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 PV structures are made of hollowed aluminum profiles bolted together, with enough ability to support photovoltaic modules with standard commercial dimensions. These profiles with the aluminium triangles allow 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 CORROSHEILD BRAND Self Drilling Screw, which gives a higher durability to the system.
3. MAIN COMPONENTS ARE LISTED BELOW :

<table>
<thead>
<tr>
<th>PART NAME</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>COATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing angle connection</td>
<td>Unequal angle with 2mm EPDM</td>
<td>AL6063T6</td>
<td>Anodized</td>
</tr>
<tr>
<td>Cyclone washer</td>
<td></td>
<td>Inox</td>
<td>GI</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 6798A M8 washer</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 6923 M8 nut</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 933 M8X30 bolt</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Adjustable Z fixing panel</td>
<td>Z angle profile</td>
<td>AL6063T6</td>
<td>Anodized</td>
</tr>
<tr>
<td>T fixing panel (mid clamp)</td>
<td>T angle profile</td>
<td>AL6063T6</td>
<td>Anodized</td>
</tr>
<tr>
<td>Cable clips</td>
<td></td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Splice plate</td>
<td></td>
<td>AL6063T6</td>
<td>Anodized</td>
</tr>
<tr>
<td>Wing nut / spring nut</td>
<td>M8</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 6798A M8 washer</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 6923 M8 nut</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 933 M8X20 screw</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 912 M8X25 screw</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Hardware</td>
<td>DIN 912 M8X35 screw</td>
<td>Inox</td>
<td>A2</td>
</tr>
<tr>
<td>Aluminium profile 40x38</td>
<td>40x38x2 profile</td>
<td>AL6063T6</td>
<td>Anodized</td>
</tr>
</tbody>
</table>

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 assemble 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 Fixing the roof anchorages to the roof purlins:

The fastening elements for these kinds of roofs include a self-screwing rod (for steel or wood) with EPDM joint, which length has to be selected depending on the height of the trapezoidal profile and the thickness of the module with a link plate and corresponding nuts and bolts to assemble the kit.

Drill the roof at the corresponding attachment points. These attachment points will be located at the upper part of the trapezoidal profile to avoid leaks. Once the roof is drilled, depending on purlins material where the fixations are done, a predrilling with a diameter less than the self-screwing rod selected by the manufacturer if metallic purlins are considered and posterior bolted of the rod if wooden beams are considered. Once the rod is installed, make sure its EPDM joint seals perfectly the hollow done in the roof. Place the junction plate to install the kit later.
3.2.2 Assembly of base profiles onto roof anchorages:

The assembly of base profiles onto roof anchorages is done using DIN 933 M8x20 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.

3.2.3 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.
3.2.4 Assembly of PV modules onto aluminium profiles:

Installation of PV modules directly onto aluminium profiles is performed when the required disposition of PV modules is in portrait.

PV modules will be fixed at 4 attachment points, as shown in the kit drawing.

The assembly of PV modules is performed with "L" aluminium pieces (individual fixations), "U" aluminium pieces (double fixations), DIN 912 M8x70 A2 bolts, DIN 6798A M8 A2 washers and M8 A2 spring nuts as shown in images above.

**NEEDED TOOLS REQUIRED AT THIS POINT ARE:**

- Hexagonal wrench 6mm.

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 ¼ 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 withstand 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.