

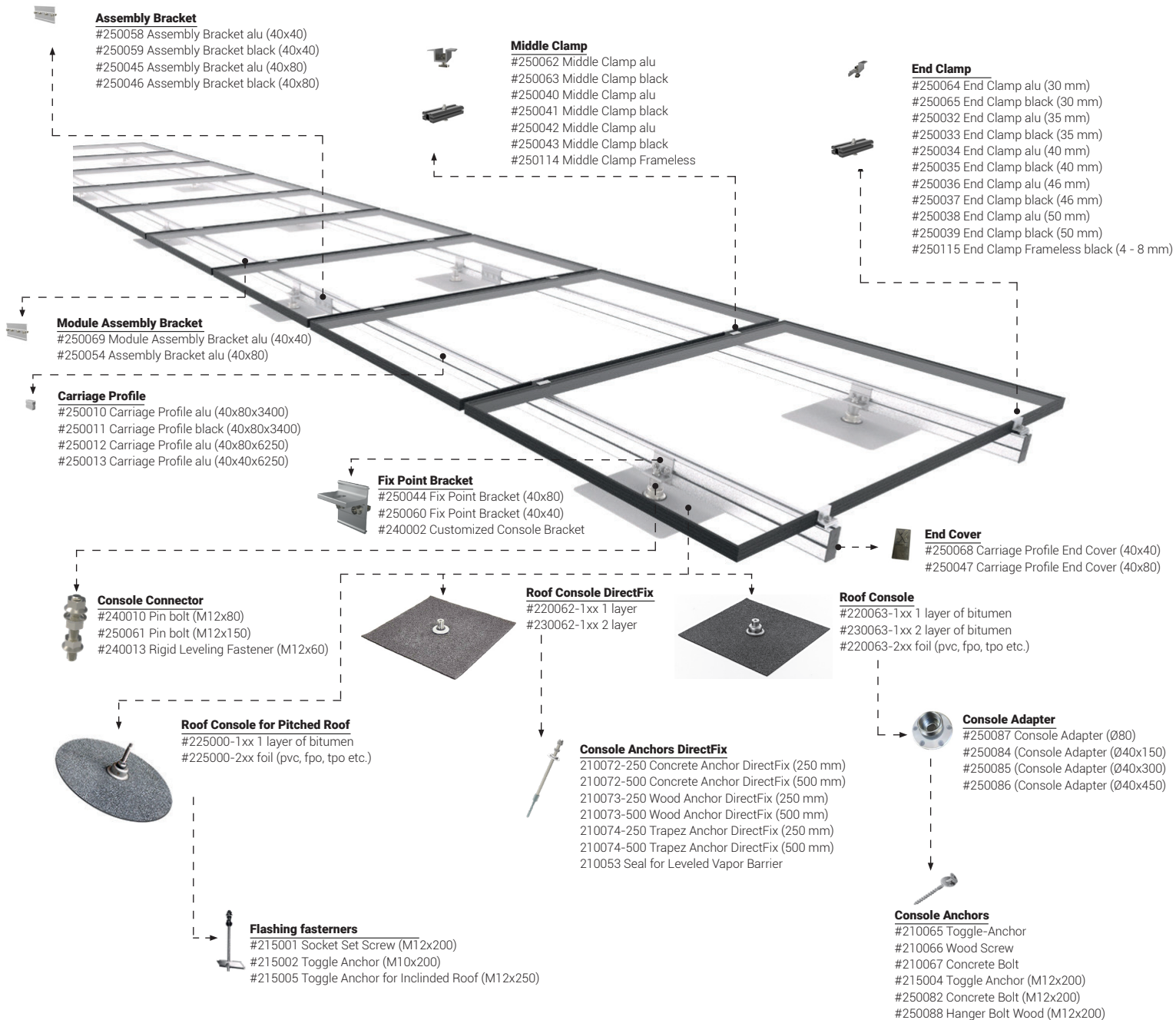


FIXNORDIC.DK

INSTALLATION GUIDE CONSOLE SYSTEM (ROOF PARALLEL)



System Overview



Tools and symbol overview



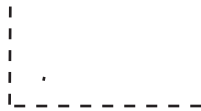
Leveling device
laser or similar



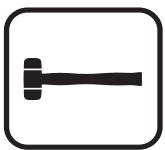
Grinder



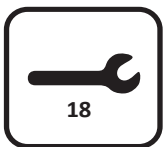
Impact wrench (13 mm socket)
Capacity: (100 - 120 Nm)



13 mm Socket incl. 1/4" adapter
Article number: #250090
Max. out side diameter Ø17,5 mm



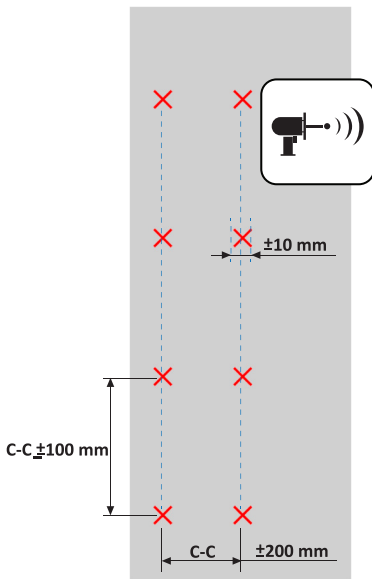
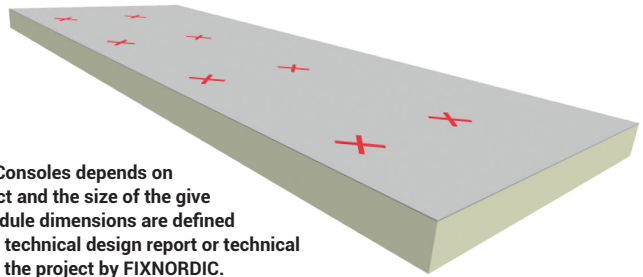
Soft hammer



Wrench (18 mm)
Two pieces must be available

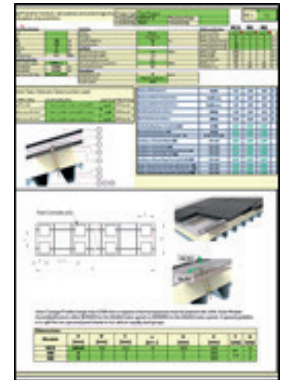


1. Positioning of Roof Consoles



Positioning of Roof Consoles depends on each individual project and the size of the give module. Specific module dimensions are defined in the corresponding technical design report or technical drawings created for the project by FIXNORDIC.

! The orientation of carriage profiles can be oriented either parallel or perpendicular to the edge of the roof. The specific details will be presented in the project documents.



The illustration above shows the generally allowed tolerances for positioning of Roof Consoles. If larger deviations are needed, FIXNORDIC A/S must be contacted.

*Please cross check with possible specific panel manufacturer requirements for clamping zones.

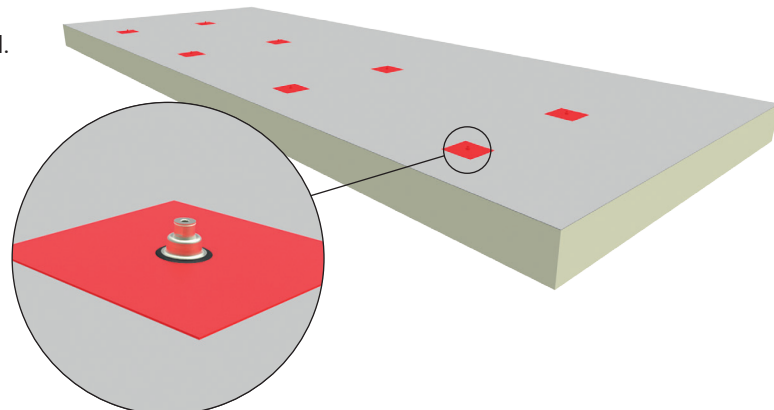
2. Installation of Roof Consoles

Details about how to install FIXNORDIC Roof Consoles correctly are found in the separate installation guide lines and videos available at www.fixnordic.dk. Please note that each guide is specific for one roof type only.

Please also notice that project specific installation guide lines may have to be applied.

The exact type of Roof Console must be chosen in collaboration with FIXNORDIC or with the roofing company working on the installation. This must be one in line with general guidelines, best practices and warranty specifications on the specific roof. The general rule is that Roof Consoles must be specified with the same type of membrane as the roof on which these are to be installed.

Specific Roof Console installation guide lines



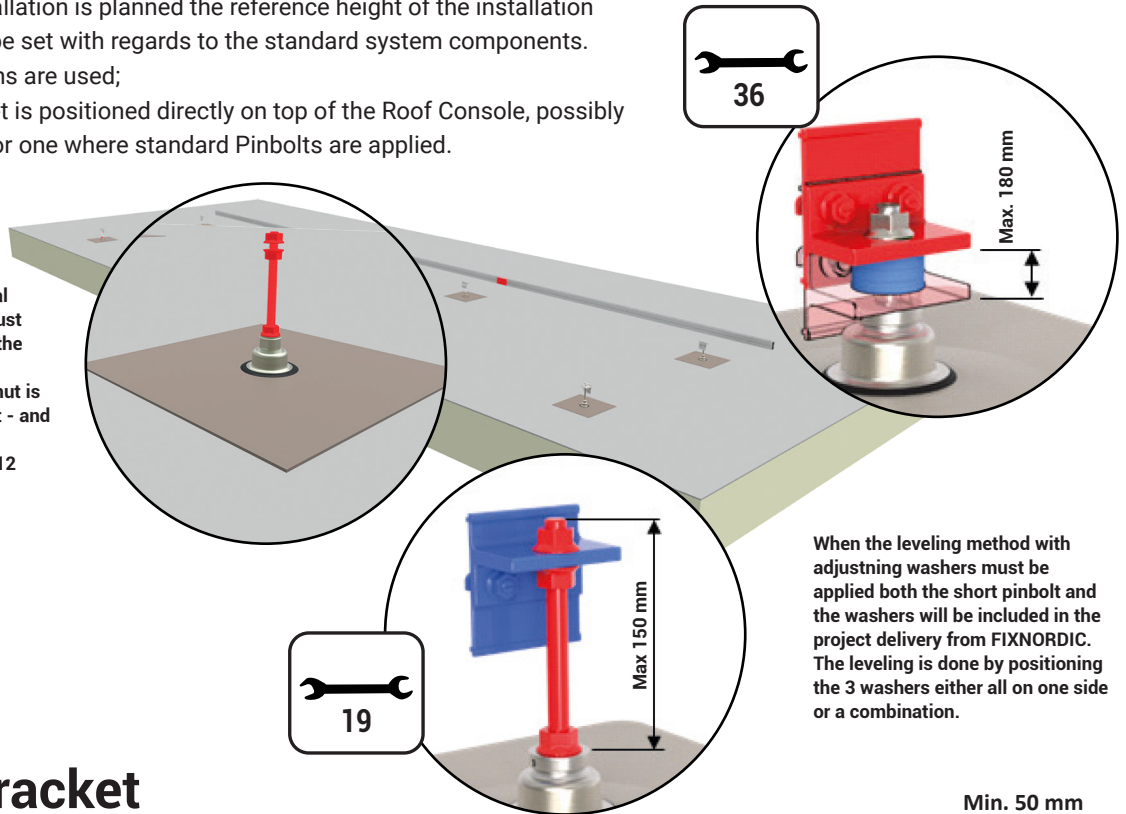
On this illustration the installed Roof Consoles are presented in an installation state where they are ready for the following installation of the Roof Parallel frame system.



3. Leveling of the solar panels about the roof surface

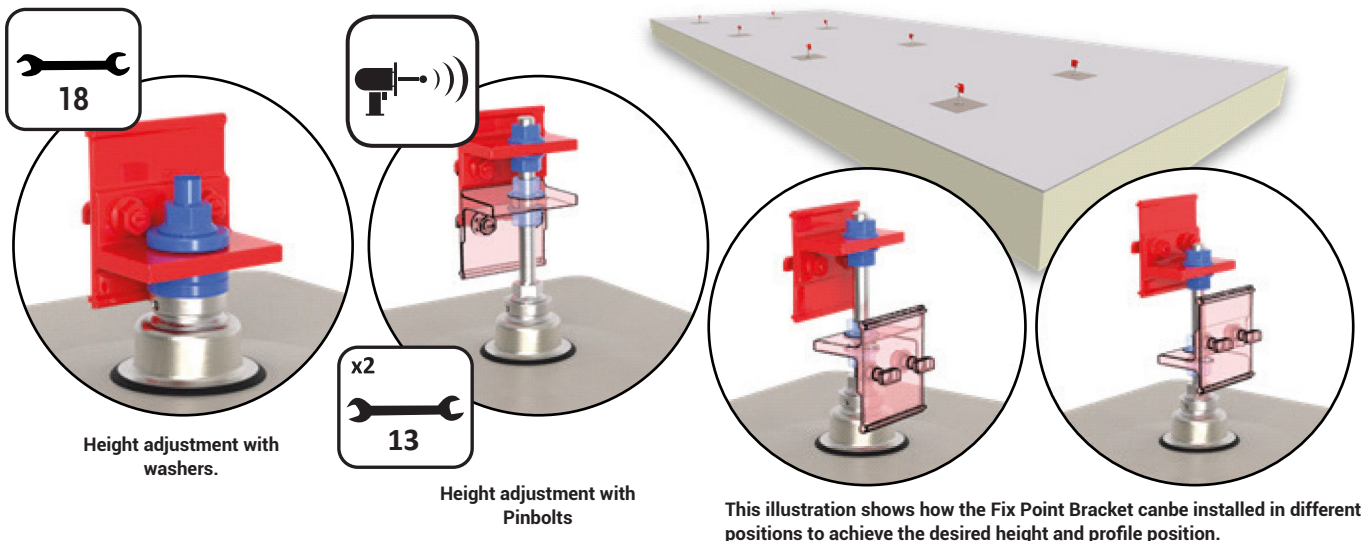
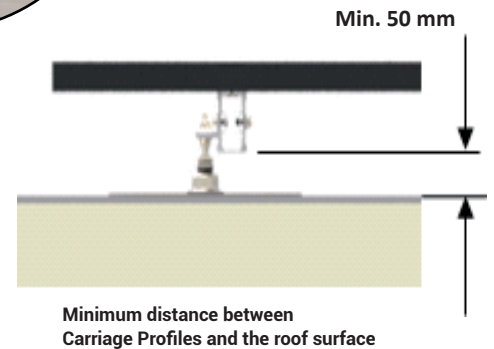
When a roof parallel solar installation is planned the reference height of the installation above the Roof Surface must be set with regards to the standard system components. Generally two different solutions are used; one where the Fix Point Bracket is positioned directly on top of the Roof Console, possibly leveled with spacing washers or one where standard Pinbolts are applied.

The Pin Bolt is installed into the internal M12 thread of each Roof Console. It must be inserted approximately 20 mm into the thread and afterwards secured with the bottom lock nut. Please note that this nut is the only means of securing the Pin Bolt - and it must be avoided that the Pin Bolt is tapped up against the bottom of the M12 thread hole in the Roof Console.



4. Fix Point Bracket flexibility and installation

When the level of the intended face of the solar installation has been set by paying attention to the highest point of the roof surface (most relevant for flat roof installations) or specific project requirements the Fix Point Brackets must be installed. In order to enhance this process the Fix Point Bracket has been designed with a lot of flexibility which is illustrated on the following detailed illustrations

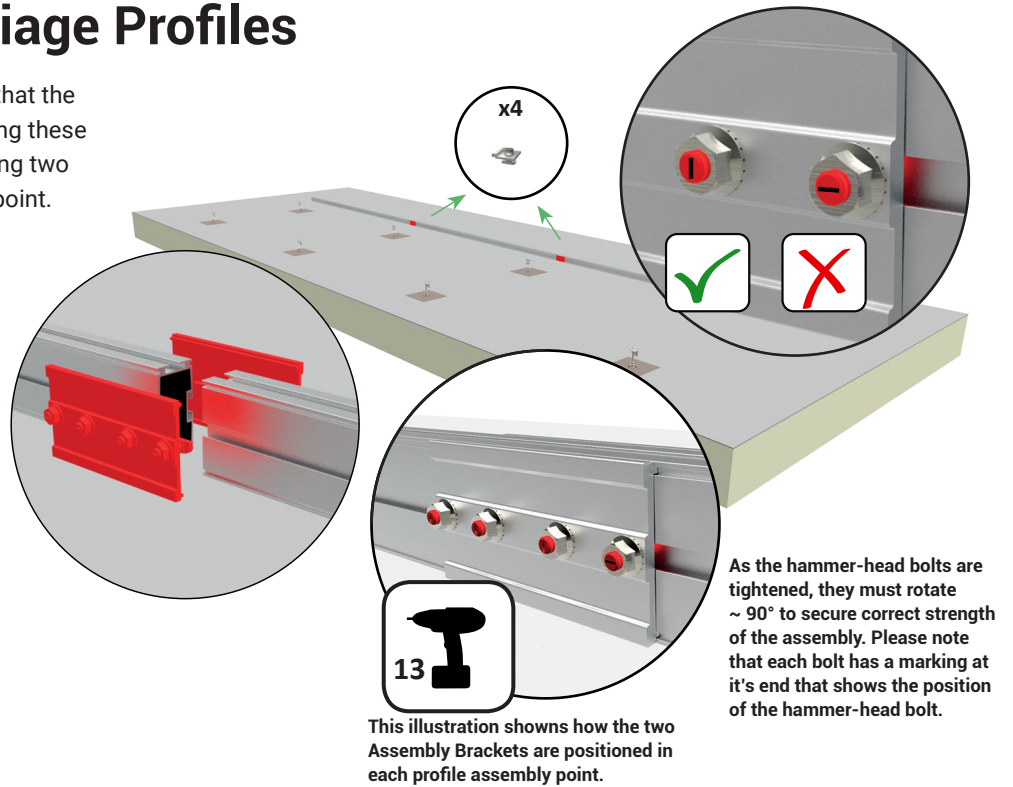


5. Assembly of Carriage Profiles

The first step is to assemble the profiles so that the total (Module) length is obtained prior to fixing these to the Fix Point Brackets. This is done by using two pcs. Assembly Brackets for each assembly point.

Before the bolts are fixed, the Carriage Profiles must be pushed together whereafter all the hammer-head bolts are turned and tightened.

* The module length is listed in the corresponding Technical Design Report

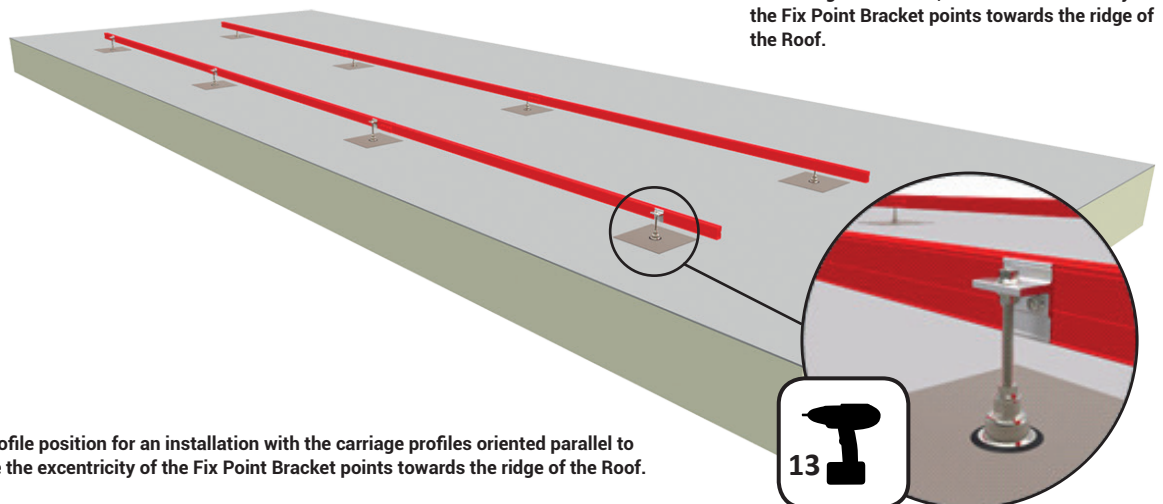


6. Installation of Carriage Profiles

Before the Carriage Profiles are installed it must be determined how they must be positioned relative to the position of the Roof Consoles. The exact details for a given project will be listed in the project documentation.

The Carriage Profiles are installed on the Fix Point Brackets by tightening the premounted hammer-head bolts in the same way as described for the Assembly Brackets above.

The assembled Carriage Profiles must have a length which is min. the total length of the give Module including panel an installation tolerances.

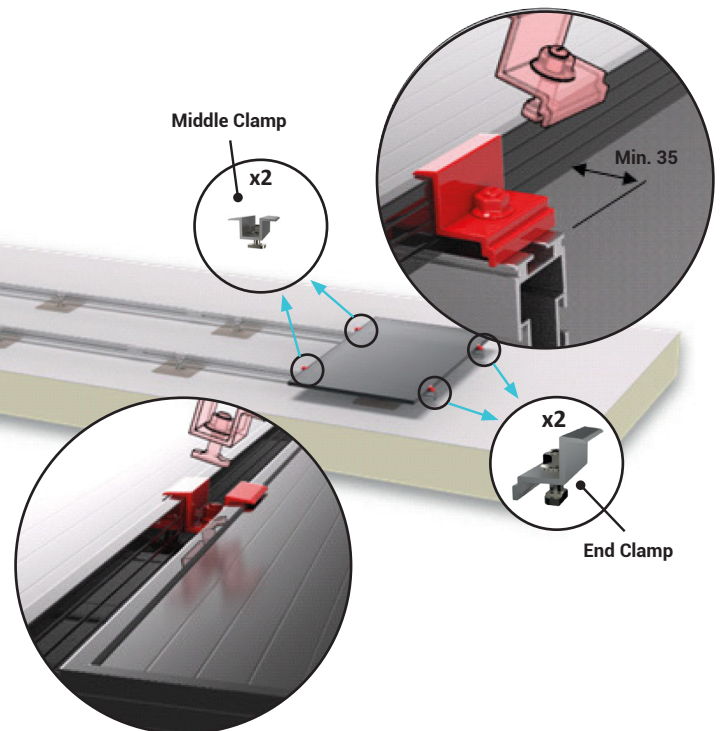


7. Installation of PV-Panels

The installation of the first pv-panel require 2 x End Clamps and 2 x Middle Clamps. The Middle Clamps are mounted and fixed after the second pv-panel is in place.

The PV Panels are installed on the carriage profiles acc. to the specific module drawing and acc. to the requirements from the PV Panel manufacturer about fixation zones.

The Module drawing does not consider possible panel tolerances and depending on the panel a width tolerance of typical 3-4 mm must be considered.



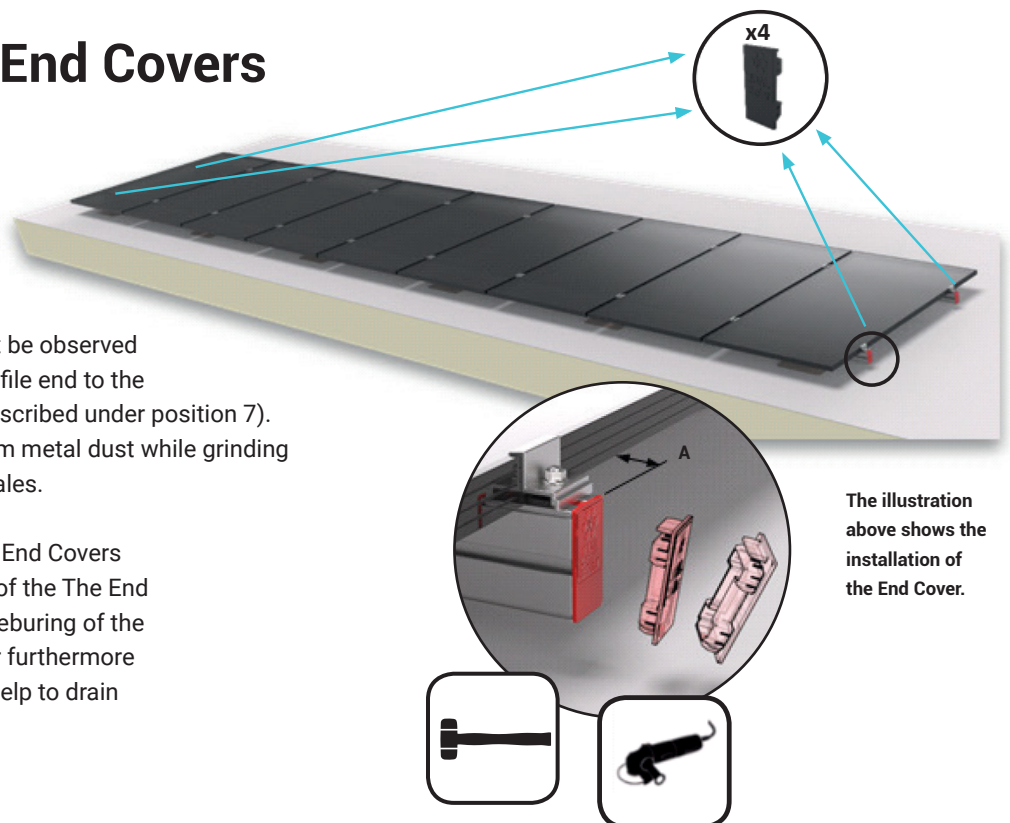
The illustrations above show the fixation of pv-panels with End -and Middle Clamps which, comes preassembled with a hammerhead bolt and flange nut and the fixation is once again controlled by observing the orientation of the T-bolt marking.

8. Installation of End Covers

Before the installation is completed End Covers should be installed in the Carriage Profiles.

Before this can be done the Carriage Profiles must be cut to the right length and in this process it must be observed that the Min. distance (A) from the profile end to the nearest PVPanel is kept (previously described under position 7). Care should be taken not to spray warm metal dust while grinding on fragile surfaces or flammable materials.

When the Carriage Profiles are cut the End Covers can be installed. Due to the geometry of the The End Cover it can be installed without any deburring of the freshly cut profile ends. The End Cover furthermore contain a drainage cut out which will help to drain the profiles if necessary.

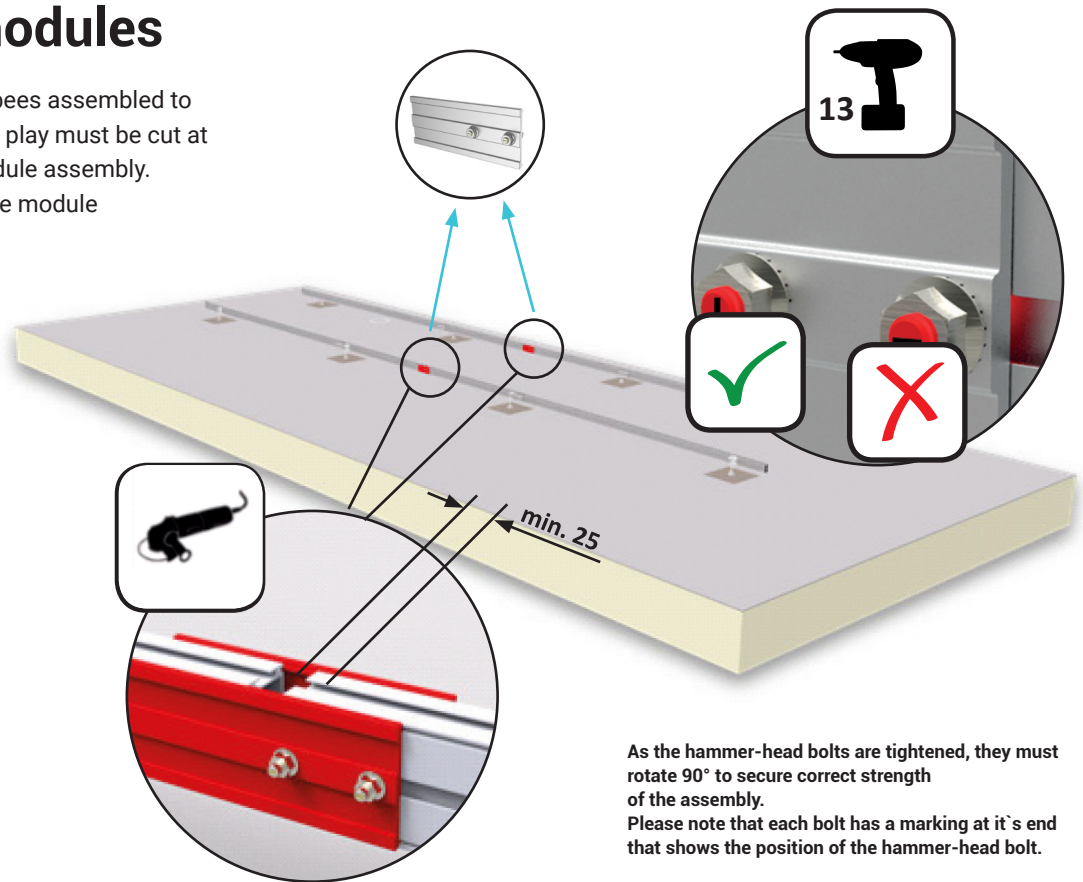


The illustration above shows the installation of the End Cover.

Assembly of modules

When the complete module has been assembled to its full length a minimum 25 mm play must be cut at the specified position for the module assembly. The next step is to reassemble the module profiles by applying 4 pcs. of the Module Assembly Bracket.

Before the bolts are fixed, it must be checked that the profiles are indeed minimum 25 mm apart.



This illustration shows how the two Module Assembly Bracket are positioned.

As the hammer-head bolts are tightened, they must rotate 90° to secure correct strength of the assembly. Please note that each bolt has a marking at its end that shows the position of the hammer-head bolt.

The position for the division of the module is specified by FIXNORDIC for each project and the dimensions for the current position for each module is listed in the respected module drawings.

A correct installation is crucial for the complete installation and in case questions or uncertainties arise it is recommended that FIXNORDIC is contacted before the installation is continued.

