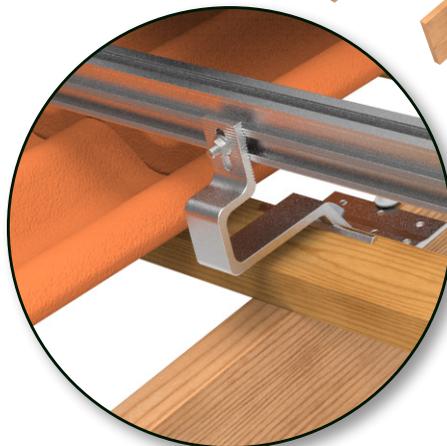# Installation guide for solar panels for tile roofing From FIXNORDIC
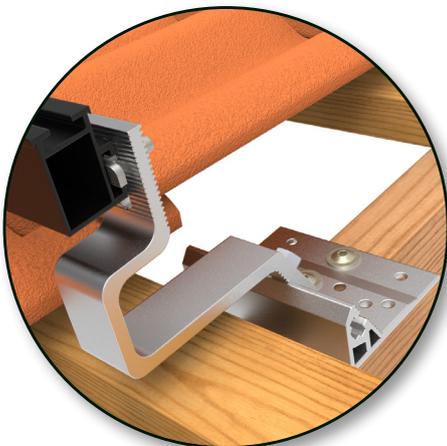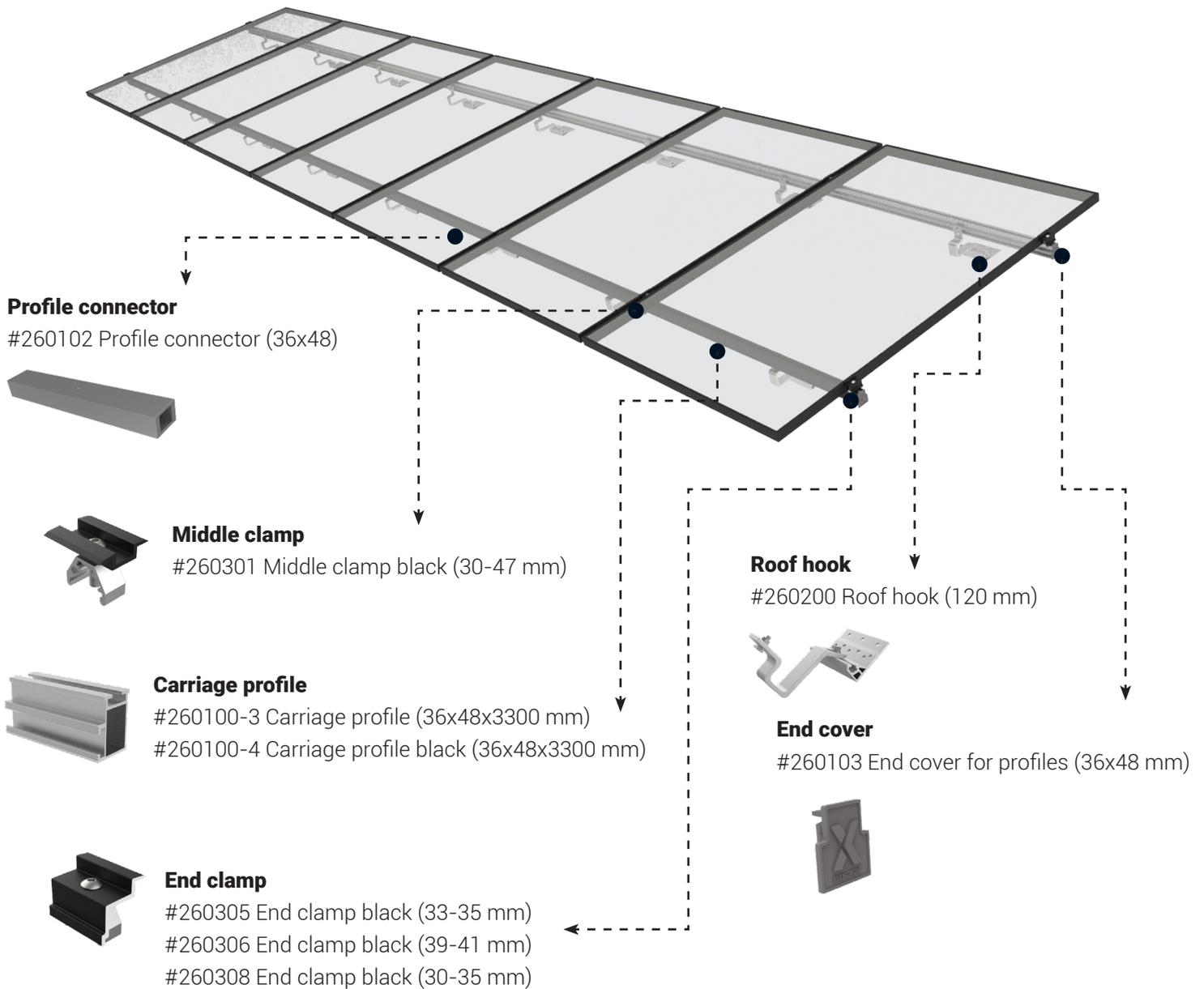
FIXNORDIC.DK

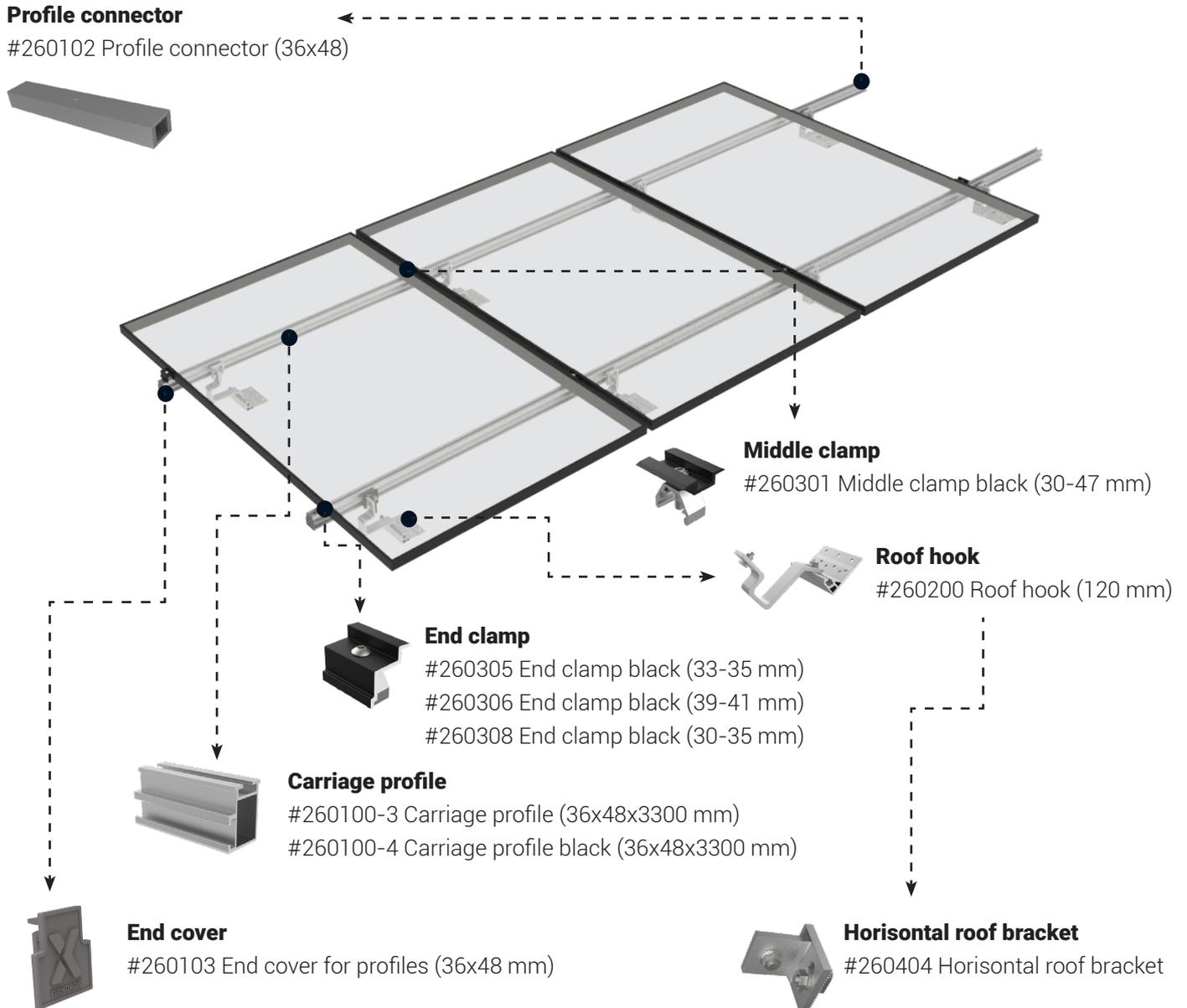proof enough
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proof enough · FIXNORDIC A/S
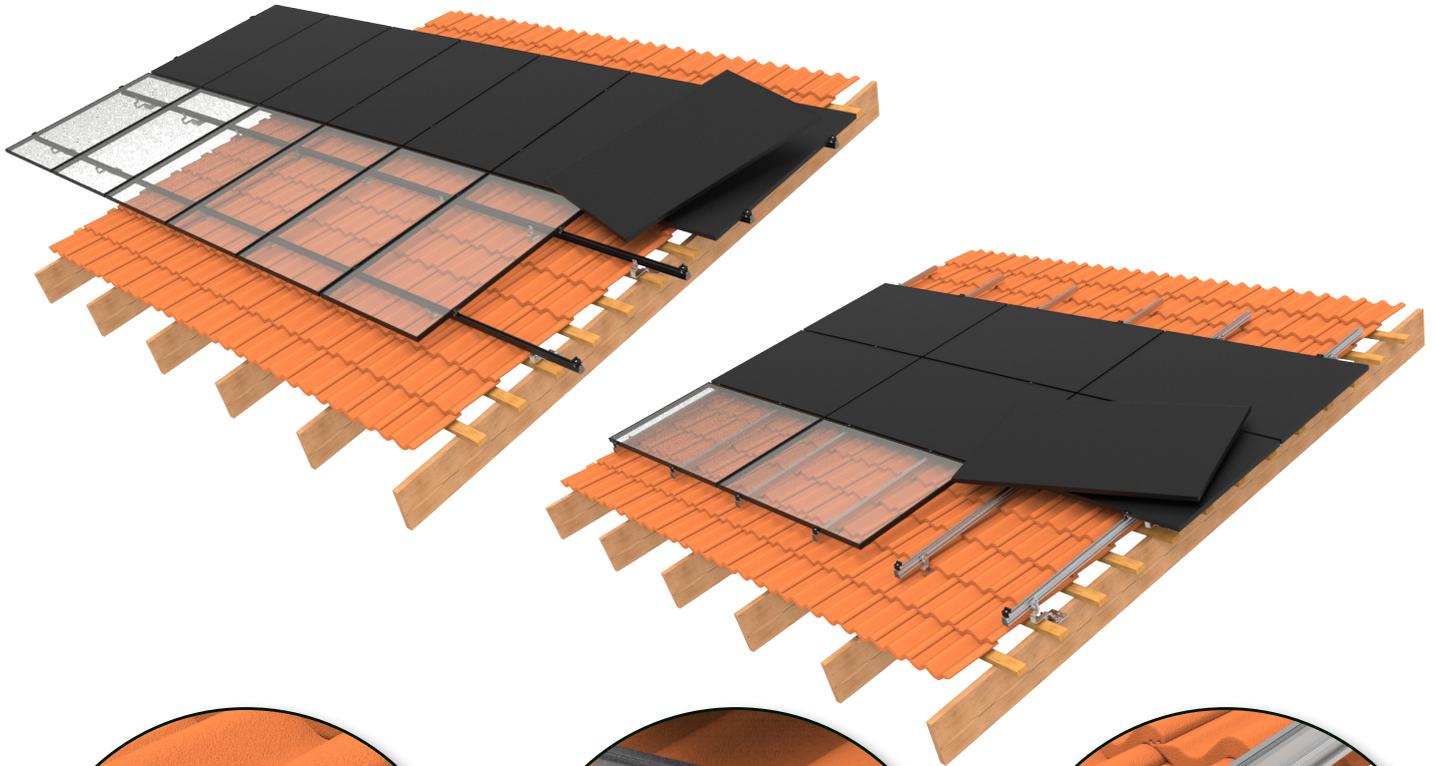
INSTALLATION GUIDE

Assembly system for tile roofing From FIXNORDIC

ARTICLE NUMBER OVERVIEW (carriage profiles parallel to roof ridge)

Profile connector
#260102 Profile connector (36x48)

Middle clamp
#260301 Middle clamp black (30-47 mm)

Carriage profile
#260100-3 Carriage profile (36x48x3300 mm)
#260100-4 Carriage profile black (36x48x3300 mm)

End clamp
#260305 End clamp black (33-35 mm)
#260306 End clamp black (39-41 mm)
#260308 End clamp black (30-35 mm)

Roof hook
#260200 Roof hook (120 mm)

End cover
#260103 End cover for profiles (36x48 mm)

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ARTICLE NUMBER OVERVIEW (carriage profiles perpendicular to roof ridge)

Profile connector
#260102 Profile connector (36x48)

Middle clamp
#260301 Middle clamp black (30-47 mm)

Roof hook
#260200 Roof hook (120 mm)

End clamp
#260305 End clamp black (33-35 mm)
#260306 End clamp black (39-41 mm)
#260308 End clamp black (30-35 mm)

Carriage profile
#260100-3 Carriage profile (36x48x3300 mm)
#260100-4 Carriage profile black (36x48x3300 mm)

End cover
#260103 End cover for profiles (36x48 mm)

Horisontal roof bracket
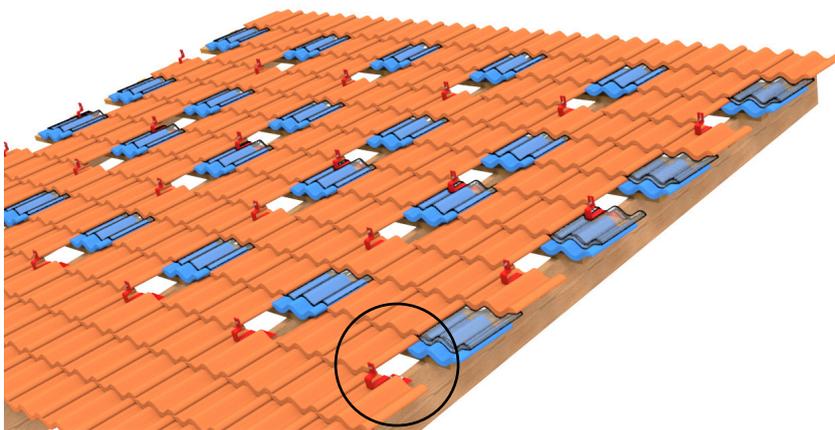#260404 Horisontal roof bracket

INSTALLATION ON TILES AND TILE-LIKE ROOF COVERINGS

1. Placement of roof hooks
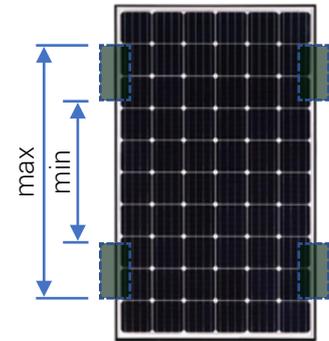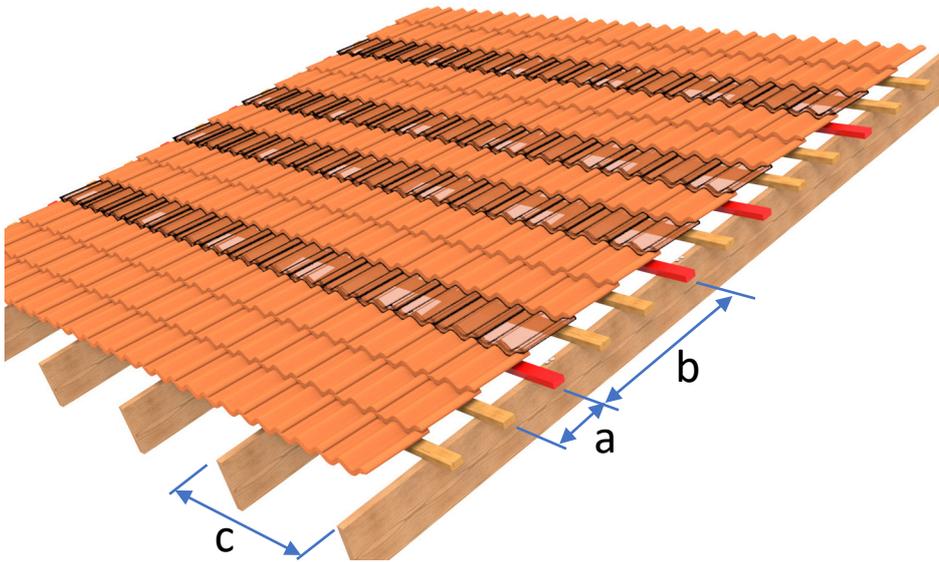
! Acceptable panel clamping zones cf. datasheet for solar panel

After measuring the current batten spacing (a) and based on the clamping zones of the relevant solar panel, the battens and rows of tiles where the roof hooks will be mounted are selected (b).
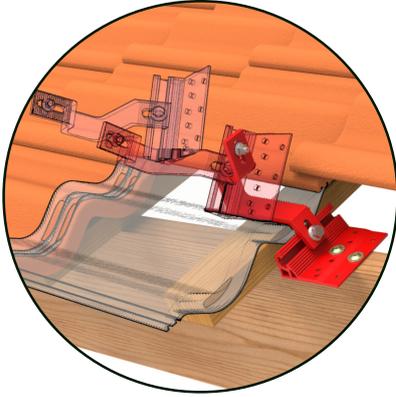

On the basis of the selected tile rows and the spacing of the rafters (c), the relevant tiles are displaced or removed.
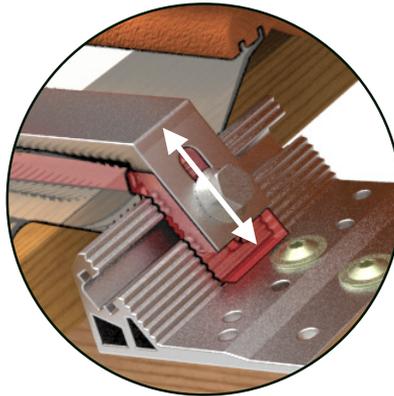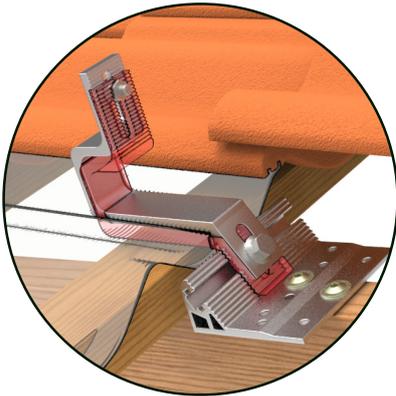
INSTALLATION ON TILES AND TILE-LIKE ROOF COVERINGS
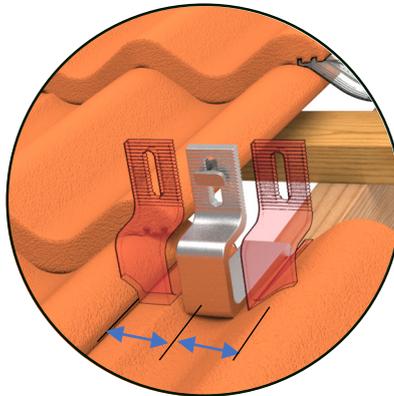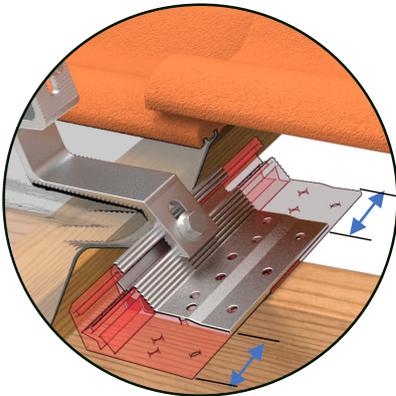
2. Installation of roof hooks

1 The roof hook is put in place on top of the rafter.

2

Before the roof hook is screwed onto the underlying rafter, the height of the roof hook profile itself is adjusted for retention in the grooves of the profiles, so that the underlying roof tile is not loaded by the roof hook. The bolt is not tightened at this stage.
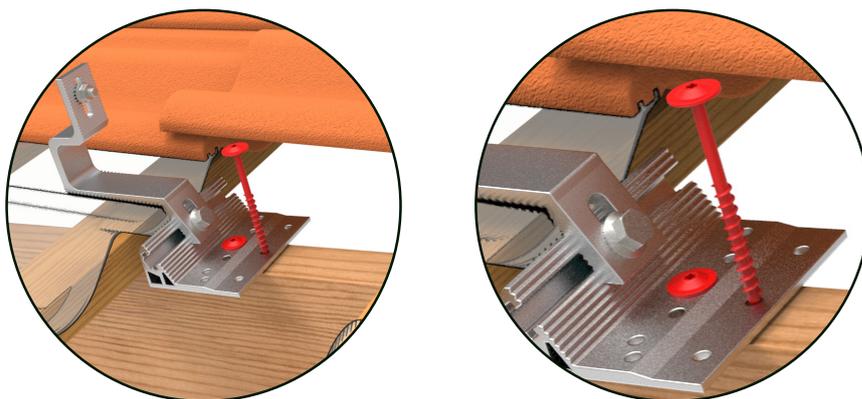
3

The roof hook profile can be offset in relation to the base profile, in order for the roof hook profile to be placed in the middle of a roof tile arch at the same time as the base profile can be anchored in the rafter.
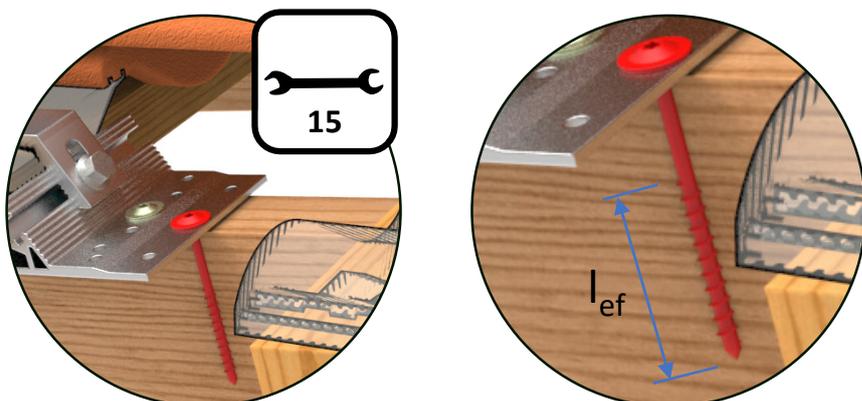
4

Two wood screws are used per roof hook, which are screwed into two of the pre-drilled holes in the base profile of the roof hook. It is recommended to use screws with a flange head or similar for correct clamping with the flat surface of the base profile. (Wood screws are not included in the mounting system).

**5**

15

l_{ef}

It is recommended that Ø6x100 mm screws be used and that the effective thread length in the wooden rafter be at least 60 mm (l_{ef}). As a general rule, pre-drilling should always be carried out when installing screws in rafters, where the drill dimension should be in accordance with the screw manufacturer's instructions. Note: The screws may have to be longer than 100 mm for roofs with distance lists and other items.

When the base profile is finally anchored and the screws tightened, tighten the M10 fixing bolt for the roof hook profile to 20-25 Nm.

(6)
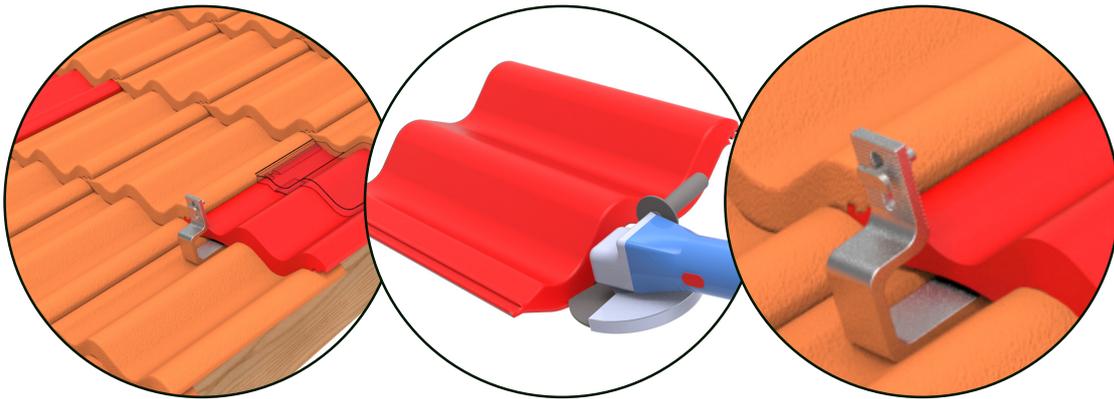
With the roof hook in place, the displaced tiles need to be put back in place. It is important to note that the roof tile should not rest on top of the roof hook profile, but that it must be supported by the underlying roof tile as before the installation of the roof hook. To ensure this, a cut can be made in the roof tile as illustrated above, showing that there is a slight gap between the roof tile and the roof hook profile.

3. Installation of carriage profiles
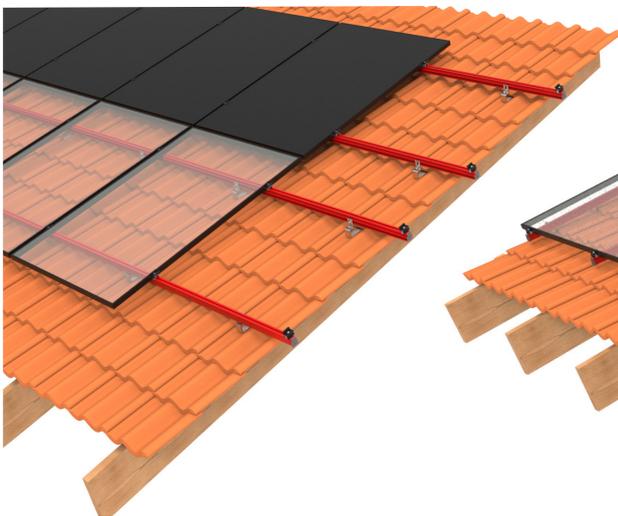
Portrait oriented panels   Landscape oriented panels
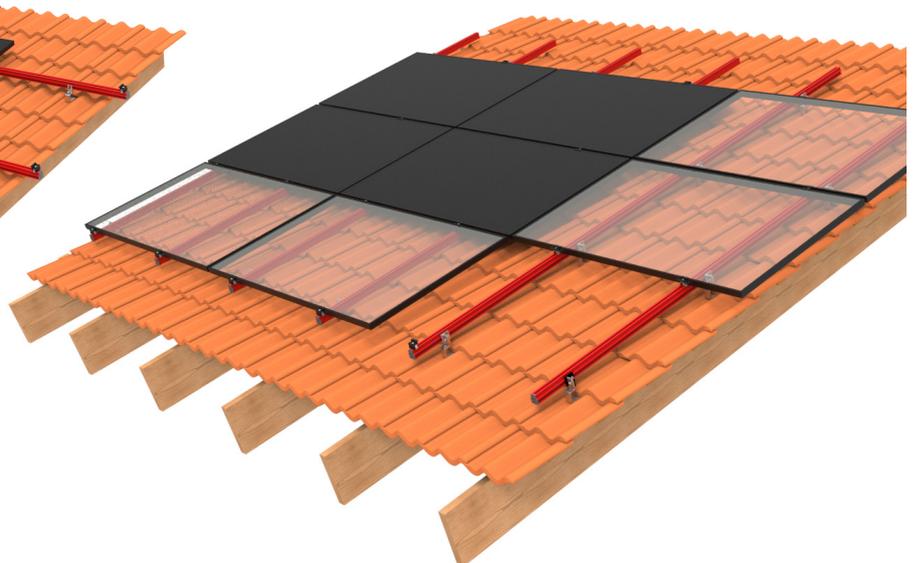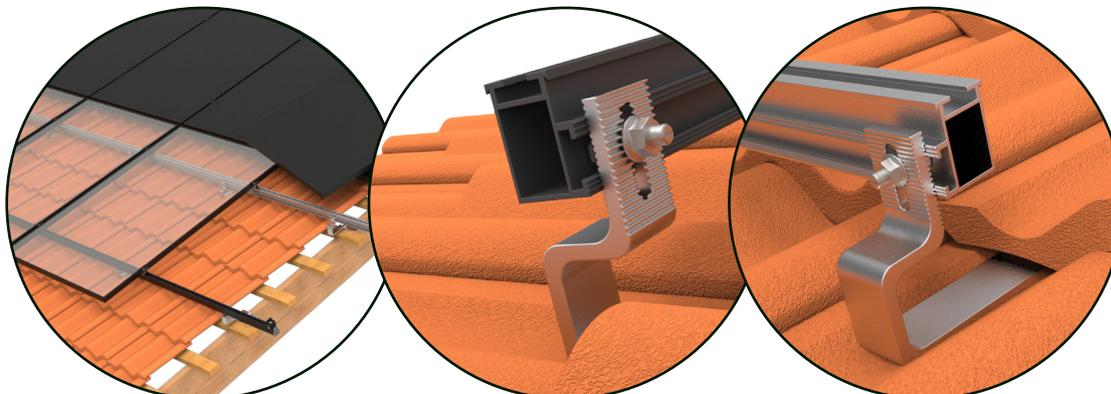

Regardless of whether portrait or landscape oriented panels are planned, it can be carried out with 1 layer of carriage profiles, where the carriage profiles are respectively oriented horizontally and vertically in relation to the roof ridge.
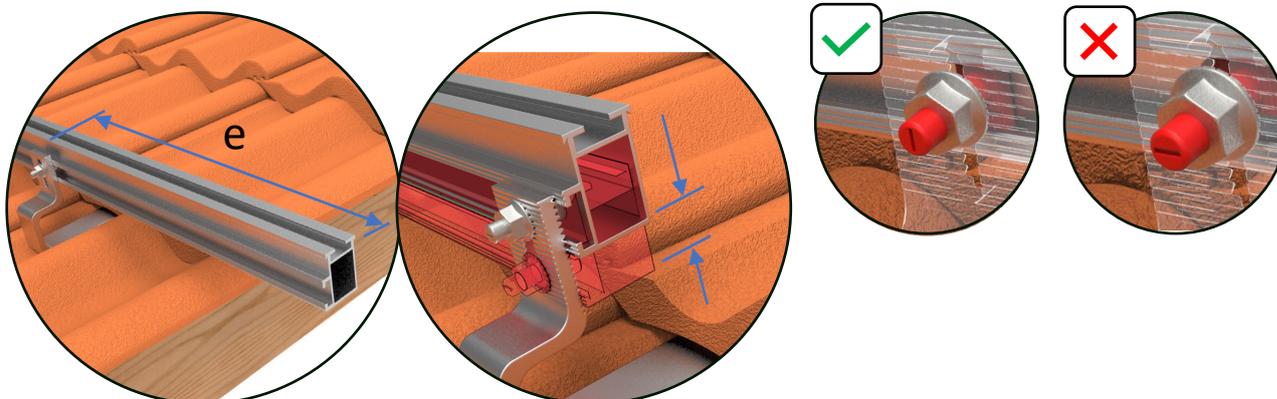
3a. Installation of carriage profiles
(portrait oriented panels)

1

The first profile, which is oriented down towards the eaves, may be visible. In cases where a visually uniform finish is desired, the first profile may be mounted on the underside of the roof hook so that the top of the roof hook is not visible. Black anodised profiles can be chosen at the same time, so that the profiles will have the same colour as the panels.


2

During the installation of the carriage profiles, it must be ensured that the maximum end overhang (e) does not exceed 400 mm. In relation to the perpendicular adjustment of the carriage profiles to the intended mounting plane, this is done effectively through the extruded grooves in both the carriage profile and the roof hook profile.

Once the desired height is achieved, the nut on the roof hook is tightened so that the hammerhead bolt is rotated 90° while tightening the nut (15 Nm). After tightening, check that the hammerhead bolt is in engagement with the profile and oriented correctly.
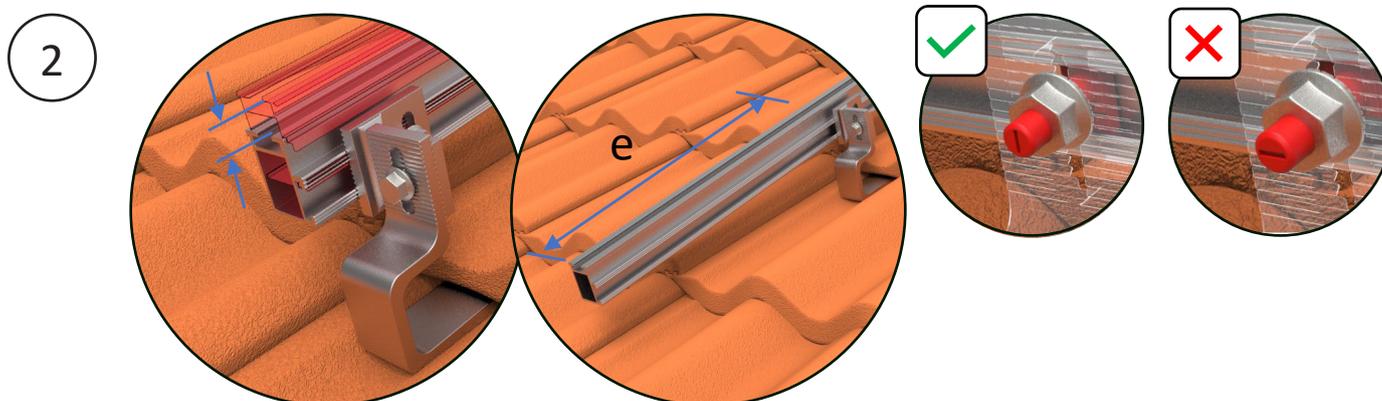
3b. Installation of carriage profiles
(landscape oriented panels)
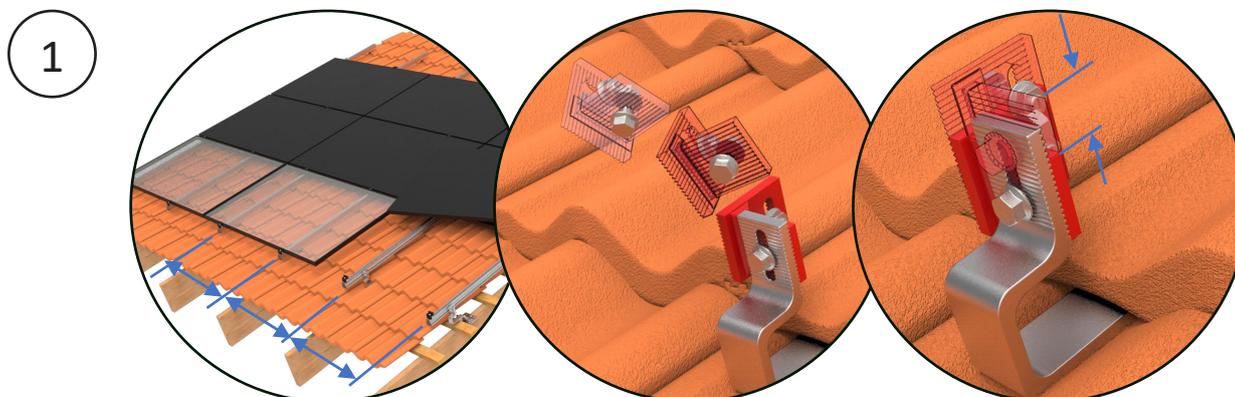
Before installing the horizontal roof bracket, it must be decided on which side of the roof hook the carriage profile is to be mounted. This is done taking into account an overall drawing of where the carriage profiles will be placed on each row of solar panels in relation to the acceptable clamping zones according to the panel datasheet (see point 1).

The horizontal roof bracket is mounted on the roof hook using the pre-mounted flange bolt and flange nut, which are first removed from the bracket and then the bracket is mounted and loosely tightened. The horizontal roof bracket is then aligned with the intended mounting plane and the flange bolt and nut are tightened (15 Nm).

During the installation of the carriage profiles, it shall be ensured, as for the ridge-parallel carriage profiles, that the maximum end overhang does not exceed 400 mm (e). In relation to the perpendicular adjustment of the carriage profiles to the intended mounting plane, this is done in the same way through the extruded grooves in both the carriage profile and the horizontal roof bracket.

When the desired height is reached, the nut on the roof hook is tightened so that the hammerhead bolt is rotated 90° at the same time as the nut is tightened (15 Nm). After tightening, check that the hammerhead bolt is in engagement with the profile and oriented correctly.

## 4. Connecting/extending the carriage profiles
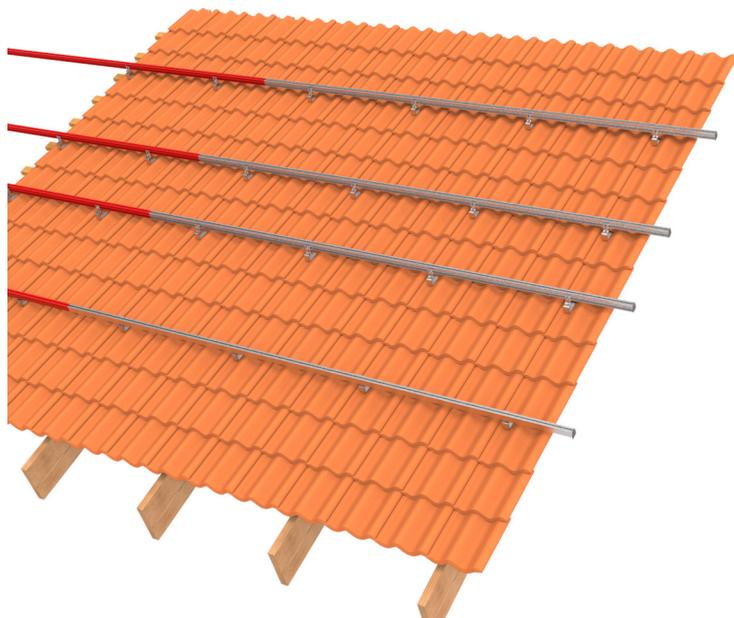
When the carriage profiles need to be extended, it is a simple process of using one profile connector for each connection.

!! For long panel rows larger than 12 panels, i.e. longer than 12-13 m, a thermal expansion must be carried out using the same profile connector.
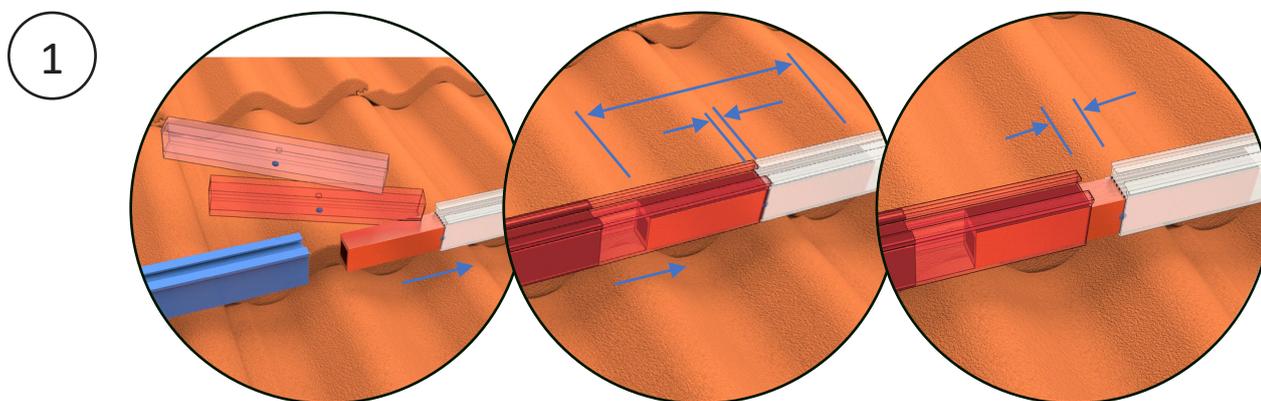
The profile connector is firstly inserted into one profile by hand or with light blows from a soft hammer. In the middle of the connector there is a deformation mark which forms a stop so that the connector ends up being positioned in the middle between the two assembled profiles. The profiles are pressed together around the joint until there is a remaining gap of up to 3 mm. For joints with thermal expansion, the gap should be 20-25 mm (for further information contact FIXNORDIC).
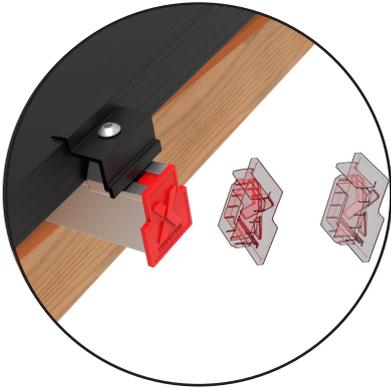
5. Panel installation
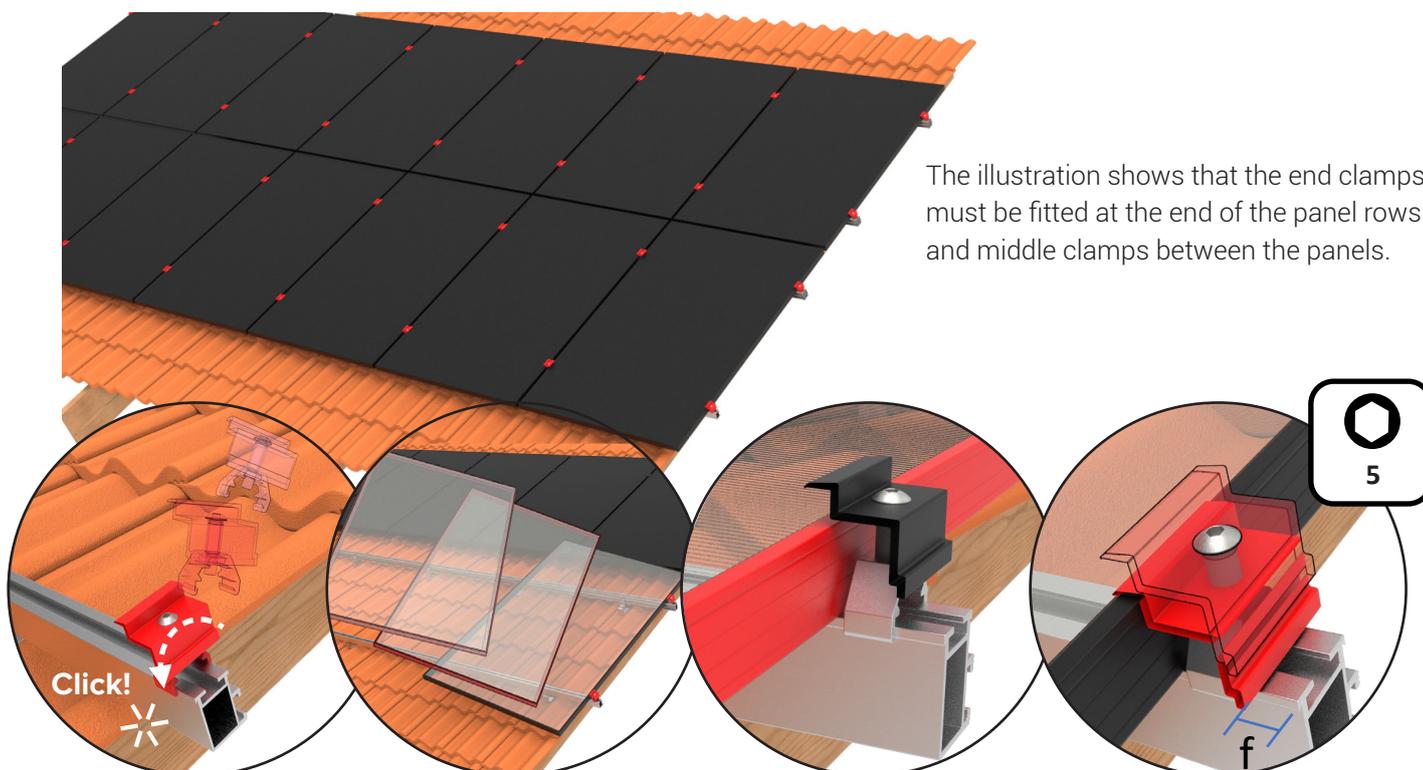
The illustration shows that the end clamps must be fitted at the end of the panel rows and middle clamps between the panels.

Once the profiles have been cut to the required length, the panel clamp is fitted by clicking it into place over the top of the carriage profile with approximately 10 mm clearance to the end of the profile (f). The panel clamp is manufactured with a rubber spring which holds the top of the clamp in place over the panel, allowing it to be pushed into place without the clamp having to be held open. Once the panel is in place and correctly positioned according to the clamping zones, tighten the clamp bolt (12 Nm).
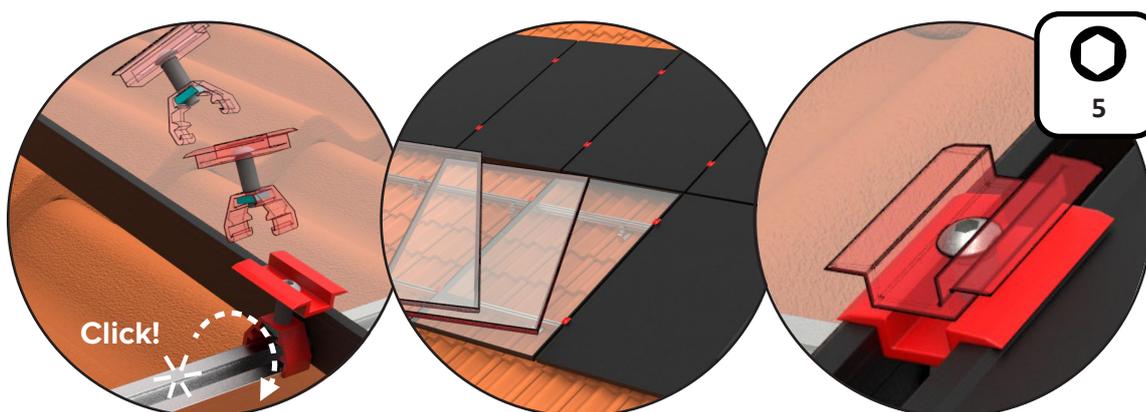
With the panel secured on one side by the tightened end clamps, the middle clamps must be put in place. This is done in the same way as for the end clamp by clicking it into engagement with a rotary movement towards the top of the carriage profile. Like the end clamp, the middle clamp is held open by a rubber spring and with the two pre-assembled middle clamps the next panel can now be put in place. The middle clamps are then tightened (12 Nm) and the installation of the next panel can begin.

6. End cover installation

At the end of a panel row, the end cover is mounted inside the profiles so that they are shut and so that there is a reasonable visual finish to the installation.