

ACC

BASORSOLAR

Support System for Solar Energy Applications



Dedicated Accessories



Customized Solutions



Easy to Assembly

- Customized solutions according to customer's needs
- Easy to assembly: installers friendly
- Dedicated accessories for roof/floor installation
- Fully compatible with Basor's cable trays systems



SOLAR

SOLAR ENERGY FIXED STRUCTURES

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BASOR'S SOLUTION

BASOR is a company which specialises in the manufacturing, designing and supplying of structures for electrical cable tray systems, water and air systems and photovoltaic panel systems, and which has more than 30 years of experience in the electrical sector. We have a projects department which is always ready to help you carry out your project for setting up a photovoltaic energy system.

We offer you advice for the construction and assembly of photovoltaic panel structures, calculating the necessary profiles, the distance between supports and the necessary elements for the correct set-up of the system.

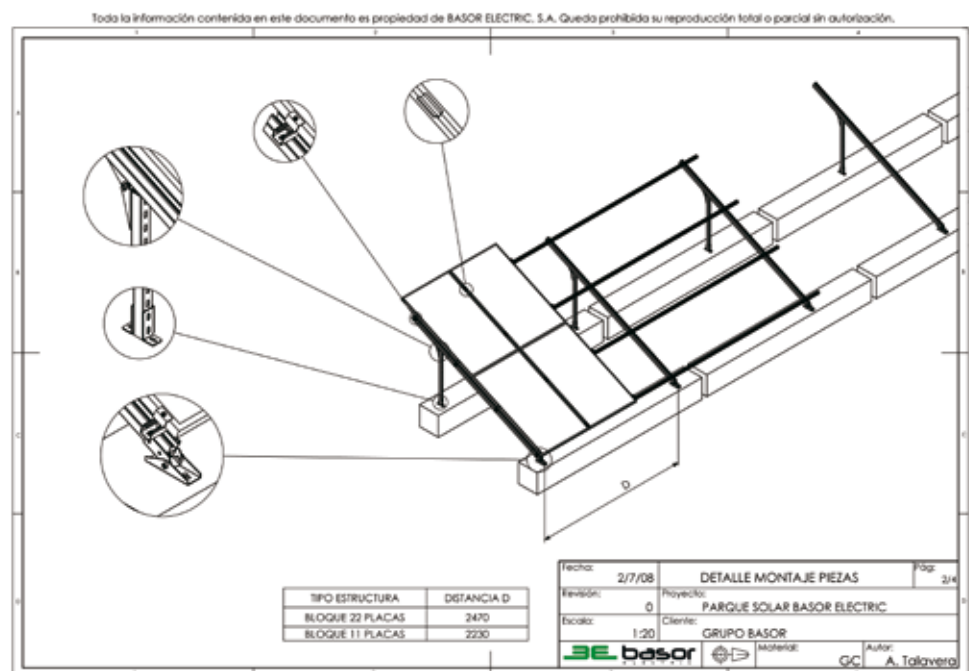


We render you the services which you might need:

- Any calculations relating to the structures, in accordance with the standard on "Basic Analysis on Structural Safety" or "Eurocode".
- Plans.
- Necessary materials.
- Cutting of profiles to minimise costs.

Moreover, for structures of more than 500 Kwp, by way of our technical department, we design custom made structures, minimising the set-up costs.

BASOR recommends hot dip galvanised steel solutions¹, as it's the solution which offers the best relationship between the resistance and cost of the material.



All of the materials of the structure have been designed to guarantee the functioning of the system throughout the whole of its useful life.

The materials used in the structure of photovoltaic panels are manufactured in hot dip galvanized steel, all bolts are made of A2 stainless steel and fixation elements are made of aluminium.

¹ For more information regarding the treatment of surfaces, please consult the Technical Appendix.

CLASSIFICATION

BASOR has developed different systems which cover all the needs of photovoltaic parks.

Systems are divided into:

- Floor systems
- Roof systems

FLOOR SYSTEMS

All photovoltaic assemblies depend on their surroundings, as they are capable of reducing the production capabilities of the system.

Therefore, depending on the possibility of the existence of plants and herbs, we shall classify the solutions depending on the kind of floor in which the system is going to be set up.

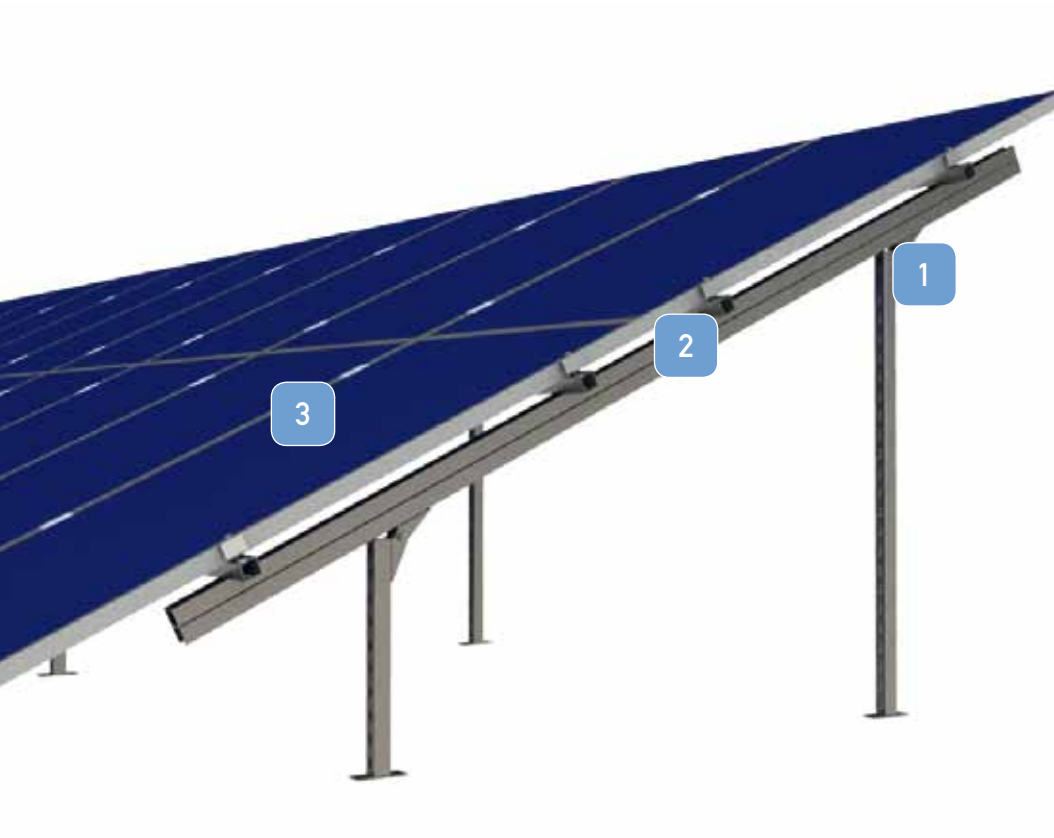
- Systems placed on land without organic matter: It's not necessary to elevate the structure, as there is no chance of plants/herbs growing and reducing the system's output.
- Systems placed on land with organic matter: The solar structure has to be elevated by placing micropiles, longitudinal or transverse bases or, simply, with the aid of the own structure. The recommended height depends on the percentage of matter contained in the ground, but the minimum recommended height is of 300 mm.



Example of a structure on land without organic matter



Example of a structure on land which has been elevated with the aid of micropiles



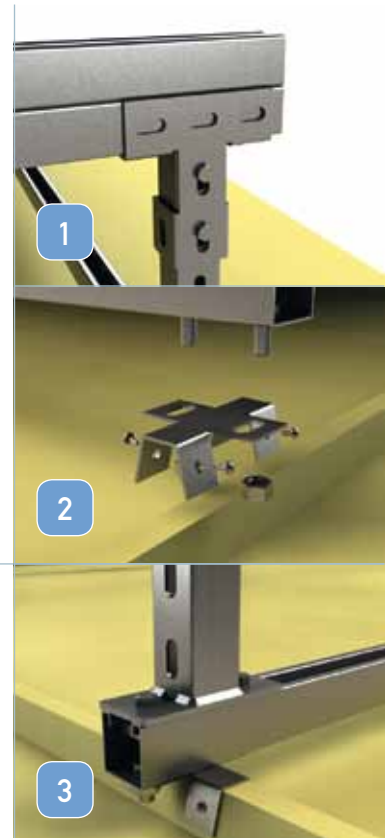
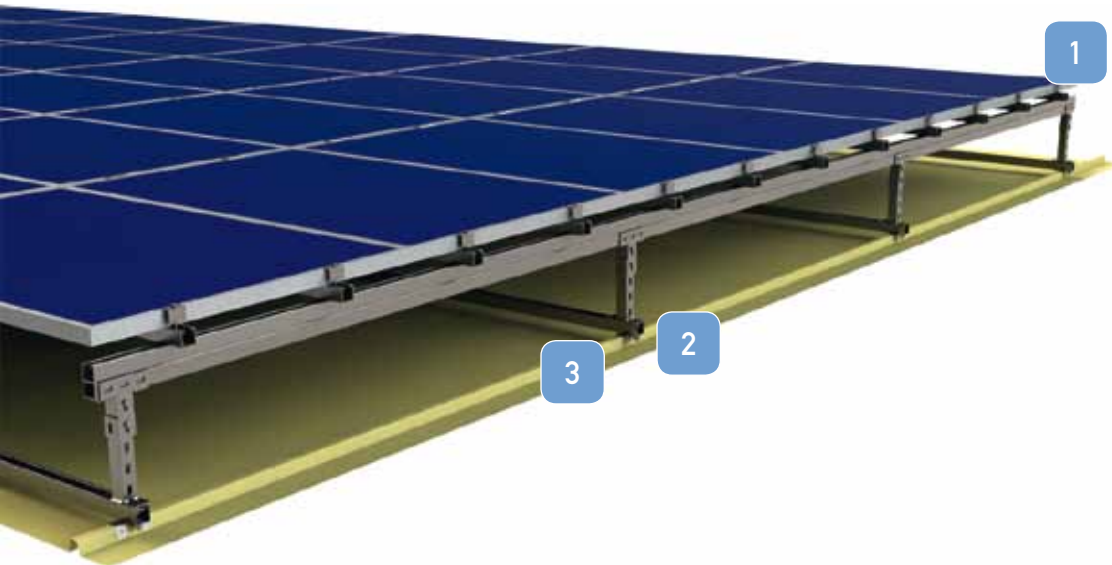
Example of a structure on land with organic matter which has been elevated by way of the main structure

ROOF SYSTEMS

In roof systems, the first thing which has to be verified is that the roof is prepared to support the load of the structure itself and of actions such as wind, snow and earth tremor for which it has been calculated.

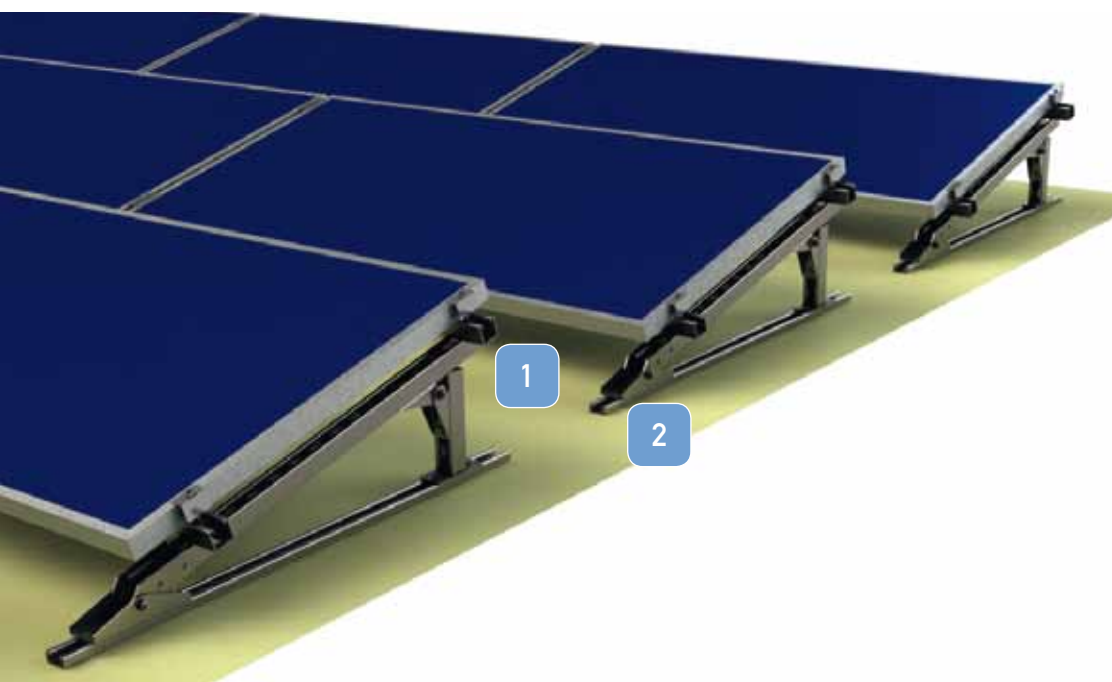
BASOR has designed two types of solutions depending on the kind of roof:

- **Sandwich roof assemblies** The structure's solution has to contemplate fixing the structure to the nerves of the sandwich panel and fixing a rail over it which acts as a base for the structure. As the structure's orientation depends on the position of the premises and on the roof's slope, there are many cases in which we must supplement the sandwich piece with an additional piece in order to obtain the desired angle.



Example of a parallel planes structure fixed on a sandwich roof

- **Assemblies on flat roofs** The structure is very similar to the one used for floor assemblies without organic matter, but its main feature is the profile which joins both legs and which allows fixing the structure to the roof.



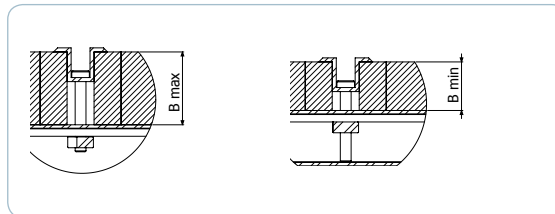
Example of a structure with only one plate assembled on a flat surface

ASSEMBLY ACCESSORIES

PHOTOVOLTAIC MODULE'S FIXATION SYSTEM

BASOR recommends fixing the solar panels with 4 supporting points, in order to avoid movements.

The panel's fixations are manufactured in extruded aluminium and the bolts used have an M8x55 y M8x70 DIN 912 allen head. The dimensions of the panel's edge estimated for standard bolts are of 36 mm to 49 mm.



Qualities are of A2 electrogalvanised steel or stainless steel, depending on the location and on the investment's life expectancy.



ASSEMBLY OF THE PLATE'S CENTRAL UNION JOINT

| | | |
|---|--|--|
| <p>1</p> | <p>2</p> | <p>3</p> |
| <p>Insert the spring nut into the profile</p> | <p>Turn it 90° until its position is perpendicular to the profile's longitudinal direction</p> | <p>Move it until it reaches the position desired</p> |

| | |
|------------------------|---|
| <p>4</p> | <p>5</p> |
| <p>Place the plate</p> | <p>Place the union piece and screw down</p> |

ASSEMBLY OF THE PANEL'S LATERAL UNION JOINT

| | | |
|--|---|---|
| | | |
| <p>1</p> <p>Insert the spring nut into the profile</p> | <p>2</p> <p>Turn it 90° until its position is perpendicular to the profile's longitudinal direction</p> | <p>3</p> <p>Move it until it reaches the position desired</p> |
| | | |
| <p>4</p> <p>Place the plate</p> | | <p>5</p> <p>Place the union piece and screw down</p> |

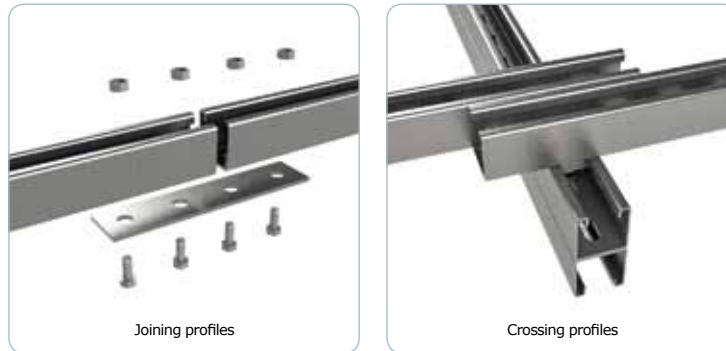
FIXATION SYSTEM BETWEEN THE LONGITUDINAL PROFILES AND THE PORTICO

Profiles are fixed to one another by way of M8x20 or M8x25 bolts and spring nuts, as illustrated below.



LONGITUDINAL PROFILE'S FIXATION SYSTEM

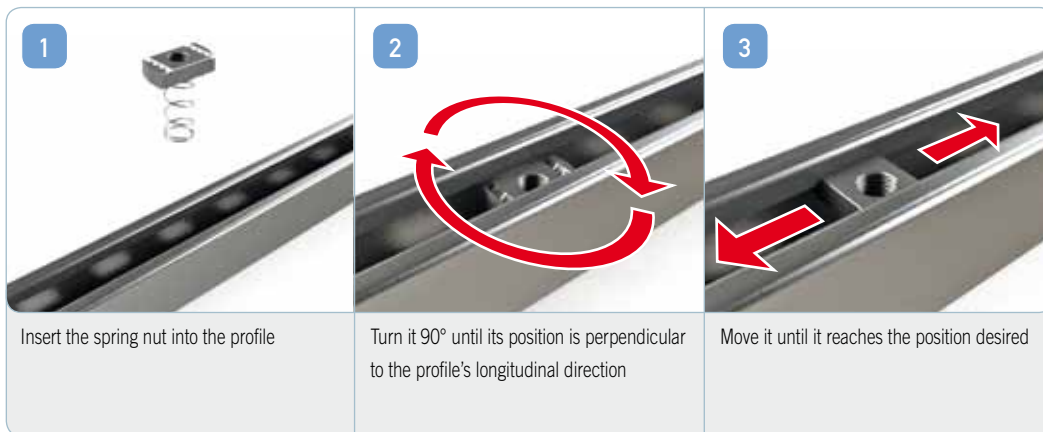
There are two ways of fixing longitudinal profiles to one another. One of the solutions is by using the corresponding union joint, and the other is the crossing profiles' system.



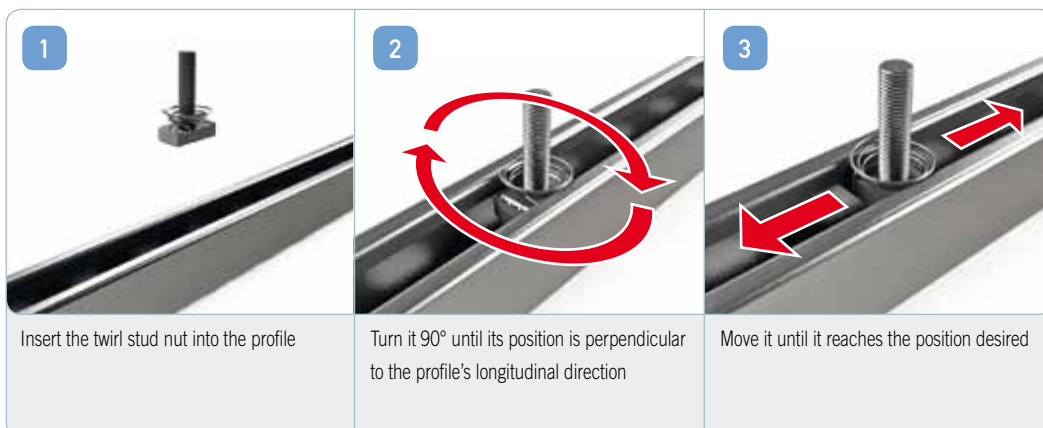
ACCESSORIES' FIXATION SYSTEM

The two most common fixation systems are:

- **Spring nut** Offers versatility and resistance at a low price.



- **Twirl stud nut** Quick fixation system which combines nut and bolt in the same piece. In perforated profiles, it works better than the spring nut, as it avoids the spring from escaping through the perforation.

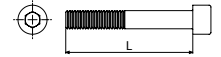


SOLAR EXCLUSIVE PRODUCTS

DIN 912 BOLTS



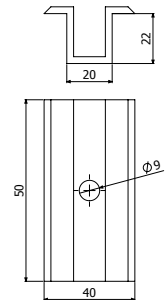
| DESCRIPTION | UVM ud | UVE ud | Pap Nm | L mm | CINCADO | | I304 | |
|--------------------------|-----------|-----------|-----------|---------|---------|-------|--------|-------|
| | | | | | REF. | kg/ud | REF. | kg/ud |
| DIN 912 BOLTS M8X70 D8.8 | 100 | 100 | 25 | 70 | 0/0930 | 0,05 | 0/0939 | 0,05 |
| DIN 912 BOLTS M8X55 D8.8 | 100 | 100 | 25 | 55 | 0/0940 | 0,04 | 0/0941 | 0,04 |



PANEL'S CENTRAL UNION JOINT



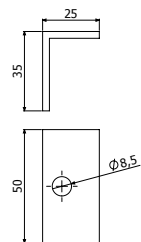
| DESCRIPTION | UVM ud | UVE ud | ALUMINIUM | |
|-----------------------------|-----------|-----------|-----------|-------|
| | | | REF. | kg/ud |
| PANEL'S CENTRAL UNION JOINT | 1 | 1 | 2/6794 | 0,06 |



PANEL'S LATERAL UNION JOINT



| DESCRIPTION | UVM ud | UVE ud | ALUMINIUM | |
|-----------------------------|-----------|-----------|-----------|-------|
| | | | REF. | kg/ud |
| PANEL'S LATERAL UNION JOINT | 1 | 1 | 2/6795 | 0,03 |



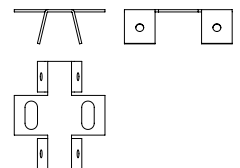
SANDWICH PANEL FIXATION

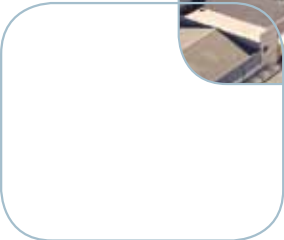


| DESCRIPTION | UVM ud | UVE ud | GS | | GC | |
|-------------------------|-----------|-----------|------|-------|------|-------|
| | | | REF. | kg/ud | REF. | kg/ud |
| SANDWICH PANEL FIXATION | 1 | 1 | - | 0,15 | - | 0,17 |

Manufactured under order.

The dimensions vary depending on the system.







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