

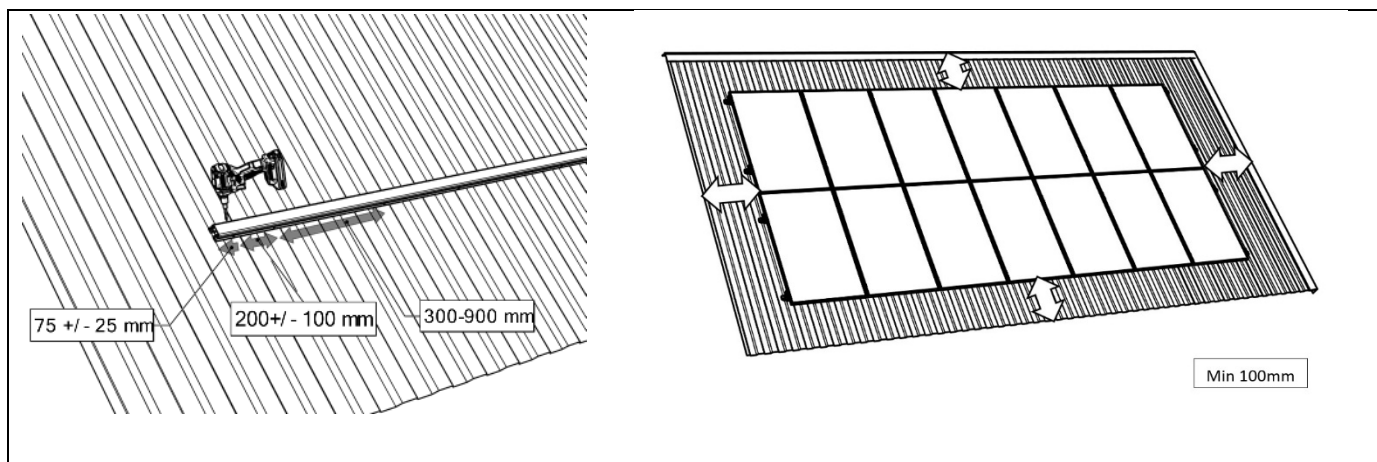
Installation instruction CC90-UNUM on metal roofs

This installation instruction describes the procedure of mounting CC90-UNUM on surfaces of metal where the contact surface of the Montageskena med tätlist creates a tight installation when it is mounted with Montageskruv CC90-UNUM. Flat, sinusoidal, trapezoidal corrugated roof tile roofs, so-called plegel, and tile sheet roofs are suitable surfaces for tight installation.

Conditions

The installation instructions describe the installation in a simplified way and without material optimisations. The following installation instructions are to be regarded as a guideline only. For a more detailed design, wind and snow load calculation, please refer to the material calculator on www.cc90.se.

- CC90-UNUM is certified for installation in Sweden, Norway, Finland and Denmark.
- Take into account the PV manufacturer's requirements for the placement of the Panelklämma on the solar panel.
- The installer must strictly observe tightness and the ability of the roof surfaces to bear the wind and snow loads that arise.
- A cross reference between the names and the manufacturer's part number can be found at the end of this document.





INSTALLATION WITH HORIZONTAL MONTAGESKENA

Above 65 degrees roof pitch vertical mounting has to be selected.

Snow zone 1-4.5; 2 Montageskena med tätlist horizontal per row of solar panels. For solar panels with a maximum dimension of 2200mm.

Minimum mounting distance between solar panel edge and roof edge 100mm.

A maximum of 12 standing modules, or 8 horizontal, in width, then thermal distance of min 10mm

Installation up to and including snow zone 3.5

Installation on TP-plates.

Montageskena med tätlist is screwed at the rail ends and at the Skenskarv with double screw joints with a distance of 75+/-25mm from the rail end and a gap of 200+/-100mm to the next pair of screws and thereafter at a distance of:

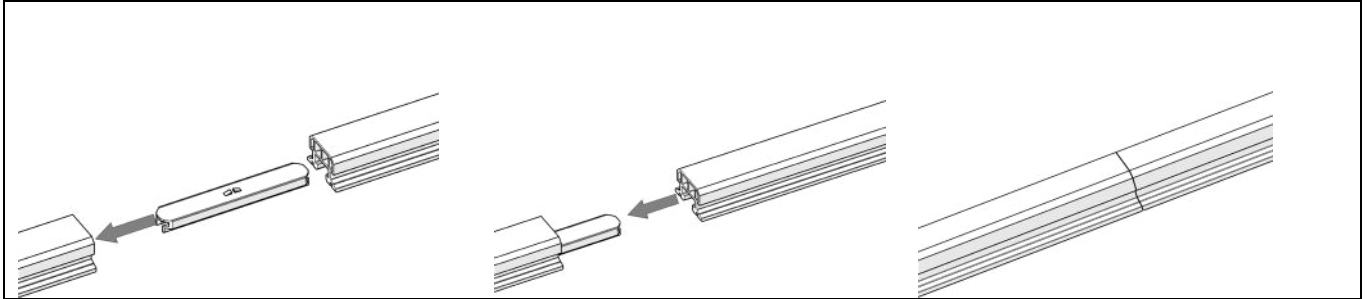
- Max 900mm at steel plate thickness ≥ 0.5 mm or aluminum plate thickness ≥ 0.8 mm.
- Max 450mm at steel plate thickness ≥ 0.4 mm or aluminum plate thickness ≥ 0.7 mm.
- Max 300mm at steel plate thickness ≥ 0.35 mm or aluminum plate thickness ≥ 0.6 mm.

Mounting on other roof shapes such as roof tile sheet roofs, so-called plegel, and tile sheet roofs where the shape does not allow a distance of 75+/-25mm from the rail end and a gap of 200+/-100mm to the next pair of screws, the rail end has to be attached with screw pairs to the first three roof tops.

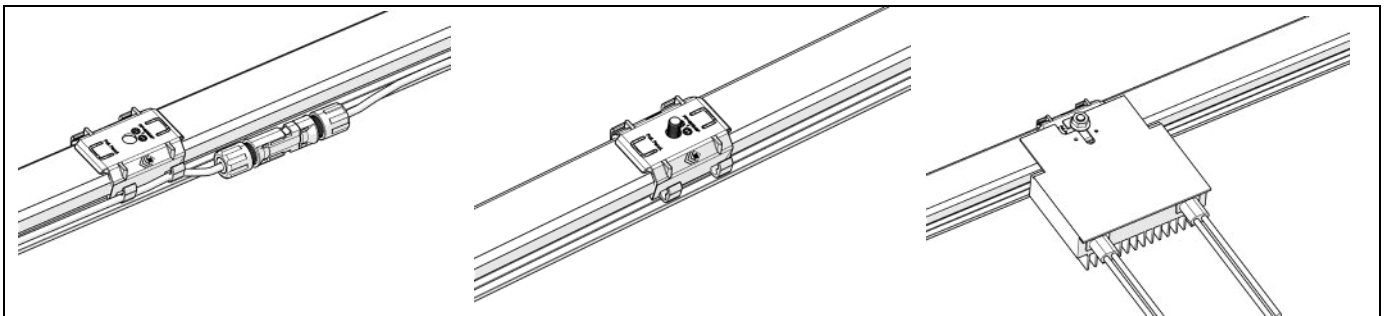
When mounting in snow zone 4.0 -4.5, the distance between two pairs of screws to max 600mm is reduced. Only steel sheet thickness ≥ 0.5 mm or aluminum sheet thickness ≥ 0.8 mm is allowed.

General installation

- At relative wind load above 24m/s, the first metre of the rail end towards the roof edge is reinforced with two additional pairs of screws.
- Montageskruv CC90-UNUM is mounted in the marked groove on the base of the rail and perpendicular to its inclination and is drawn to the abutment of the rail's sealing strip against the ceiling. Montageskruv CC90-UNUM must be used.
- Installation can also be done with a short rail Montageskena med tätlist 370mm, which is mounted with double screw connections with a distance of 75+/-25mm from the rail ends and a pair of screws in the middle.



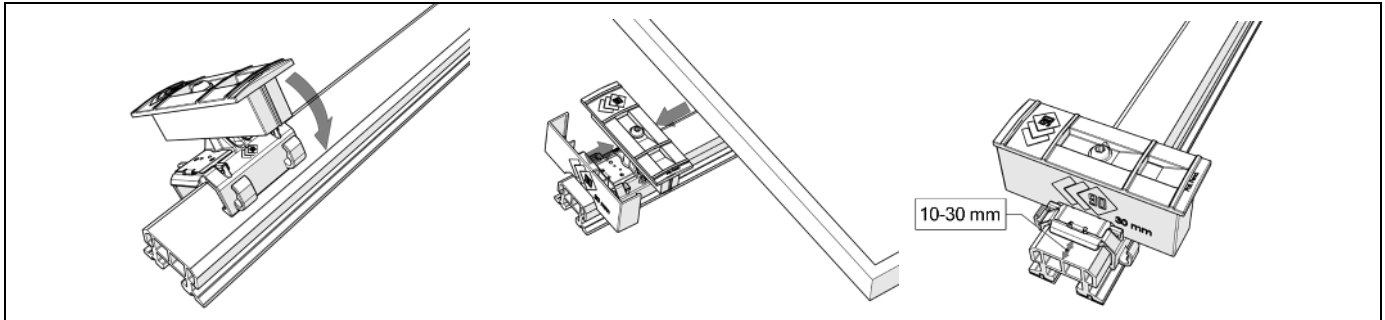
When splicing the Montageskena med tätlist, a Skenskarv is used, which reinforces and facilitates installation and wiring. Alternatively, additional pairs of screws can be installed at rail start as previously described.



The Multihållare is mounted on the Montageskena for cable routing as needed as a complement to the cable suspension on the Panelklämma.

Optimerarfäste komplett with 8mm screw connection is used for mounting optimizers, microinverters or equivalent.

It is only permitted to use Montageskruv CC90-UNUM to attach optimizers, cables and rails to the Montageskena. Observe thermal expansion and do not screw into the cavity of the Montageskena where the cable is laid. Do not screw close to the edge of the Montageskena as the rail may crack.

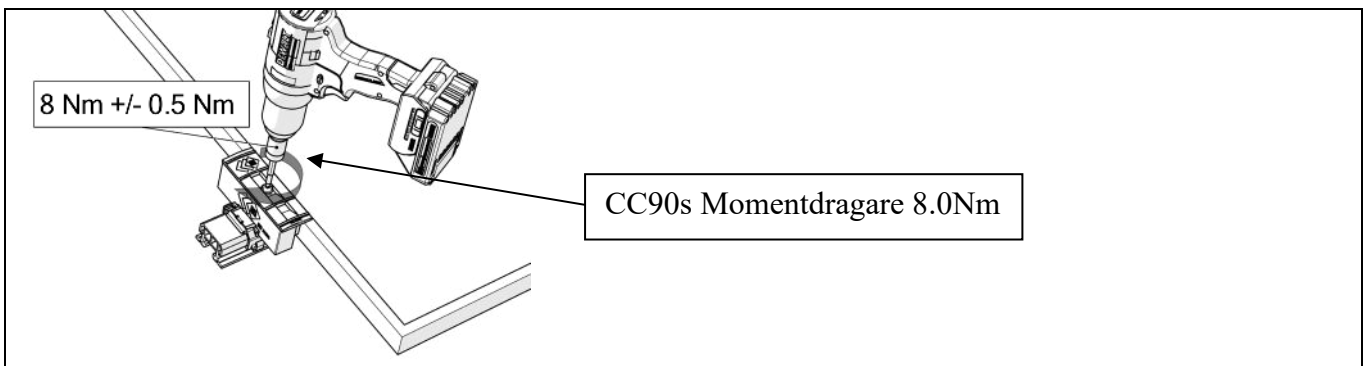


Panelklämman snaps onto the Montageskena.

Note that the Panelklämman must be mounted 10 - 30mm from the outer edge of the Montageskena.

At the beginning and end of the row of solar panels, the Gavel is mounted on the Panelklämman.

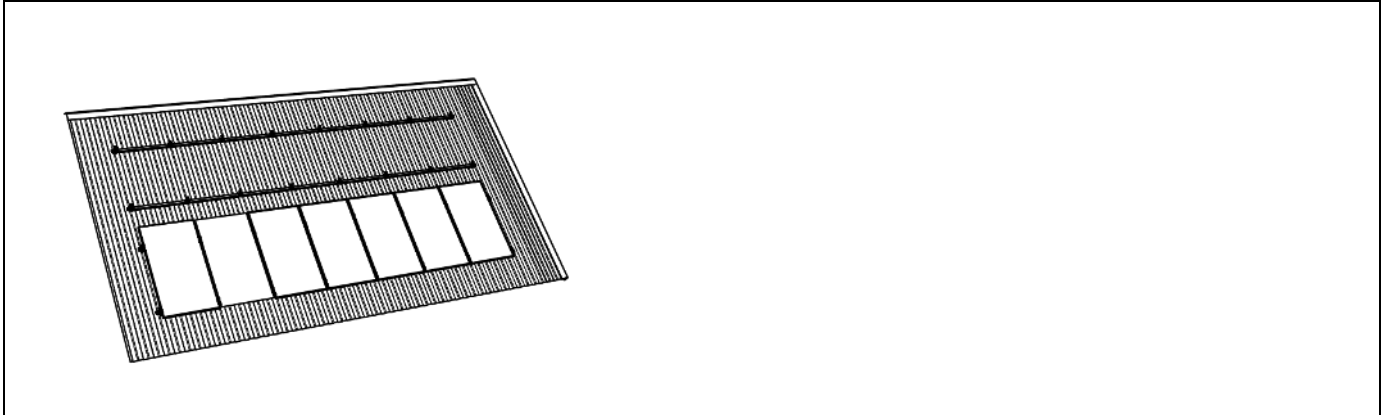
Note that the Panelklämman builds 20mm between the solar panels.



Place the solar panel.

Screw the Panelklämman to lock with 8.0 +/- 0.5Nm. Use the CC90's Momentdragare 8.0Nm.

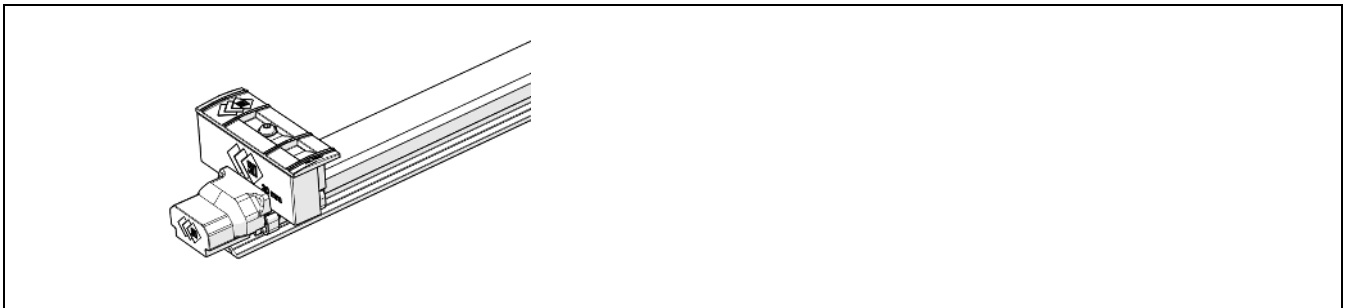
Continue in the same way with all Panelklämman and solar panels.



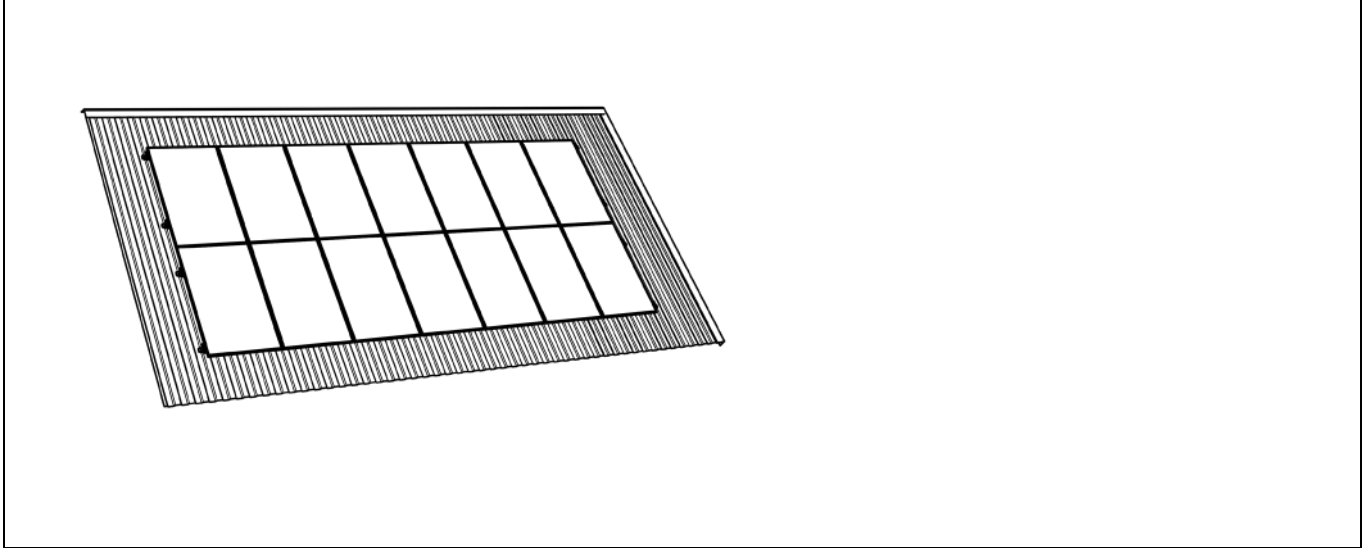
Prepare cable assemblies. Montageskena med tätlist it possible to lay cables through the rail without expensive external cable laying details.

It could be easier to insert the cable into the Montageskena med tätlist all the way to the starting point before the Montageskena med tätlist is mounted.

Connect and fix the wiring harness. Pull out the return cable at the end of the Montageskena med tätlist.



Install the Ändlock after which the installation is complete.



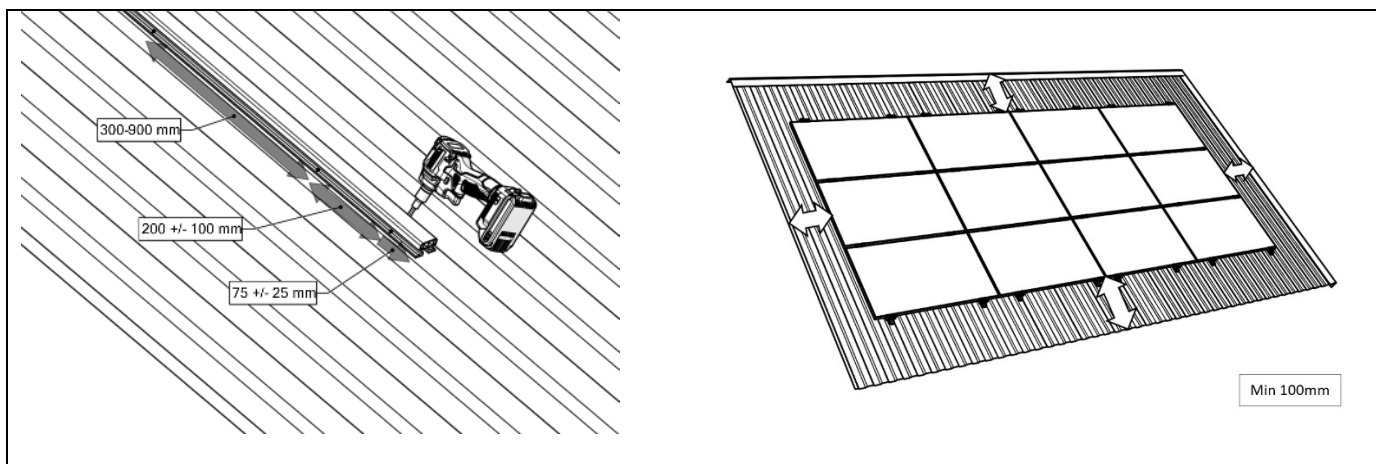
MOUNTING WITH VERTICAL MONTAGESKENA

Above 65 degrees roof pitch, vertical installation is always selected.

Snow zone 1-4.5; 2 Montageskena med tätlist vertical per row of solar panels. For solar panels with a maximum dimension of 2200mm.

Minimum mounting distance between solar panel edge and roof edge 100mm.

A maximum of 8 standing solar modules, or alternatively 12 horizontal solar modules, in height then thermal distance of at least 10mm.



Installation up to and including snow zone 3.5

Montageskena med tätlist is screwed at the rail ends and at the Skenskarv with double screw joints with a distance of 75+/-25mm from the rail end and a gap of 200+/-100mm to the next pair of screws and thereafter at a distance of:

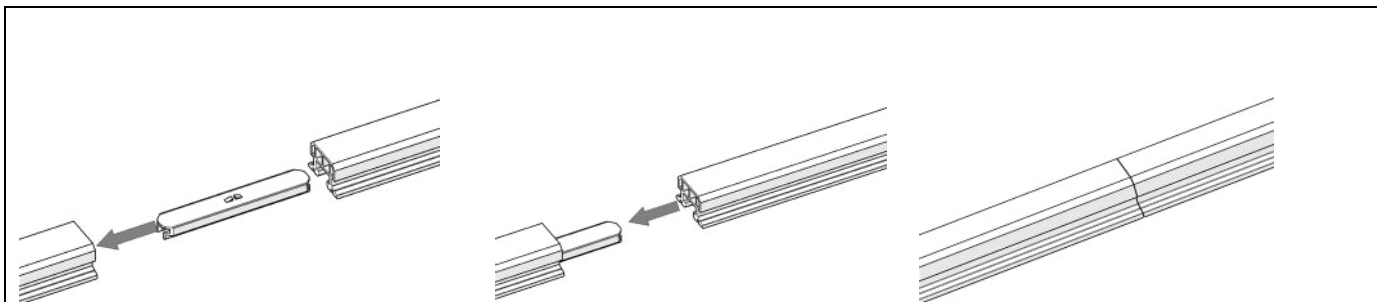
- Max 900mm at steel plate thickness $\geq 0.5\text{mm}$ or aluminum plate thickness $\geq 0.8\text{mm}$.
- Max 450mm at steel plate thickness $\geq 0.4\text{mm}$ or aluminum plate thickness $\geq 0.7\text{mm}$.
- Max 300mm at steel plate thickness $\geq 0.35\text{mm}$ or aluminum plate thickness $\geq 0.6\text{mm}$.

When mounting in snow zone 4.0 -4.5, the distance between two pairs of screws to max 600mm is reduced. Only steel sheet thickness $\geq 0.5\text{mm}$ or aluminum sheet thickness $\geq 0.8\text{mm}$ is allowed.

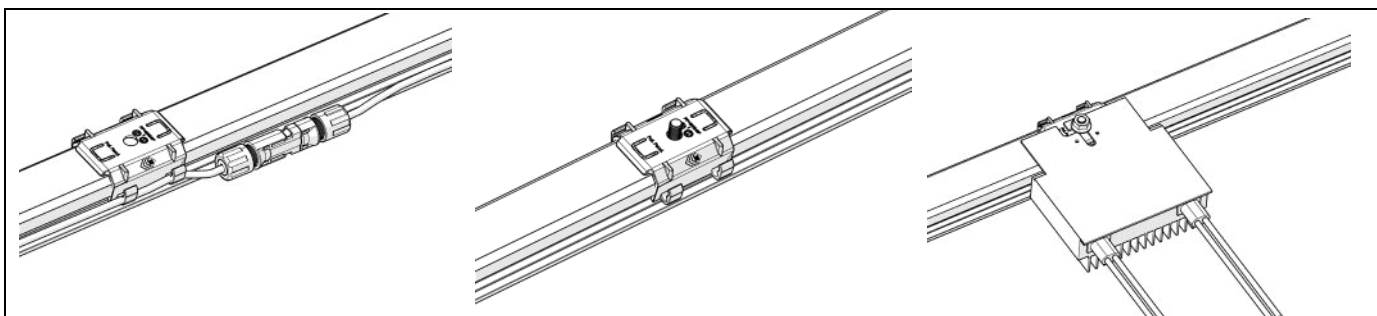
General installation

- At relative wind load above 24m/s, the first metre of the rail end towards the roof edge is reinforced with two additional pairs of screws.

- Montageskruv CC90-UNUM is mounted in the marked groove on the base of the rail and perpendicular to its inclination and is drawn to the abutment of the rail's sealing strip against the ceiling. Montageskruv CC90-UNUM must be used.



When splicing the Montageskena med tätlist, a Skenskarv is used, which reinforces and facilitates installation and wiring. Alternatively, additional pairs of screws can be installed at rail start as previously described.



The Multihållare is mounted on the Montageskena for cable routing as needed as a complement to the cable suspension on the Panelklämma.

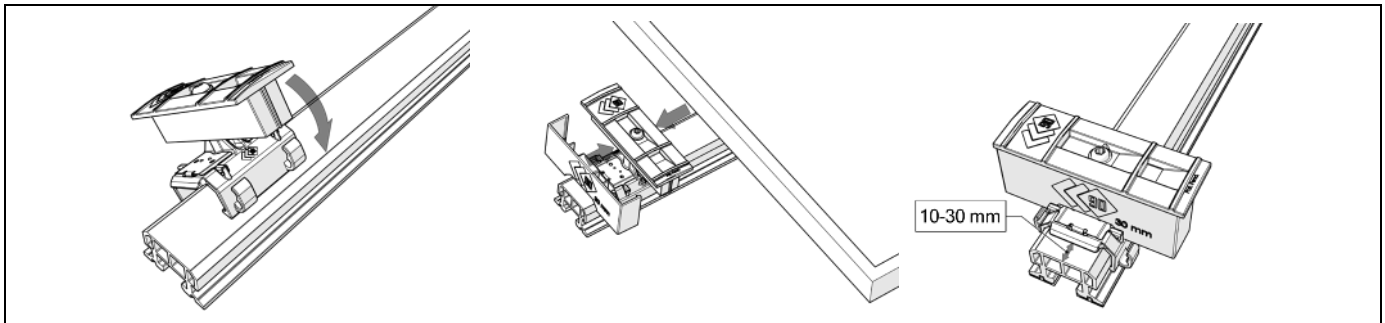
Optimerarfäste komplett with 8mm screw connection is used for mounting optimizers, microinverters or equivalent.

It is only permitted to use Montageskruv CC90-UNUM to attach optimizers, cables and rails to the Montageskena. Observe thermal expansion and do not screw into the cavity of the Montageskena where the cable is laid. Do not screw close to the edge of the Montageskena as the rail may crack.

Prepare cable assemblies. Montageskena med tätlist makes it possible to lay cables through the rail without expensive external cable laying details.

It could be easier to insert the cable into the Montageskena med tätlist all the way to the starting point. before installing the Montageskena med tätlist.

Connect and fix the wiring harness. Pull out the return cable at the end of the Montageskena med tätlist.



Panelklämman snaps onto the Montageskena.

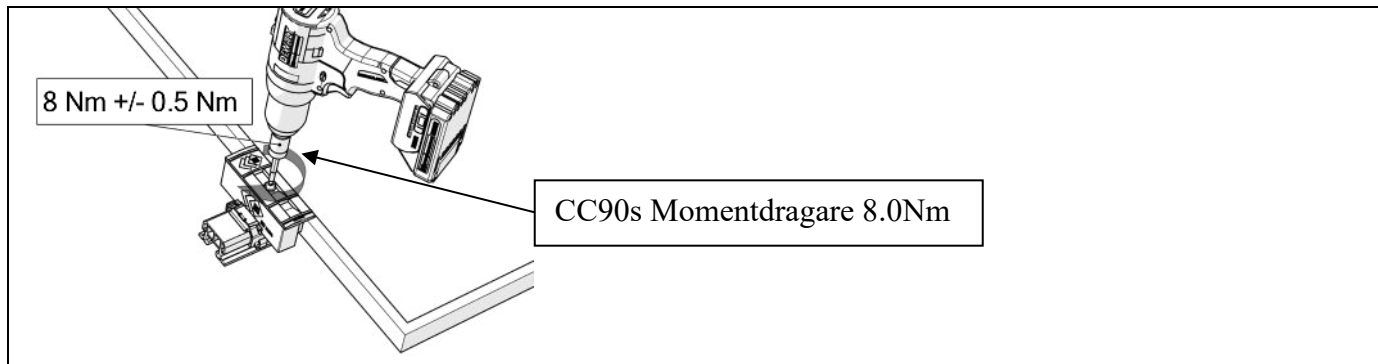
Note that the Panelklämman must be mounted 10 - 30mm from the outer edge of the Montageskena.

At the beginning and end of the row of solar panels, the Gavel is mounted on the Panelklämman.

Note that the Panelklämman builds 20mm between the solar panels.



Be SURE that all Panelklämman are level before screwing **2 Montageskruv CC90-UNUM** into the side of all lower Panelklämman.

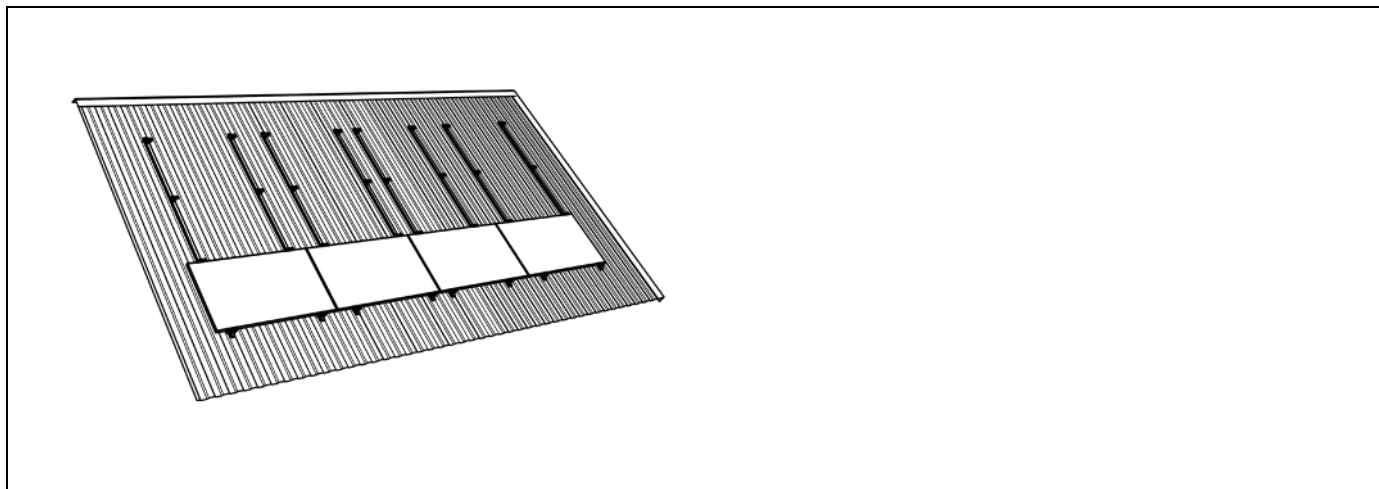


Install the entire bottom row of solar panels.

Screw the Panelklämman to lock with 8.0 ± 0.5 Nm. The CC90's Momentdragare 8.0Nm can be used to advantage.

Install the next row of Panelklämman on the Montageskena med tätlist. **1 Montageskruv CC90-UNUM is screwed on either side of all Panelklämman except the bottom Panelklämman as is secured with 2 Montageskruv CC90-UNUM,**

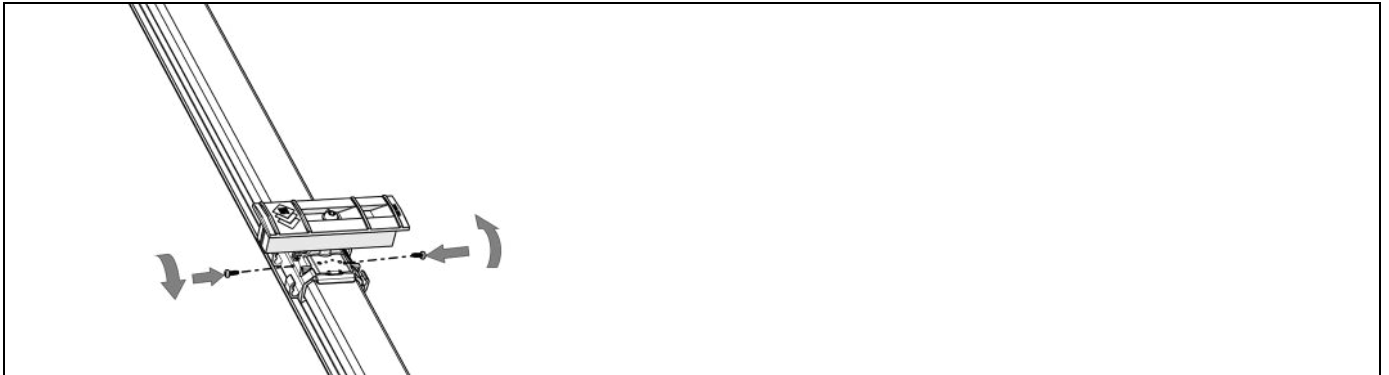
Wait to screw the Panelklämman to lock with 8.0 ± 0.5 Nm until the next row of solar panels is mounted.



Before the second row of solar panels is installed, all Panelklämman are secured with two Montageskruv CC90-UNUM.

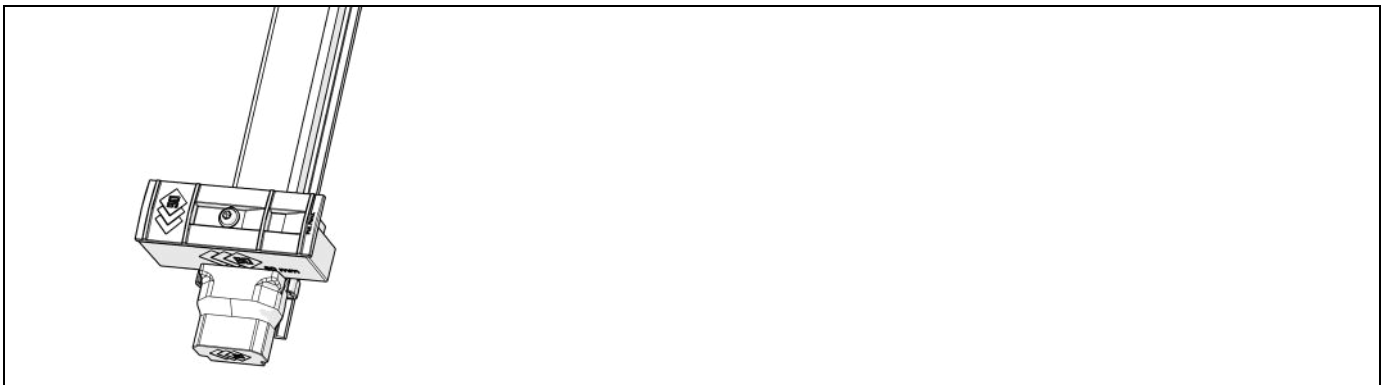
Screw on the side of the Panelklämman to the edge of the Montageskena med tätlist before the next row of solar panels is mounted.

Screw securing must be carried out with at least 1 Montageskruv CC90-UNUM that is screwed on either side of all Panelklämman, except the lowest Panelklämman as is screwed with 2 Montageskruv CC90-UNUM, in the entire assembly.

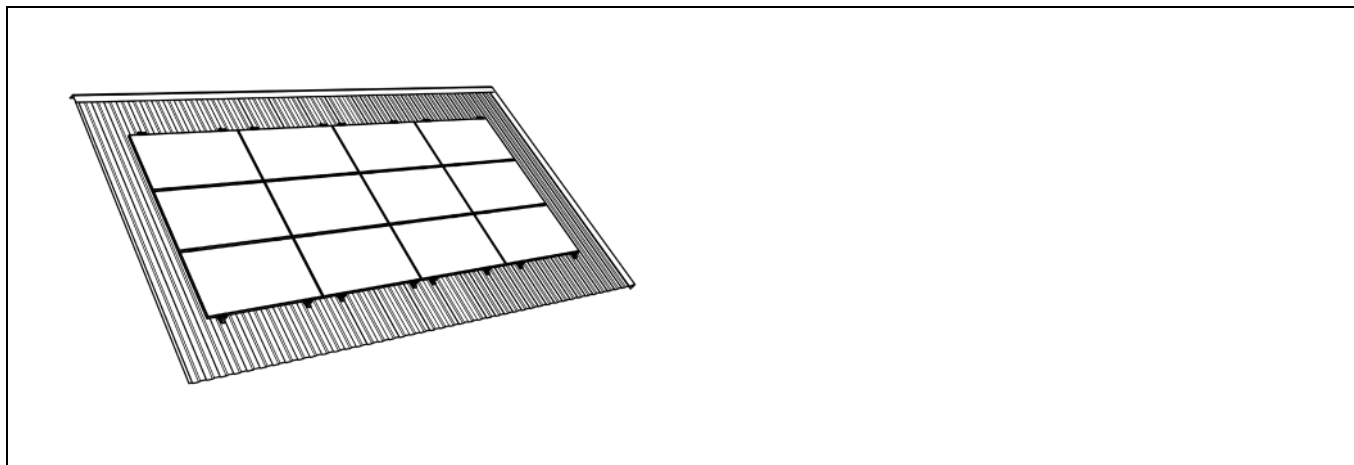


Check the solar panels and Panelklämman row by row in accordance with the above. As the Panelklämman are tightened, screws are locked with $8.0 \pm 0.5 \text{ Nm}$. Continue in the same way with all attachment points and solar panels.

Remember to check that all Panelklämman are screw-secured with at least 1 Montageskruv CC90-UNUM screwed on either side of all Panelklämman, except for the bottom Panelklämman which must be screw-secured with 2 Montageskruv CC90-UNUM.



Install the Ändlock after which the installation is complete.



Cross reference between designations and manufacturer's part numbers.

You are welcome to contact CC90 Composite AB if the article number you are looking for is not listed below.

Benämning	Artnr	Produktnamn
Montageskena med tätlist	2203014	Montageskena 370mm ver 2 med tätlist
Montageskena med tätlist	2206002	Montageskena 4800mm ver 2 med tätlist
Panelklämma	2208001	Panelklämma 30-35mm med skruv
Panelklämma	2208002	Panelklämma 40mm med skruv
Gavel	2106009	Gavel 30mm
Gavel	1912006	Gavel 35mm
Gavel	1912007	Gavel 40mm
Skenskarv	2111005	Skenskarv
Montageskruv CC90-UNUM	2105006	Montageskruv CC90-UNUM Grå
BITS RW 25 1/4" 50mm	2105005	BITS RW 25 1/4" 50mm för skruv RN 4,5-22 A2
Bits Torxplus IP30	2205002	Bits Torxplus IP30 längd 25mm
Momentdragare 8Nm	2303002	Momentdragare 8Nm.
Multihållare	1912008	Multihållare
Optimerarfäste komplett	2309006	Optimerarfäste komplett 13mm
Ändlock	2301001	Ändlock