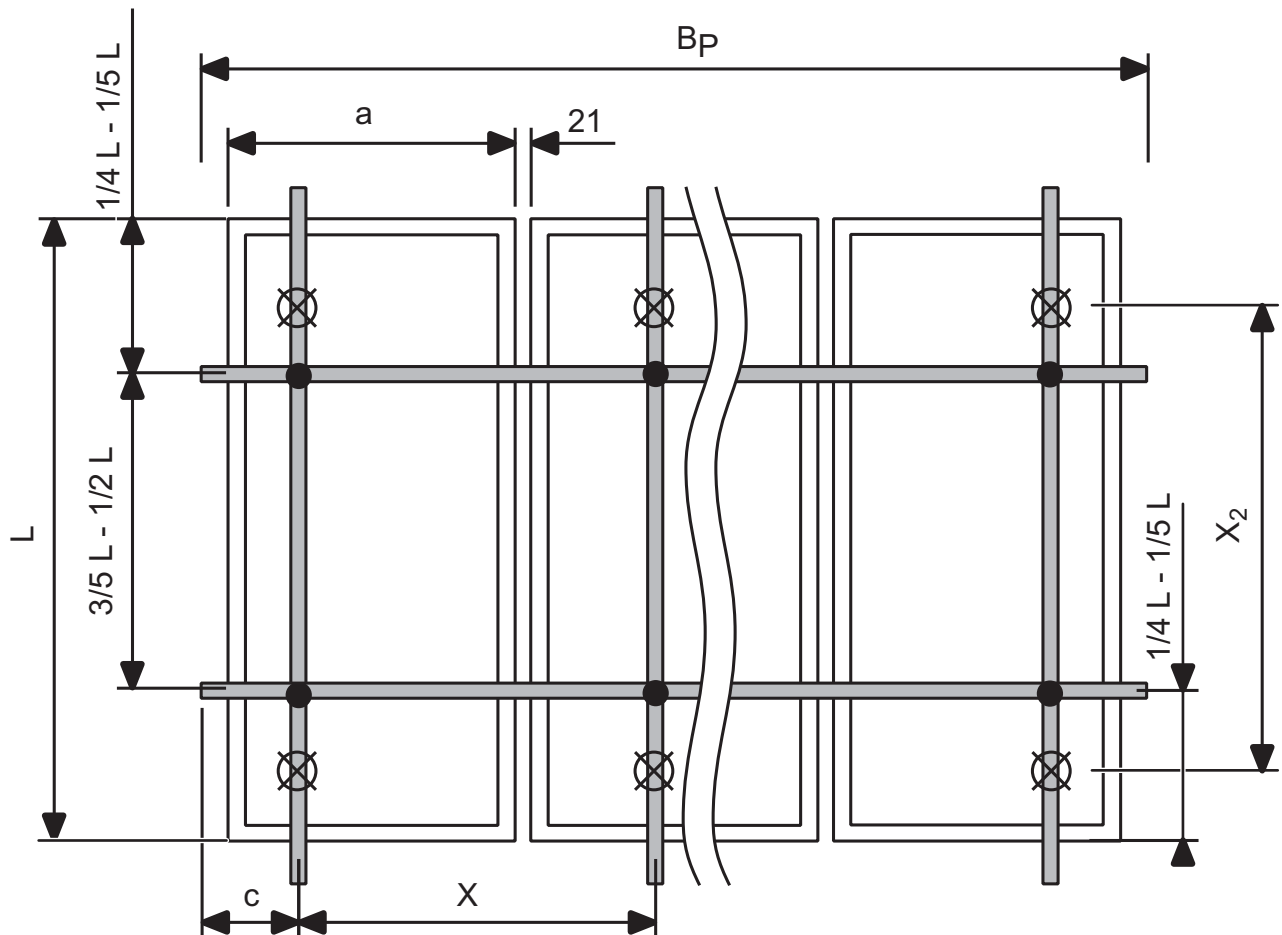
1. The selected module type
2. The location (installation location)



For more information on the fixing intervals, refer to design guide 259 711.

● = Position of the cruciform retaining clamps

⊗ = Position of the fixing points



L = module length in metres	c = Maximum cantilever
a = module width (m)	c ≤ 0,15 * X where X ≤ 1000 mm
B _p = mounting rail length (m)	c ≤ 0,25 * X where X ≤ 2000 mm
X = Maximum horizontal distance between fixings (m)	c ≤ 500 mm where X > 2000 mm
X ₂ = Maximum vertical distance between fixings (m)	

Calculation of dimensions



The length of the mounting rails supplied is ~ 6180 mm

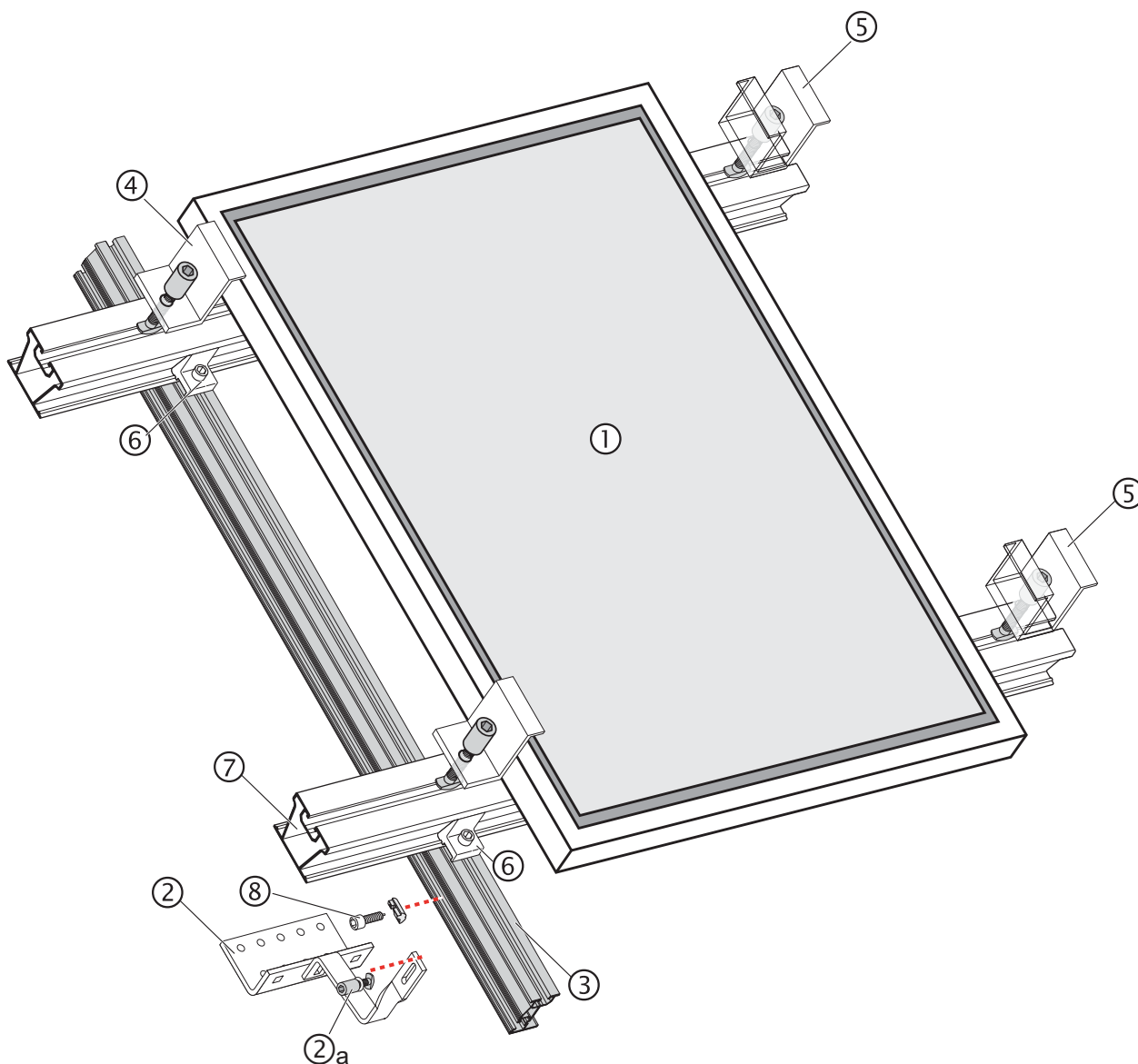
Cutting horizontal mounting rail (per row of modules)
= 22 mm + [number of modules x (module width + 21 mm)]

Example:	
Number of modules:	6
Arrangement:	portrait, adjacent in a single row
Module dimensions:	L = 1495 mm ; B = 1001 mm
Cutting length:	22 + [6 x (1001 mm + 21 mm)] = 6154 mm
Required number of mounting rails:	2
Retaining clamp	
End retaining clamps:	4 per row of modules
Intermediate retaining clamp:	2 x (number of modules - 1)

Cutting vertical mounting rails =
no. of rows x length of module + (no. of rows - 1) x 21

Example:	
Number of modules:	4 rows
Arrangement:	portrait/adjacent
Module dimensions:	L=1495 ; B= 1001
Cutting length:	4 x 1495 + (3 x 21) = 6043 mm
Required number of mounting rails:	2

Overview: MSE 210 cruciform installation



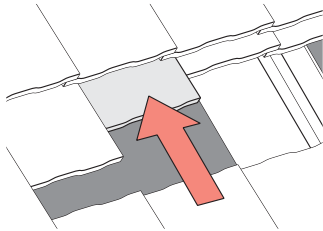
- | | |
|--|---|
| ① Schüco PV modules | ④ End retaining clamp (see clamps) |
| ② roof anchor option (257 131)
/Hanger bolt (259 583) | ⑤ Intermediate retaining clamp (see clamps) |
| ② _a OneTurn 22 | ⑥ Cruciform clip (259 716) |
| ③ BP 170 V (259 722) | ⑦ BP 165 H (259 723) |
| | ⑧ Anti-slip device (256 022) |

Installation of rafter-mounted fixing points

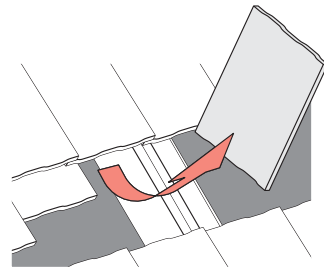


Refer to the "Maximum fixing distances" page for the required distances.

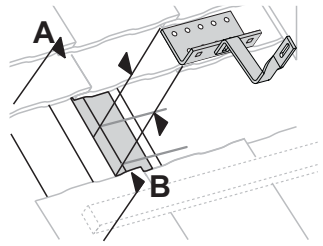
1



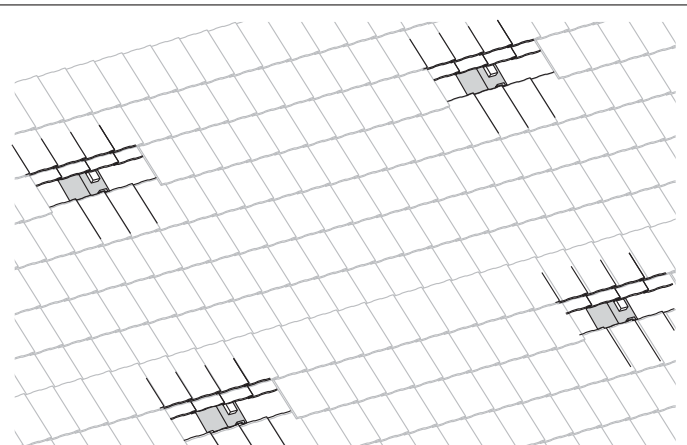
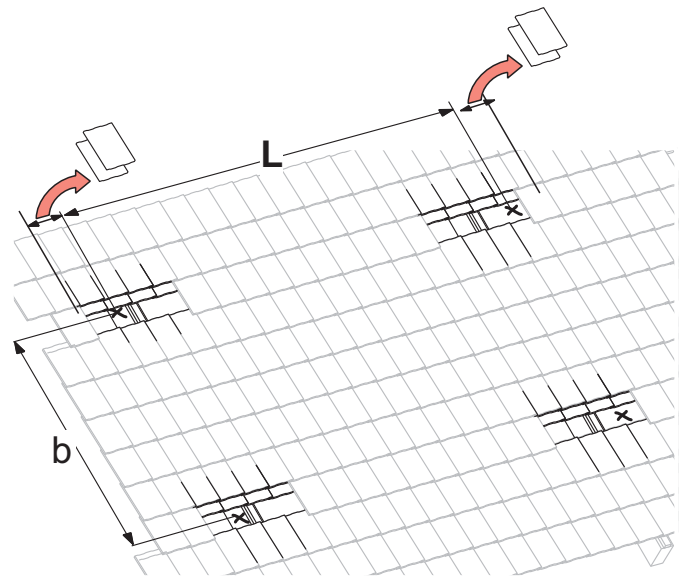
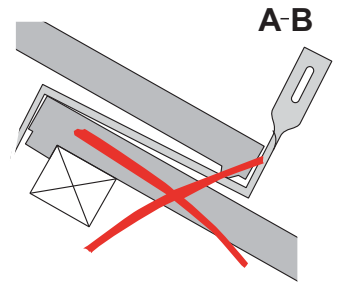
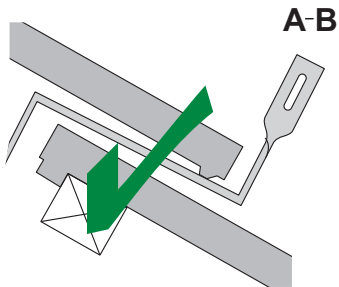
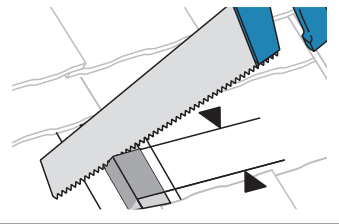
2



3



4





1 **2**

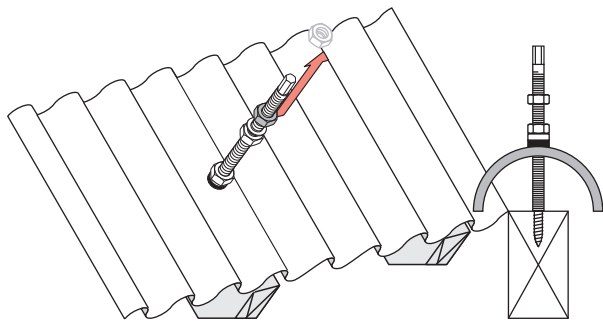
OK

! Refer to the "Maximum fixing distances" page for the required distances.

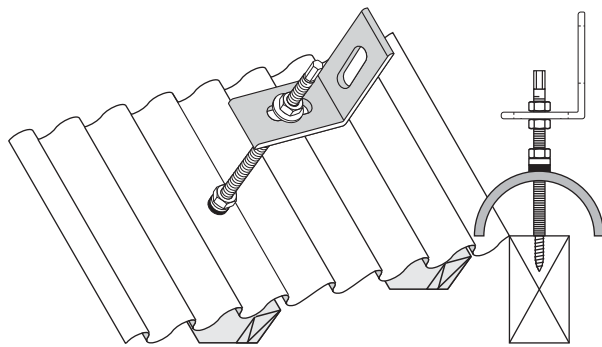
1

1

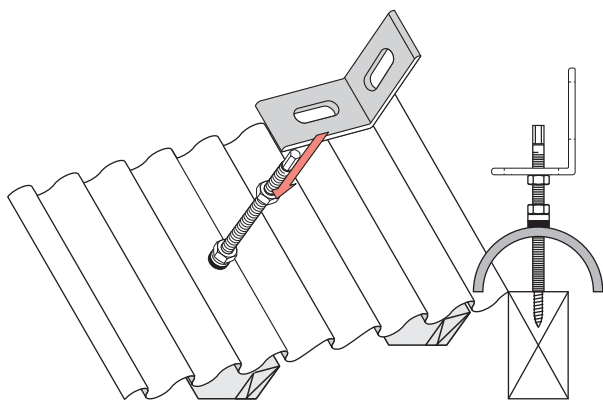
1 Remove the third/top nut.



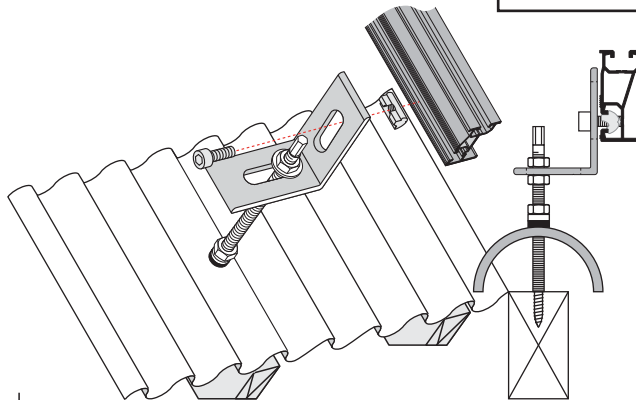
4 Secure the bracket using the third nut.



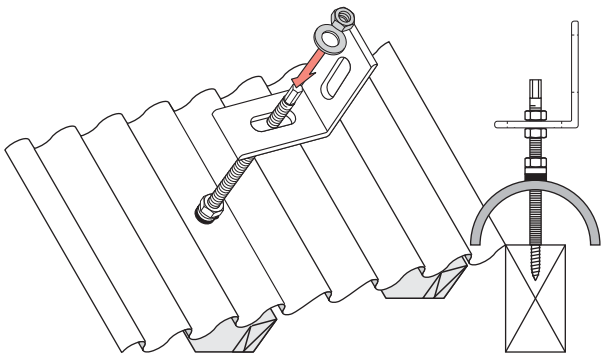
2



5



3 Screw the third nut on again.



After mounting BP 170 V on the hanger bolt adapter, mount the BP 165 H in exactly the same way as for installation with a roof anchor. Please read the pages below.



A roof anchor anti-slip device must be installed after every fourth vertical fixing point, or at least every 2 metres.

Roof anchor anti-slip device
(256 022 - PU =10).



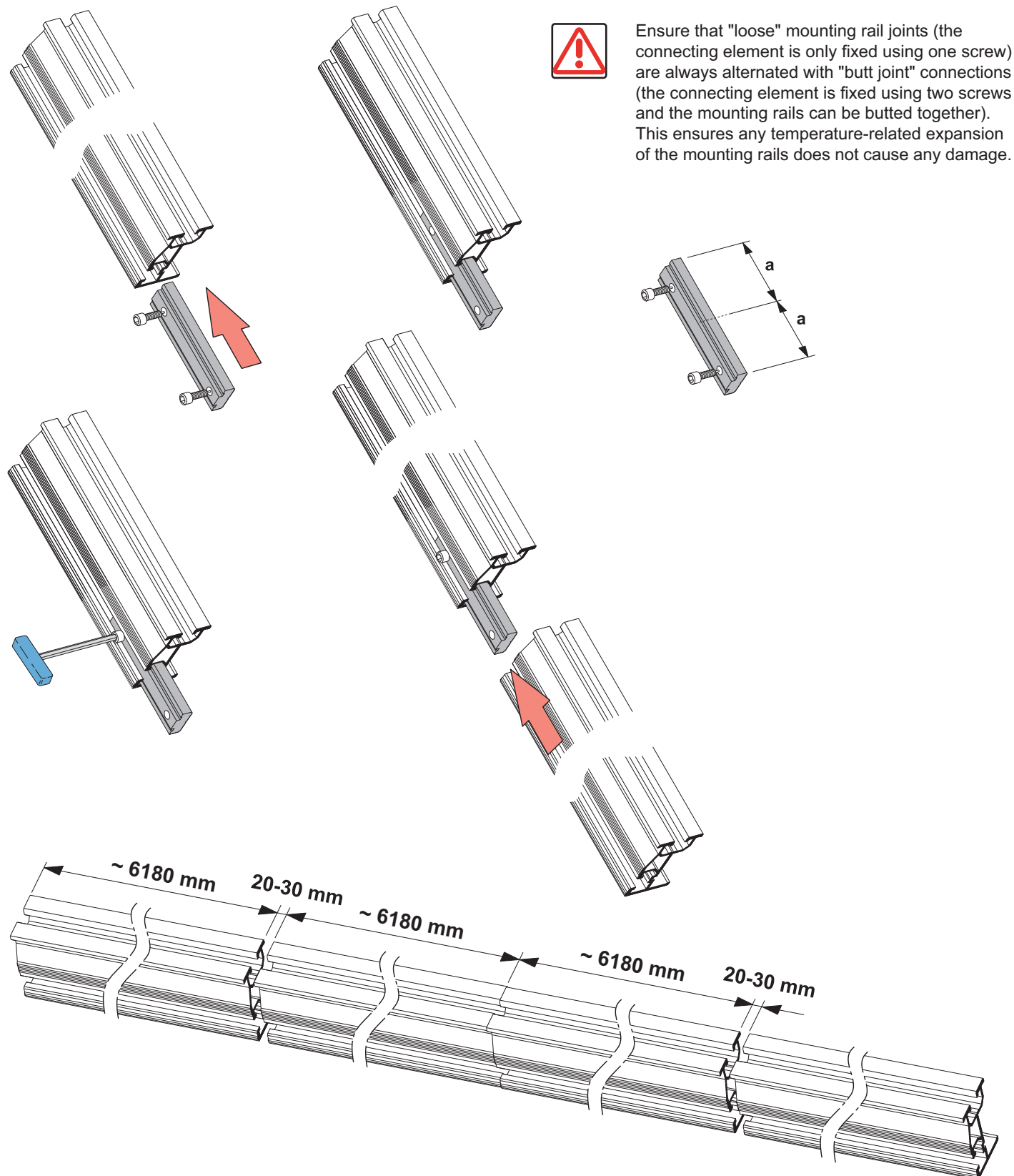
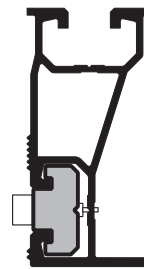


How to connect BP 170 V mounting rails



The connecting element (257 105) does not fulfil structural functions.

1. Slide half of the connecting element (257 105) into the mounting rail groove.
2. Tighten the screws.
3. Slide the second mounting rail into the fixed connecting element.

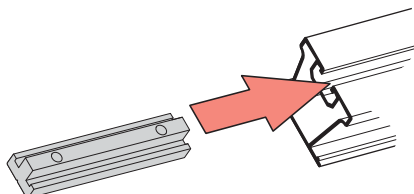




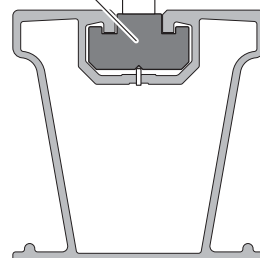
The connecting element (257 105) does not fulfil structural functions.

1

Slide half of the connecting element into the screw channel of the mounting rail.

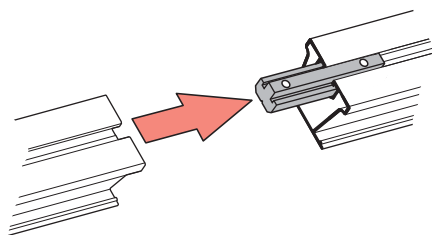


Connecting element (257 105)



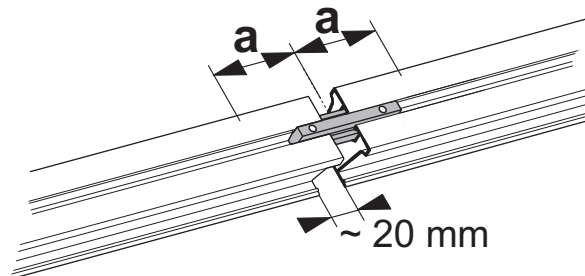
2

Slide the second mounting rail into the connecting element.



3

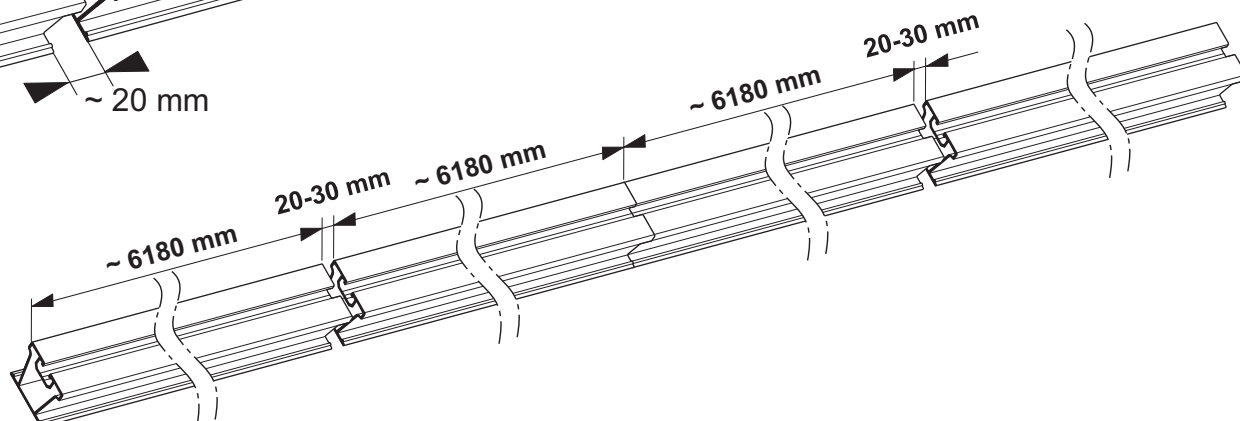
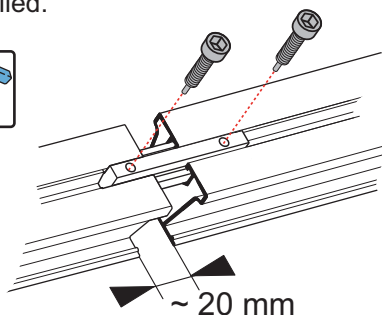
Ensure that the connecting element evenly overlaps both of the mounting rails.



Ensure that "loose" mounting rail joints (the connecting element is only fixed using one screw) are always alternated with "butt joint" connections (the connecting element is fixed using two screws and the mounting rails can be butted together). This ensures any temperature-related expansion of the mounting rails does not cause any damage.

4

Secure the connecting element using the punching screws supplied.



Fixing intervals

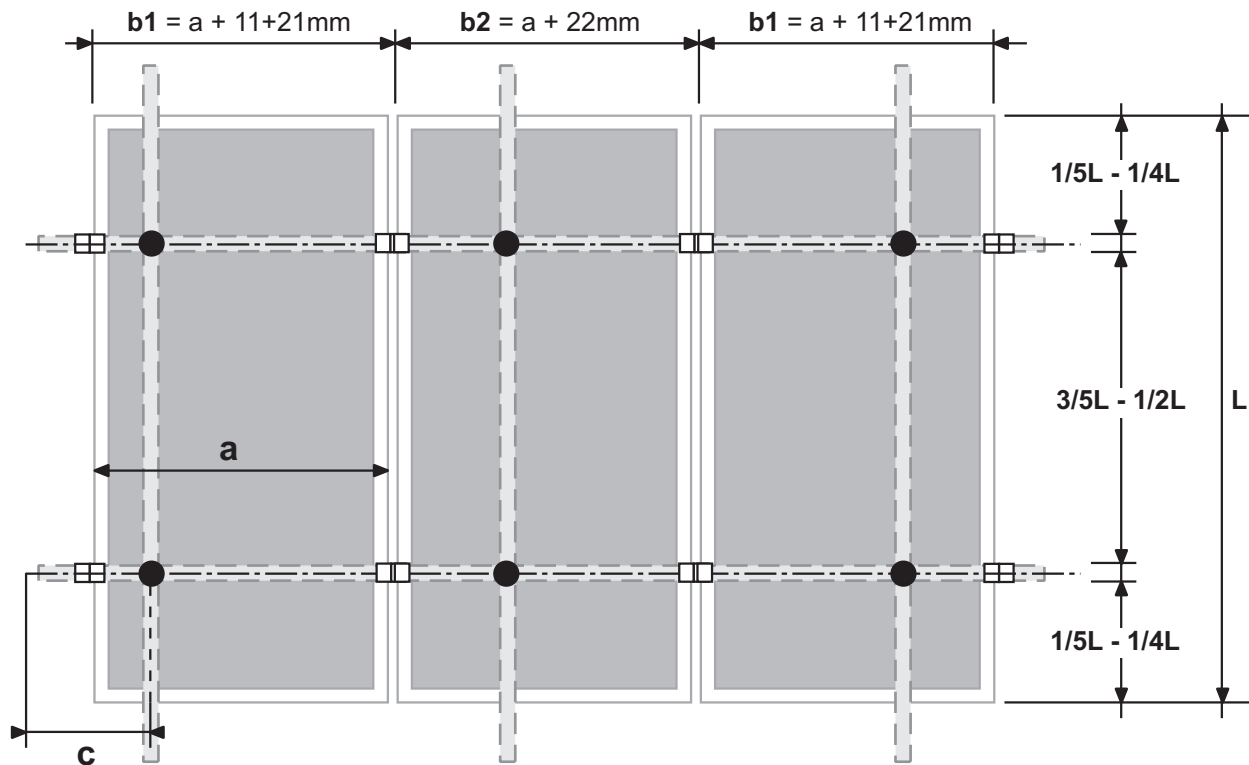


● = Fixing point

The following applies to end retaining clamps:
The following applies to end retaining clamps:

$$b1 = a + 11 + 21 \text{ mm}$$

$$b2 = a + 22 \text{ mm}$$



L = module length in metres
a = module width (m)
b = module spacing (mm)

c = maximum cantilever
c ≤ 0,15 * X where X ≤ 1000 mm
c ≤ 0,25 * X where X ≤ 2000 mm
c ≤ 500 mm where X > 2000 mm



For more information, refer to design guide 259 711



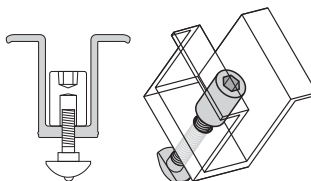
Installing the first module

OneTurn

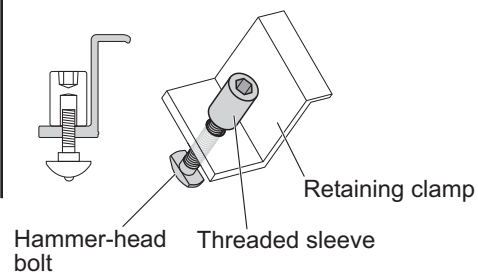
Schüco has developed the OneTurn fixing system to mount modules quickly and securely.

To make installation work even easier, you need the Schüco Allen key. This enables you to install all the retaining clamps with one hand.

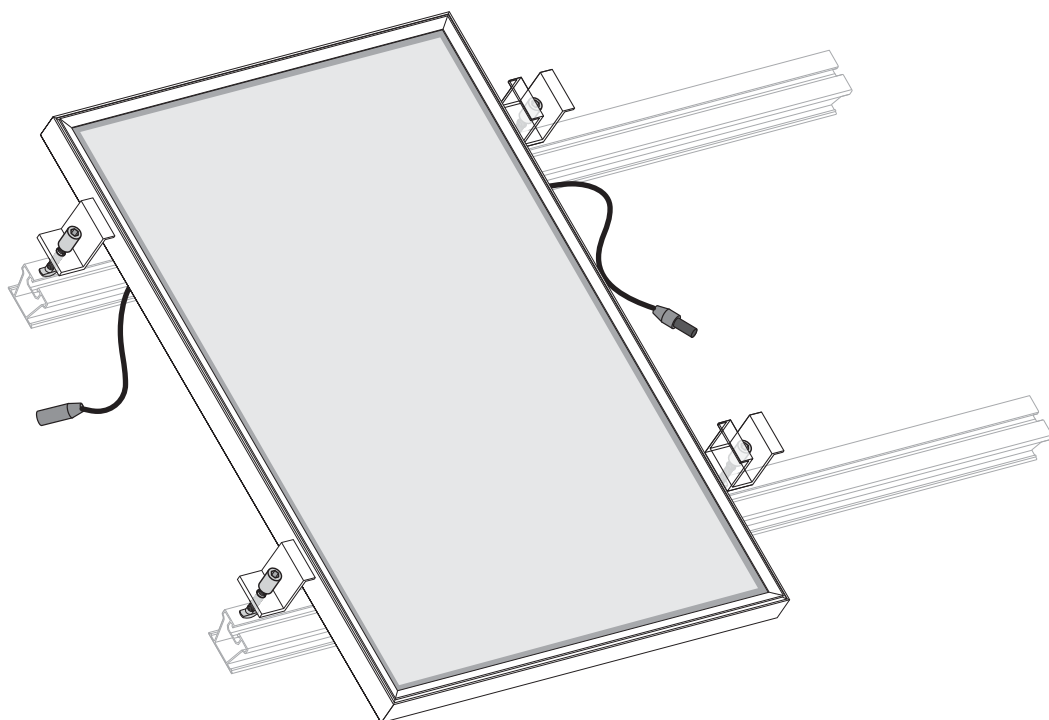
OneTurn with intermediate retaining clamp



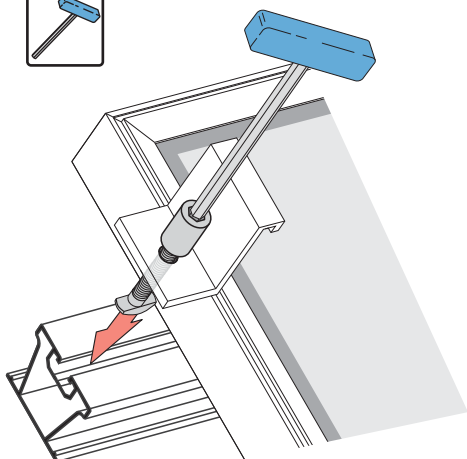
OneTurn with end retaining clamp



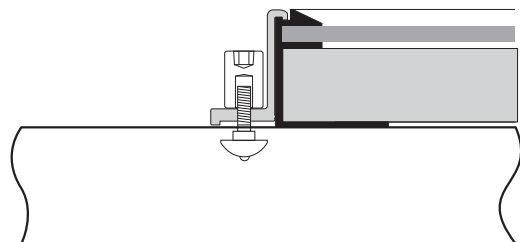
Always ensure that the module cables are laid securely to prevent the cable from becoming damaged.

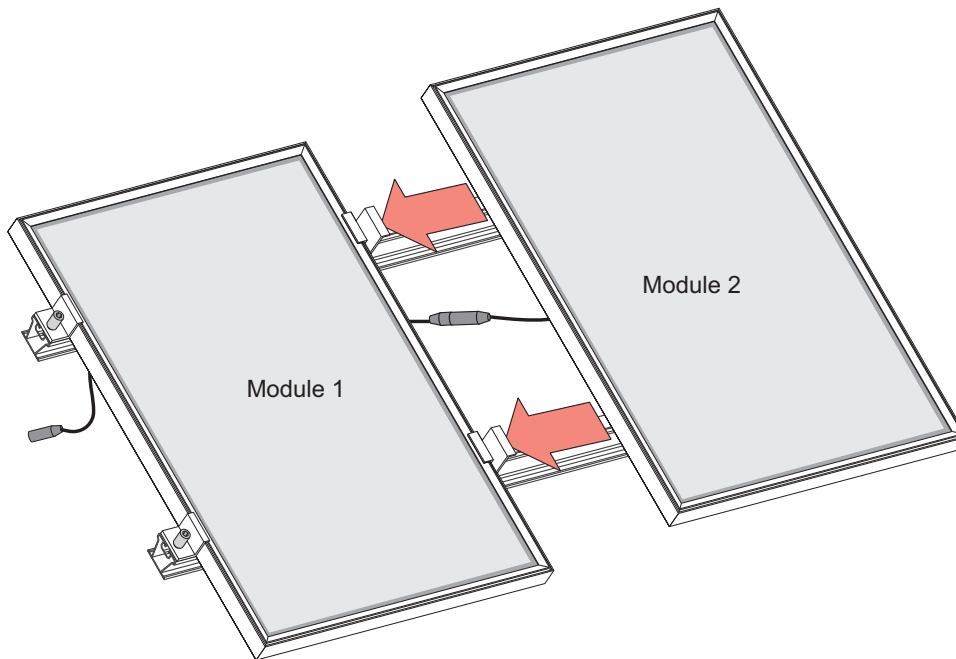


1



Position the end retaining clamps flush with the module frame. Lock the OneTurn in place by turning it 90° clockwise. Then tighten the threaded sleeve.





Slide the second module in flush underneath the OneTurn.

