



TILE ROOF

INSTALLATION MANUAL



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1. INTRODUCTION

PROINSO PV RACK offers solutions Structures, MORE ROBUST, FLEXIBLE, AND MORE COST-EFFECTIVE.

PROINSO PV RACK has been customizing to have an easy assembly with high quality materials. All our products come in a little box that contains all items necessary in the installation of the product.

PROINSO PV RACK designed for multiple wind speeds, terrain category as respective to locations, For higher wind speed, hill side and cyclonic conditions additional Brackets are suggested for installation.

2. DESCRIPTION SYSTEM

PROINSO PV RACK rooftop structures are installed by means of hollowed aluminium profiles bolted together, with enough ability to support photovoltaic modules with standard commercial dimensions. These profiles with the aluminium triangles low the lifting of the structure until desired inclination, what allows PROINSO PV RACK adapting their kits to the majority of existing roofs.

The versatility of the roof system from the PROINSO PV RACK firm allows an easy adaptation to most locations, complying with the applicable regulations in each area of installation.

Roof systems from PROINSO PV RACK firm allow a quick assembly. All elements are easily manipulated by the workshop staff.

Structure systems are made up of 6063-T5 Aluminium and Anchorages of CORROSHIELD BRAND Self Drilling Screw, which gives a higher durability to the system.

3. MAIN COMPONENTS ARE LISTED BELOW :

PART NAME	DESCRIPTION	MATERIAL	COATING
Pan tile roof clamp	Adjustable portait	SS 304	Electro Pl.
Self drilling screw	SDS 5B5.x65	HSS	GI
-	DIN 6798a M8 washer	Inox	A2
-	DIN 6923 M8 nut	Inox	A2
-	DIN 933 M8x30 bolt	Inox	A2
Adjustable Z fixing panel	Z angle profile	AL6063T6	Anodized
T fixing panel (mid clamp)	T angle profile	AL6063T6	Anodized
Cable clips		Inox	A2
Splice plate		AL6063T6	Anodized
WIng nut / sping nut	M8	Inox	A2
-	DIN 6798A M8 washer	Inox	A2
-	DIN 6923 M8 nut	Inox	A2
-	DIN 933 M8x20 screw	Inox	A2
-	DIN 912 M8x25 screw	Inox	A2
-	DIN 912 M8x35 screw	Inox	A2
Aluminium profile 40x38	40x38x2 profile	AL6063T6	

EACH 1 KW BOX CONTAINS THESE ELEMENTS

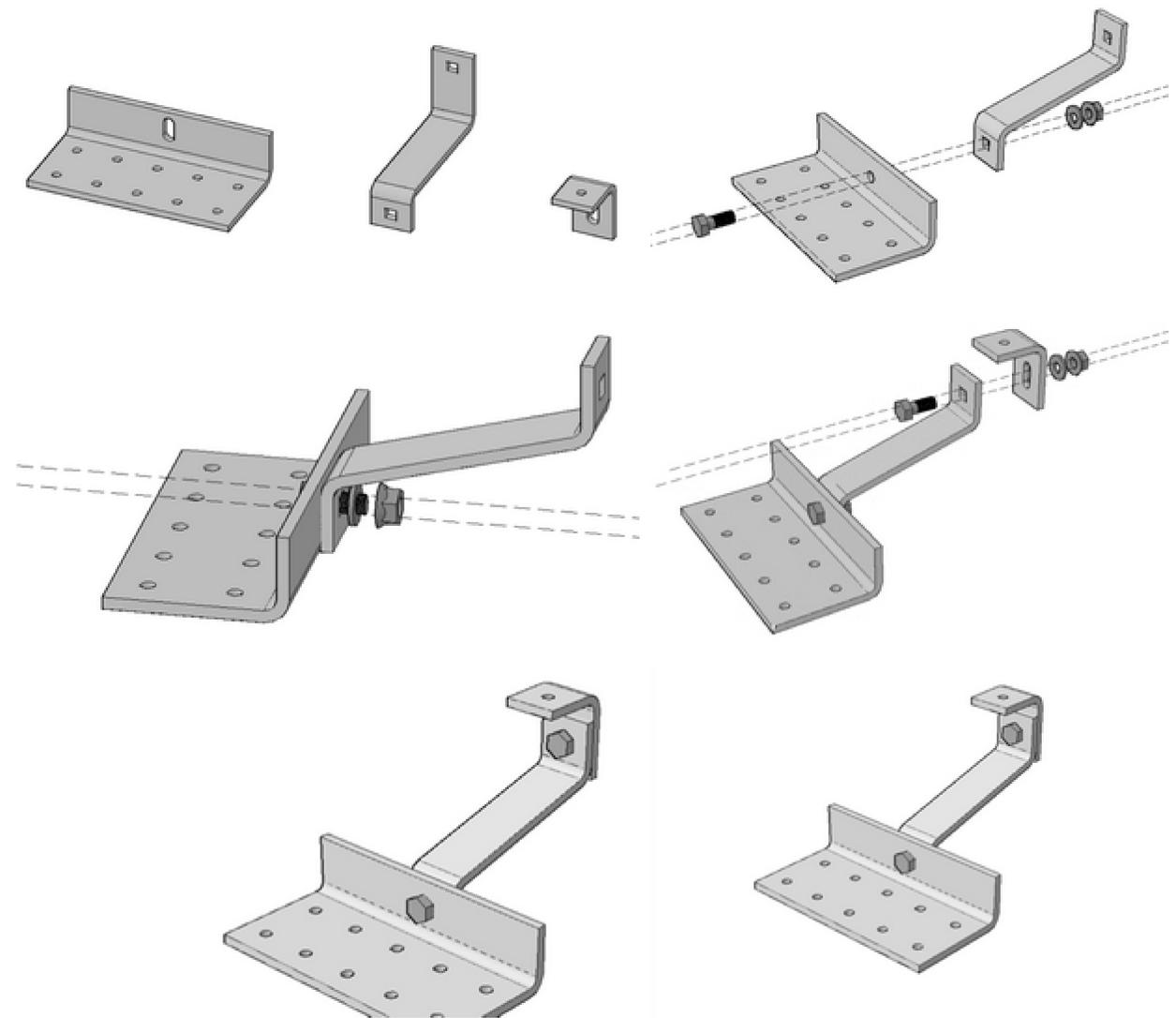


3.2 Mounting Process

In order to perform the assembly process, assembly drawings will be provided by **PROINSO PV RACK**. Before starting the assembly of the whole installation, it is recommended to assembly an individual kit in order to make position marks for the different components. Before starting the assembly of the structure, it is necessary to check that all required components and tools are ready to start the process.

All necessary steps for the assembly of the components that make up the kit, after installing anchorages roof, are described below.

3.2.1 Assembly of the roof anchorages:

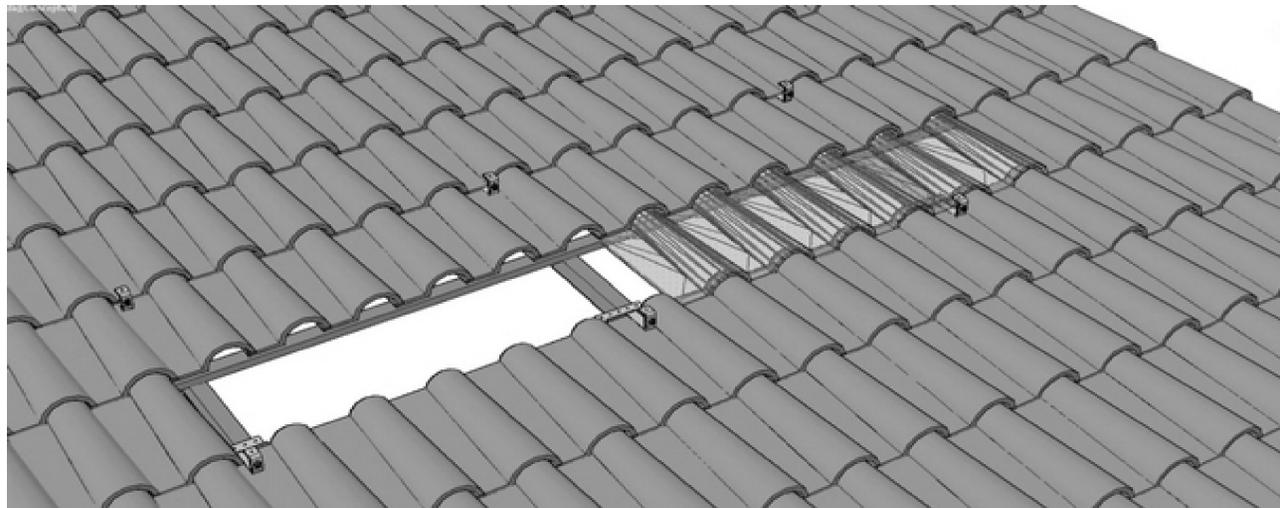


3.2.2 Fixing the roof anchorages to the roof purlins:

To install the hooks, move or clear the tiles that cover the surface installation, where the fixation will be placed. Once the surface is cleared, install the roof hook using at least two M8 threaded rods/bolts. Use appropriate bolt for each selected bracket:

WOODEN BEAMS: special self-drilling screws for wood have to be used, with at least 70mm length to be inserted in the beam. Maybe, it is necessary the closer tiles to be adapted to achieve the right assembly of the components. To make a recess in them an angle grinder with diamond blade is needed. Once finished, the tiles will be placed back to the original position assuring the impermeability of the roof.

In case that threaded rods and chemical dowels (not supplied) are used (just for concrete slab), drill the tiles following manufacturer instructions, clean the holes and insert the chemical dowel, using sieve if necessary, and immediately the threaded rod. Keep the chemical dowels manufacturer's instructions regarding curing times. Once this period is over, bring the sealing EDPM washer close to the tile with the appropriate nut, assuring its sealing. When all roof hooks are fixed, the kit could be assembly.

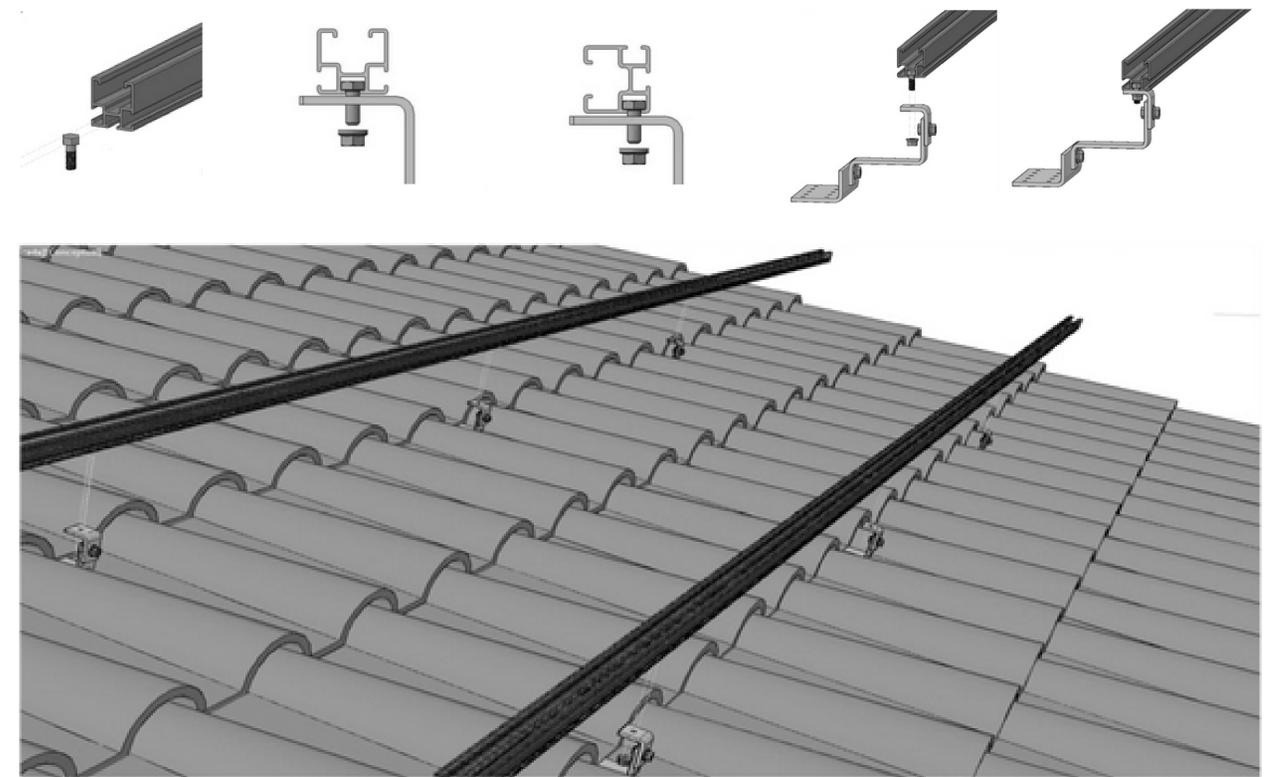


3.2.3 Assembly of base profiles onto roof anchorages:

The assembly of base profiles onto roof anchorages is done using DIN 933 M8x30 bolts and DIN 6923 M8 A2 nuts.

The same number of bolts as fixations has to be placed into the hollowed part profiles; the bolts will be moved along the profile to the correct position to be screwed with the nut onto each roof anchorage.

The correct position for the profile should be checked in the corresponding kit drawing.



NEEDED TOOLS AT THIS STEP ARE:

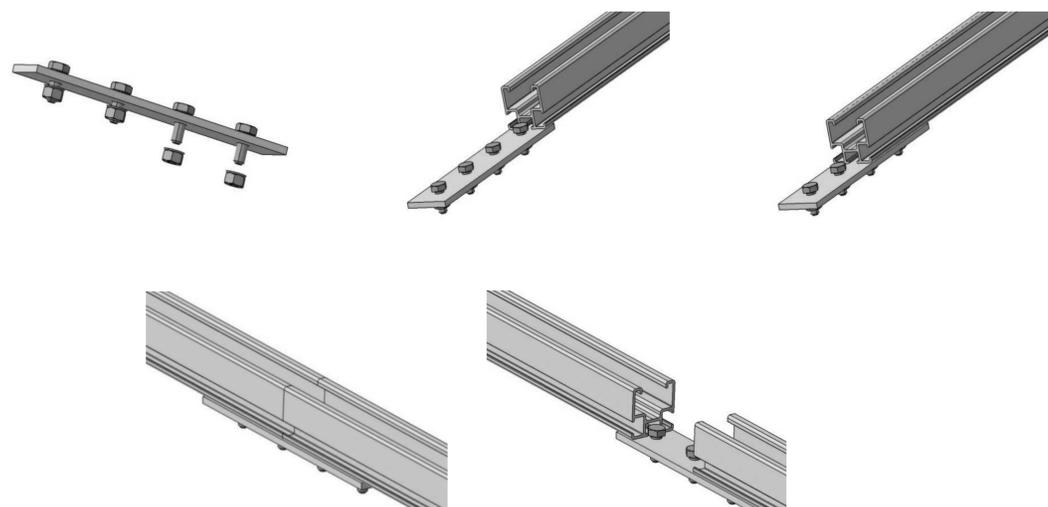
- Open end wrench no 13 or torque wrench with socket no 13.

3.2.4 Junction between aluminium profiles:

The joint between two aluminium profiles that form the structure is performed with an aluminium plate with 4 holes, using 4 DIN 933 M8 A2 bolts and 4 DIN 6923 M8 A2 nuts to secure them as shown in the image.

Firstly, the bolts are inserted loosely in the plate as displayed on the image. Then, half of the plate is inserted at the end of the first profile, assuring that two bolts are inserted at the bottom slot. Subsequently, tighten these two bolts to fix the plate to the first profile.

Secondly, the end of the second profile will be inserted until it stops with the first one, also guaranteeing that these two bolts are inserted at the bottom slot. Finally, the proper torque setting to every fastener will be given.



NEEDED TOOLS AT THIS STEP ARE:

- Open end wrench no 13 or torque wrench with socket no 13.

3.2.5 General considerations:

Torque settings for fasteners:

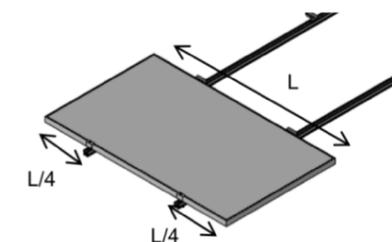
1. M8 nuts and bolts: 23 Nm.
2. M10 nuts and bolts: 43 Nm.

PV modules attachment points:

Attachment points of PV modules are approximately at $\frac{1}{4}$ of the longest side measured from the end of the module, always prevailing manufacturer recommendations over this issue.

Minimum distances for anchorages position:

The minimum distance to be kept from the end of the aluminium profile to place any anchorage or fixation is 50mm.



4. DO'S AND DON'TS :

- Installation of PROINSO PV RACK intended to be Performed by Trained Installers.
- Please Ensure all Safety Equipment shall be use by Installers.
- Please Ensure Substructure , Super Structure of Roof can with stand load of PROINSO PV RACK and Live load during Installation.
- Do not modify any Product of Proinso PV RACK without any Prior Approval by Engineers.
- Please follow recommended instructions of solar module manufacturer during handling and installation.
- Please ensure Solar module can Install on Rail one at a time, Please take care for slipping of module.



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