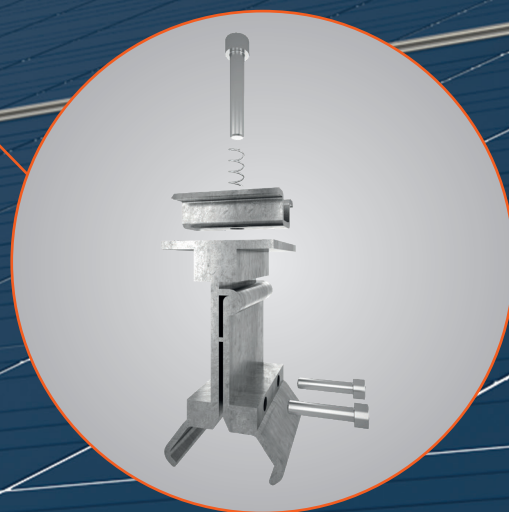


NO SCREW HOLES ON YOUR ROOF,
WE JUST INTERLOCK!

HIDDEN SCREW
ROOF PANEL AND
SPECIFIC
FASTENING
APPARATUS



 **panelsan**



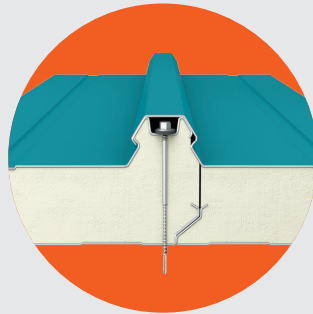
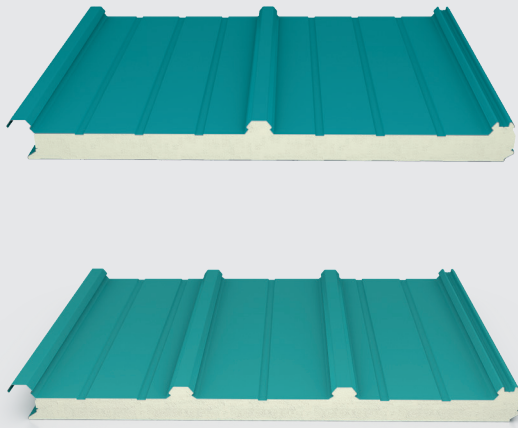
ROOF and FACADE MATERIALS AWARDS
“ROOFING MATERIAL AWARDS OF THE YEAR”

HIDDEN SCREW ROOF PANEL POLYURETHANE(PUR) POLYISOCYANURATE(PIR) INSULATED



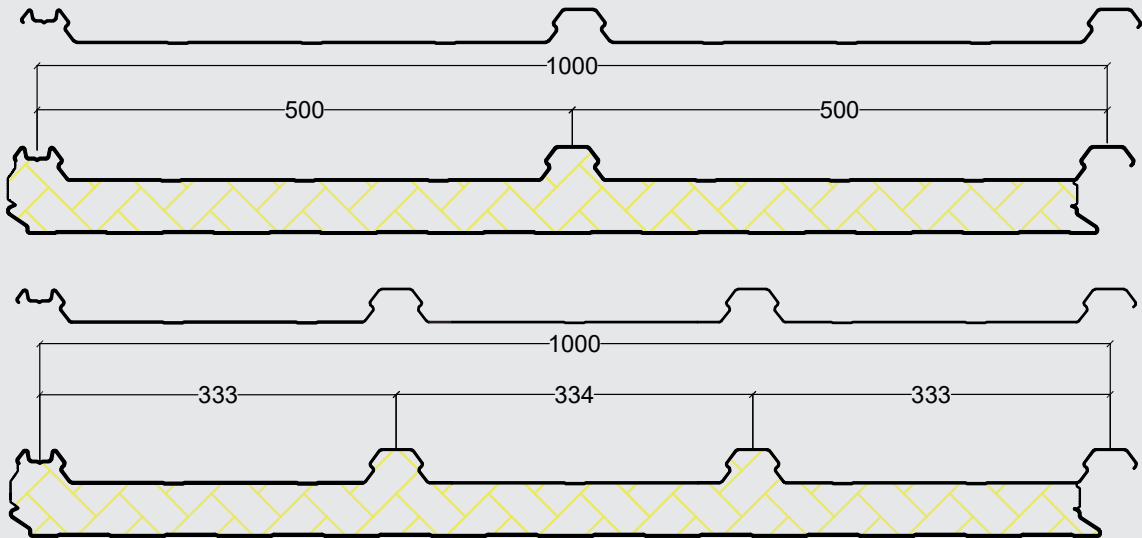
The one and only hidden screw roof panel of Türkiye; It eliminates the holes caused by screws that occur during the application of roof panels. Hidden screw roof panels enable the installation of equipment and systems that require connection to the roof panel, such as solar panels, without drilling the roof panel. It performs superior load carrying performance because of specific ribs form. Specific interlocking design of our panel provides high sealing, low cost and high energy efficiency.





Technical Aspects

Insulation Thicknesses	Insulation Density	Metal Sheet Thicknesses Painted Galvanised Sheet	Heat Conductivity Coefficient	Fire Class
40- 50-60-80- 100 mm	PUR 38 (±2) kg/m³ PIR 40 (±2) kg/m³	Top Sheet 0,50-0,60-0,70 mm Bottom Sheet 0,40-0,50-0,60-0,70 mm	$\lambda = 0,022 \text{ W/mK}$	PUR Bs2d0 EN 13501-1 Bs3d0 EN 13501-1 Cs2d0 EN 13501-1 Cs3d0 EN 13501-1 PIR Bs1d0 EN 13501-1, FM Bs2d0 EN 13501-1



PUR - PIR Insulated 3 Ribs Hidden Screw Roof Panel - Load Capacity Table

Metal Thickness Exterior PPGI / Interior PPGI	Insulation Thickness (mm)	Span (mm)	Span Support (mm)					U Value (W/m2K)	R Value R (m²K/W)
			1000	1500	2000	2500	3000		
0,50 / 0,40	50	2	279	165	119	93	76	0,41	2,27
		3	321	189	136	107	88		
	60	2	325	195	142	112	91	0,34	2,73
		3	373	225	163	128	105		
	80	2	396	246	181	143	116	0,27	3,60
		3	455	283	208	164	134		
	100	2	454	289	214	168	136	0,22	4,50
		3	522	332	246	193	157		

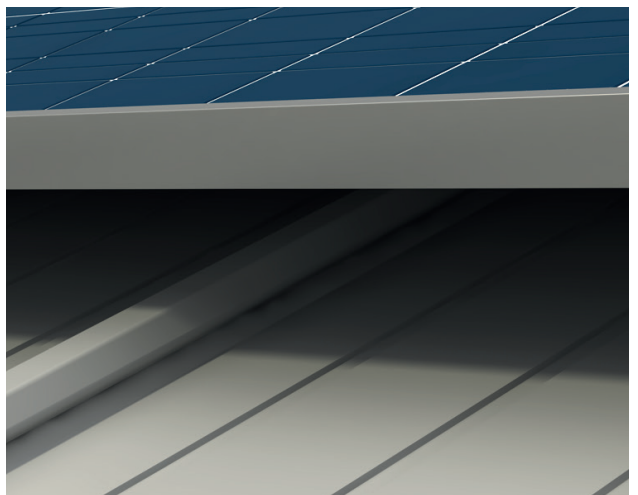
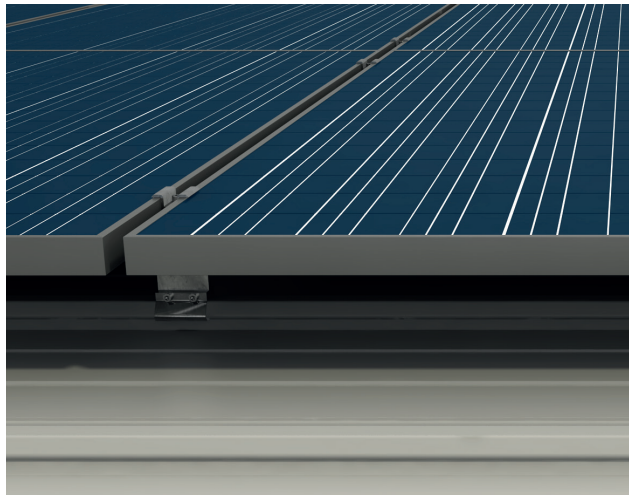
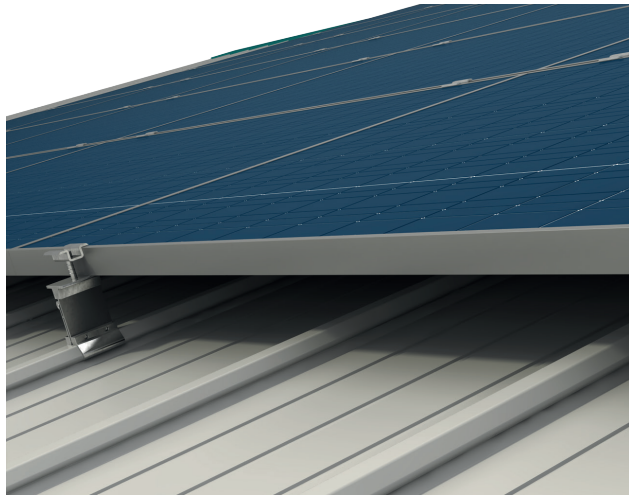
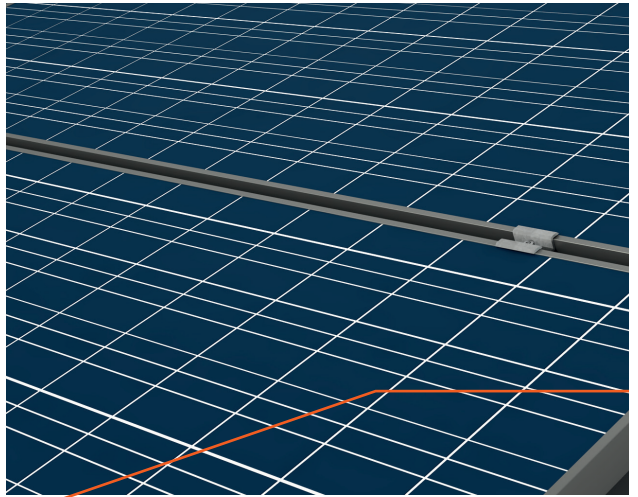
* 80 kg/m² wind load reparding L/150 deflection proviso. Density 40-42 kg/m³.

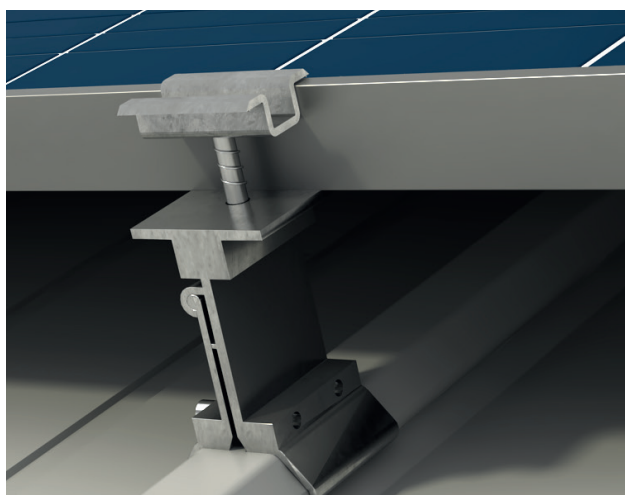
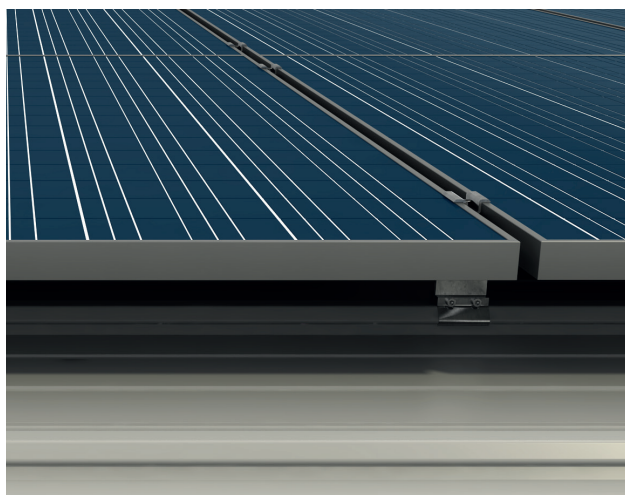
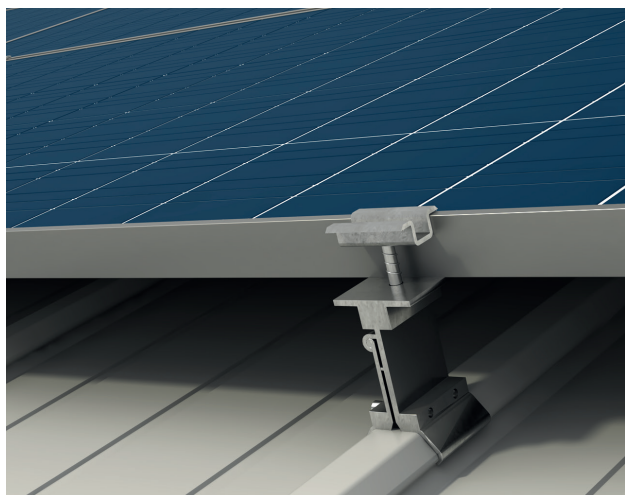
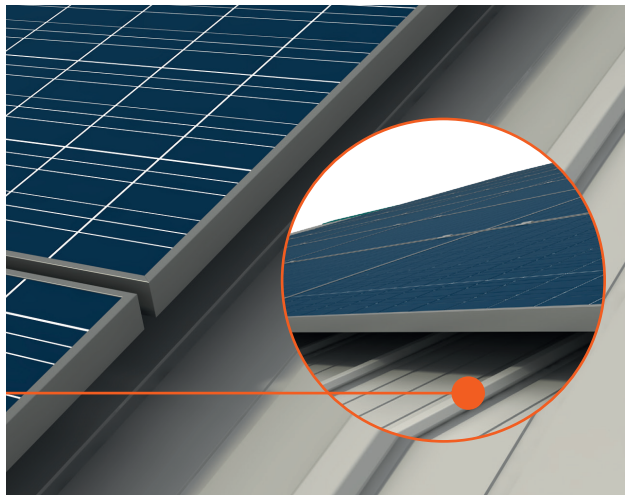
HIDDEN SCREW ROOF PANEL

EMPOWERING CONNECTIONS, PROTECTS YOUR ENERGY

The next-generation connection apparatus:

- Saves costs no profile materials.
- Offers significant advantages over other systems in dismantling and renovations.
- Provides speed, ease, and cost-effectiveness in project planning and assembly.
- Extends the lifespan of roof and Solar Energy Systems systems.





NEXT GENERATION PROFILE CONNECTION APPARATUS

Pannelsan accomplishes the installation method of solar energy systems onto roof panels using its proprietary, profile-free connection apparatus with hidden screws, secured by a dual-locking system. This innovative technology, surpassing standard installation techniques, ensures ease of assembly and yields more durable systems.

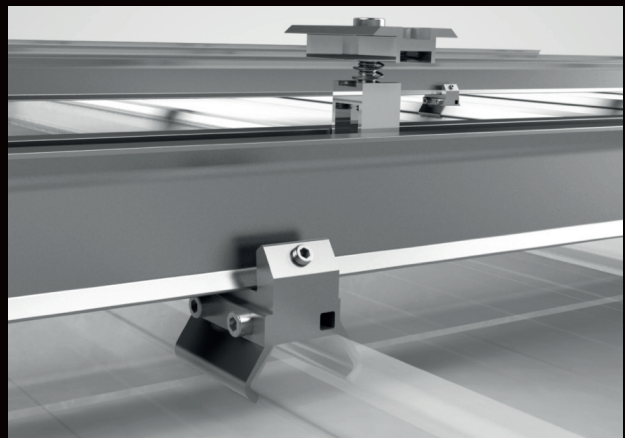
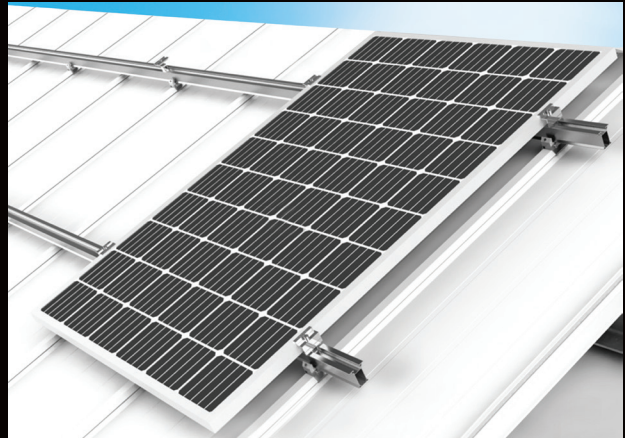
 **pannelsan**

ABOUT THE SPECIFIC FASTENING APPARATUS...

This fastening apparatus is specifically designed for Panelsan Hidden Screw Roof Panel. The most important aspect of the Hidden screw roof panel is the installation with hidden screws and hidden holes.

The apparatus is specifically designed to fix the systems on this roof panel with no screw holes; just by clamping with this specific apparatus.

The apparatus to be used has approximately 2,5 kN elusion value for 3 ribs hidden screw roof panel and 1,5 kN elusion value for 4 ribs hidden screw roof panel. 1,5 kN elusion value means 150 kg load to be carried. Regarding that by dividing the wind load on 1 m² solar panel to the number of apparatus on 1 m² will provide security coefficient. For example; If 2 apparatus is used per m² in an area with 300 kg/m² wind load (wind load in a hurricane), the safety factor of the connection apparatus is: $2 \times 250 \text{ kg} = 500 \text{ kg}$ It can be determined as $500/300 \text{ kg} = 1,66$. Wind load calculation in Turkey is taken as 80 -100 kg/m², thus; safety coefficient of the connection apparatus can be taken as: $500 \text{ kg}/100 \text{ kg} = 5,00$. In the calculations made according to the test results, it has been proven that the safety coefficients are very high and that it is very safe to utilize even in hurricanes.





THE ONE & ONLY FM
CERTIFIED HIDDEN SCREW

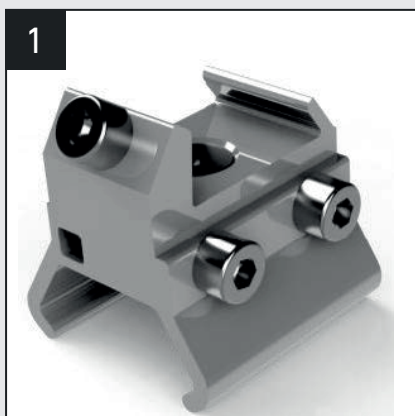
ADVANTAGES OF THE HIDDEN SCREW ROOF PANEL AND SPECIFIC FASTENING APPARATUS; THE SYSTEM PROVIDING THE PRECISE FIXATION WITHOUT SCREWS

- The biggest difference of the **HIDDEN SCREW ROOF PANEL** roof panel compared to other roof panels; is that the screws are not visible from the outside and are protected inside the connection, the screws do not cause problem
 - **HIDDEN SCREW ROOF PANEL** hides screws and no screws are used to attach the special apparatus to the roof, there will be no need for chemicals that can be used to seal screw holes.
 - **ADVANTAGES OF SPECIAL FASTENING APPARATUS**
 - Allows mounting at the desired slope according to the project,
 - Removes the obligation to comply with purlin dimensions in assembly, adds flexibility to the design,
 - It does not damage carriers and panels as it is not attached to purlins,
 - As other fasteners are not needed, it does not bring an additional load on the roof and the system,
 - It is more advantageous than other systems in dismantling and modifications,
 - It provides economy in the number of screws.
 - **SYSTEMS COMPATIBLE WITH SPECIAL HIDDEN SCREW ROOF PANEL WITH HIDDEN SCREW;**
 - Solar powered roof systems,
 - Lightning rod,
 - Walking paths,
 - Air handling units,
 - Snow holders,
- Offers indispensable advantages in connections that require safety ropes and similar roof assembly.
- Our goal is to work to make roofs more efficient. Making a difference to the sector with R&D

INSTALLATION DETAILS OF THE SPECIFIED APPARATUS

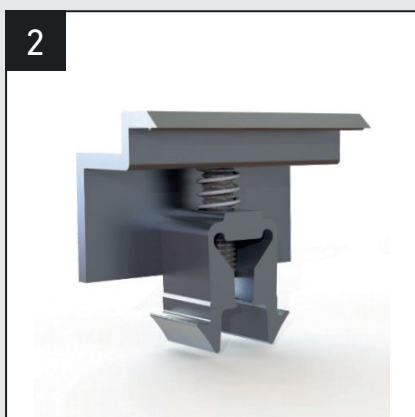
The solar panels connected to Panelsan Concealed Screw Roof Panel with a special apparatus provide you with great advantages both technically and economically.

Apparatus connecting solar panel to roof panel, removes 4 PIECES SCREW HOLES with a single apparatus. Thus, it allows screw and trouble-free installation while applying both your roof panel and solar panel and other connections.



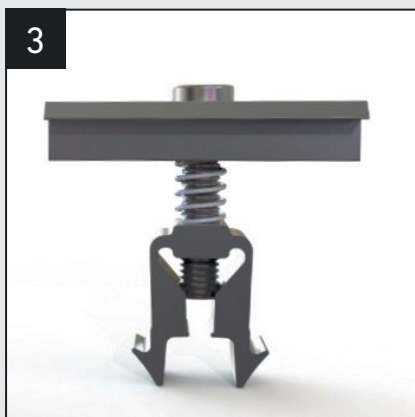
Hidden Screw Roof Panel Apparatus For Profile System

- Raw Material Clamp: Aluminum 6063 T66
- Raw Material Connection: Stainless A2/70 Geomet K.
- Rail clamping method: Special pointed bolt



"EasyClamp" Side Clamp

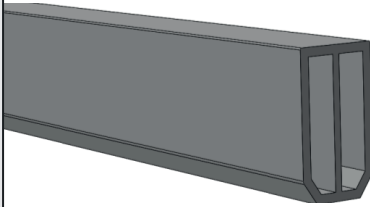
- It is shipped as a pre-assembled set with a special patented aluminum nut and spring. It accelerates the installation time of PV modules by up to 15%.
- Compatible with all ISOTEC Systems. Universal clamps can be mounted with all framed PV modules 32-40 mm



"EasyClamp" Middle Clamp

- It is shipped as a pre-assembled set with a special patented aluminum nut and spring. It accelerates the installation time of PV modules by up to 15%.
- Universal clamps can be mounted seamlessly with all framed PV modules 32-40 mm high.

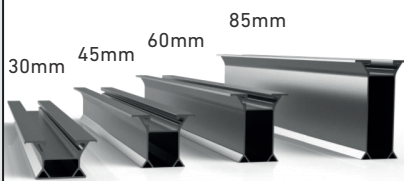
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Intermediate Connection Part

- It is used to ensure the continuity of Aluminum Rail Profile in long rows.
- It is fixed to the rails with 4 self-tapping screws.

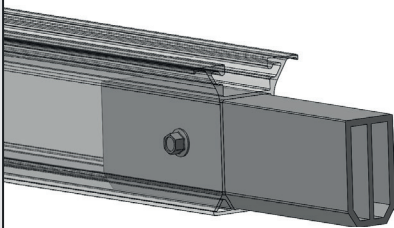
5



Aluminum Rail Profile

- It is easy to install thanks to its optimized form.
 - Compatible with EasyClamp V.1.4 V 4 clamps.
 - It is applied to the rails without drilling holes.
 - Optimum air circulation and maximum production performance are achieved with 4 different height options.
- *Rail height option should be assessed according to the regional temperature.

6

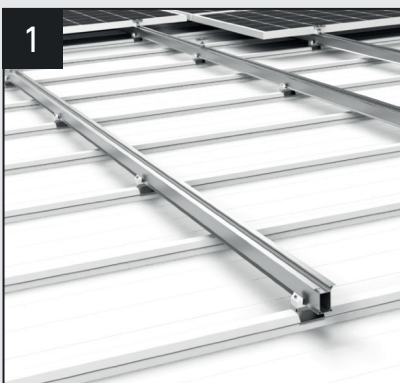


Using Intermediate Connection Part

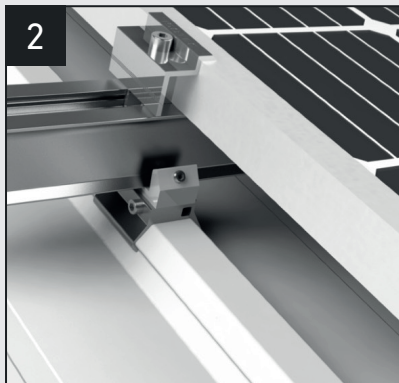
- Rails are fixed to each other with the part and 4 selftapping screws in order to ensure the continuity of Aluminum Rail Profile in long rows.

ASSEMBLY IMAGE

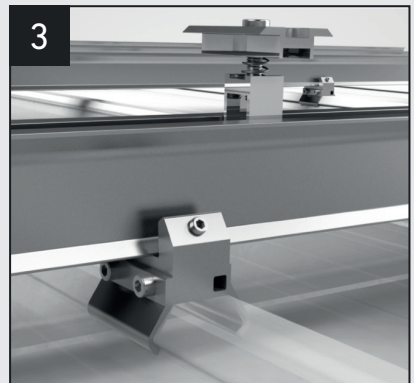
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2



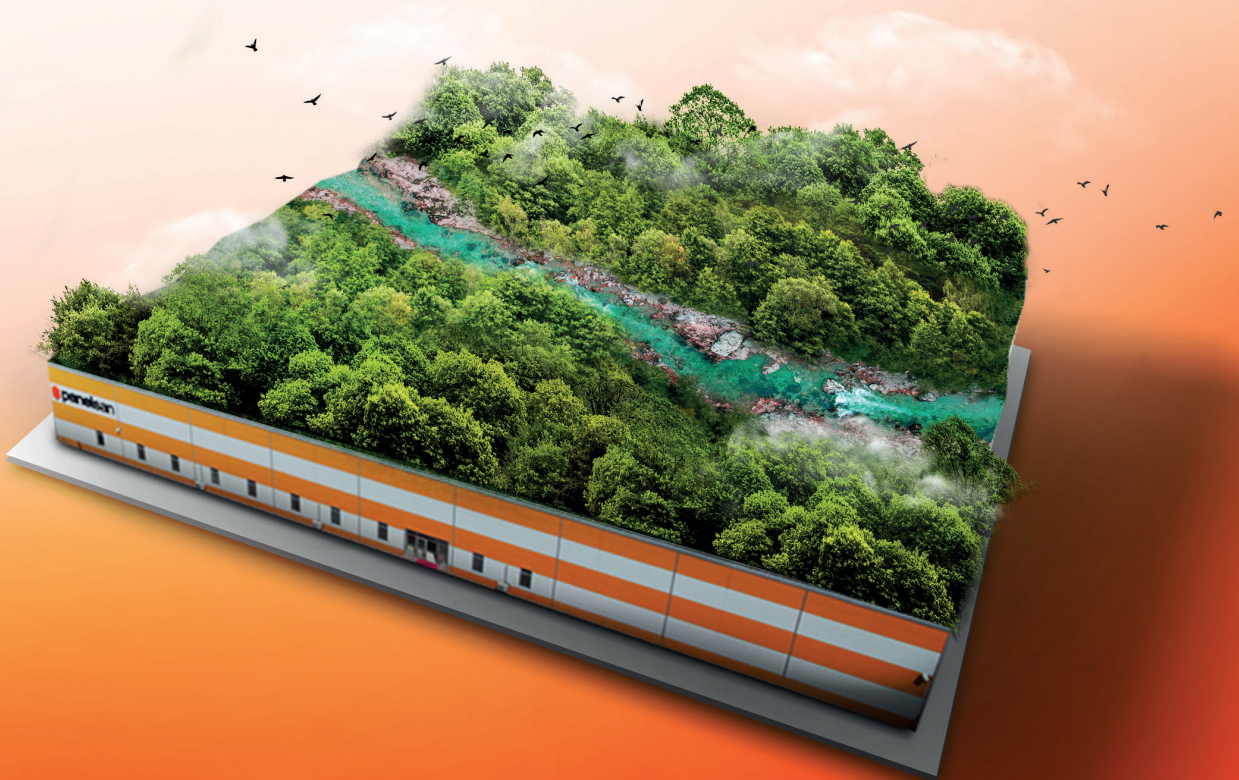
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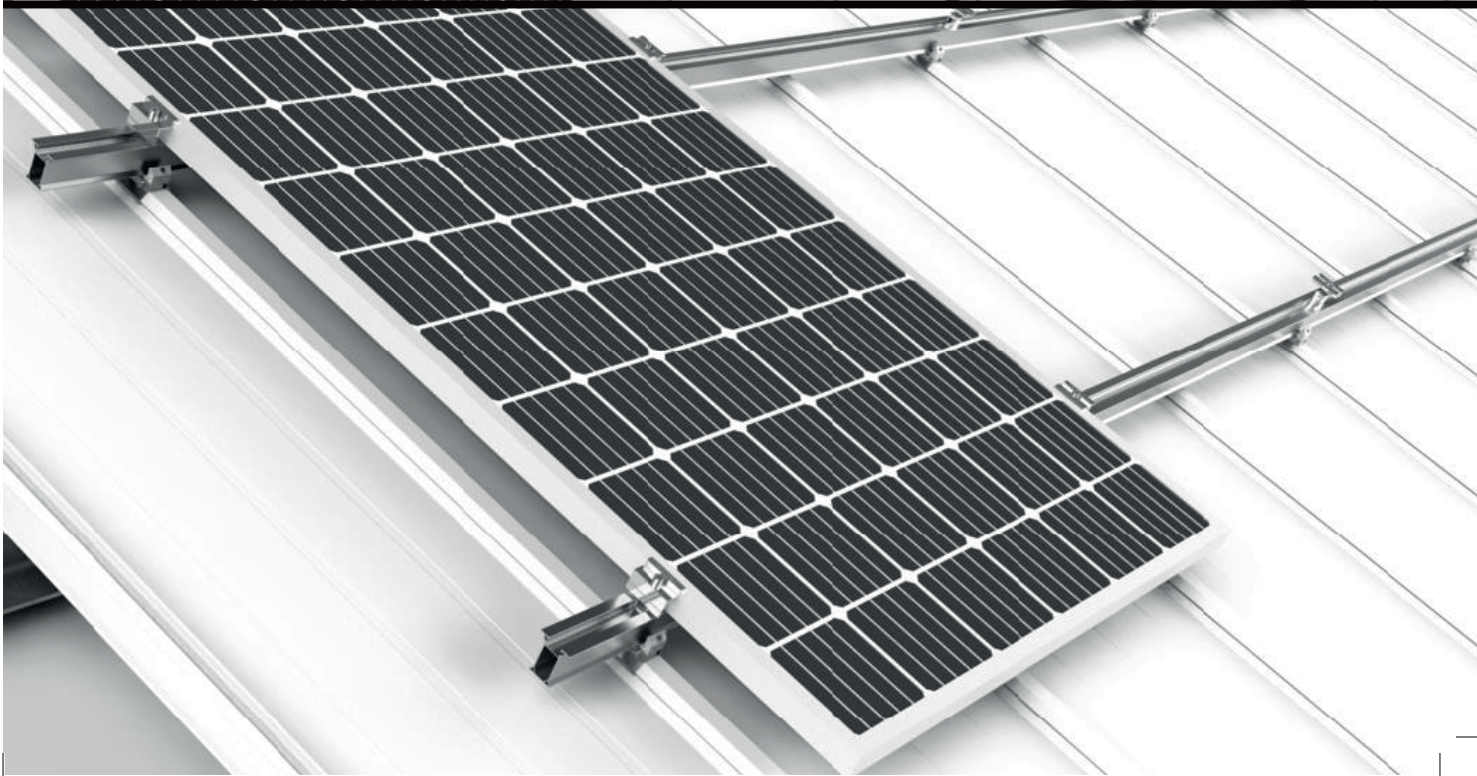
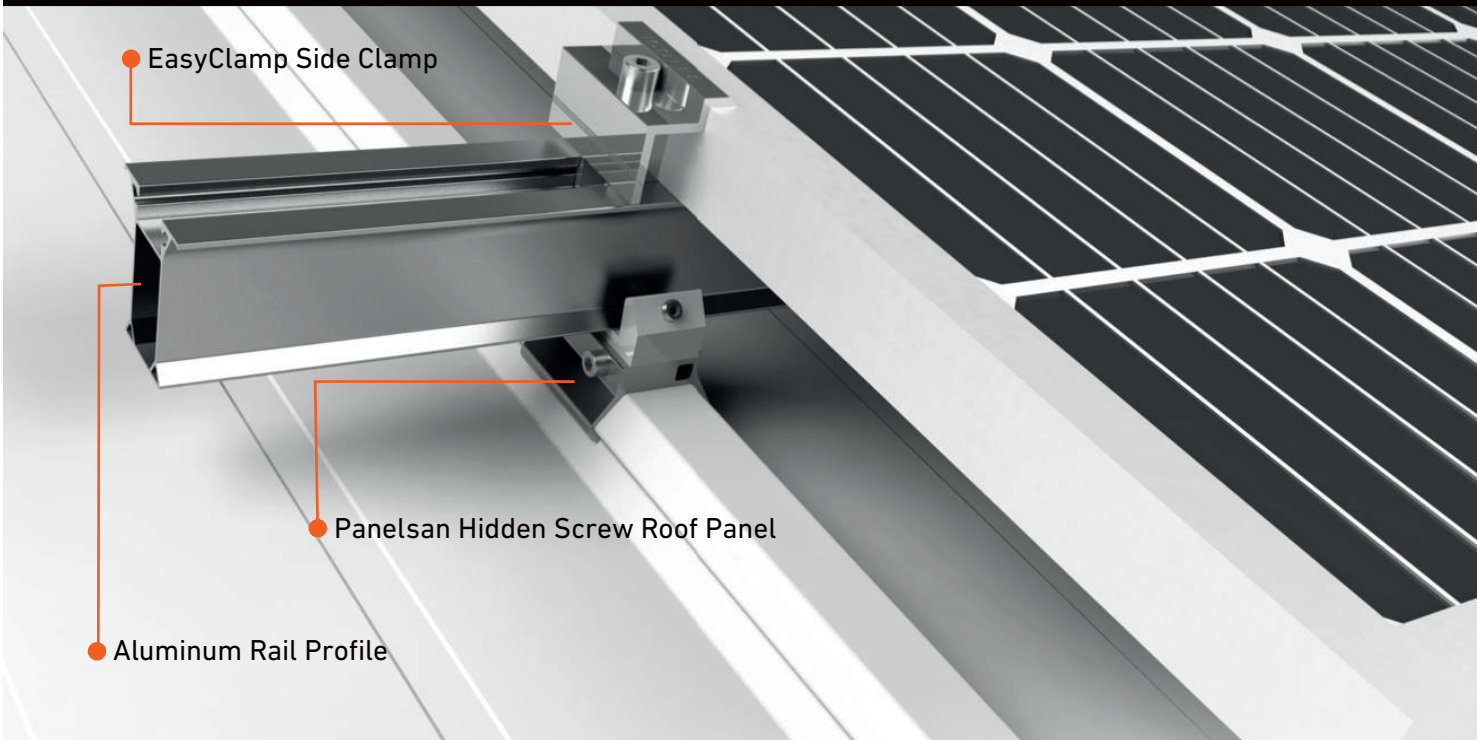
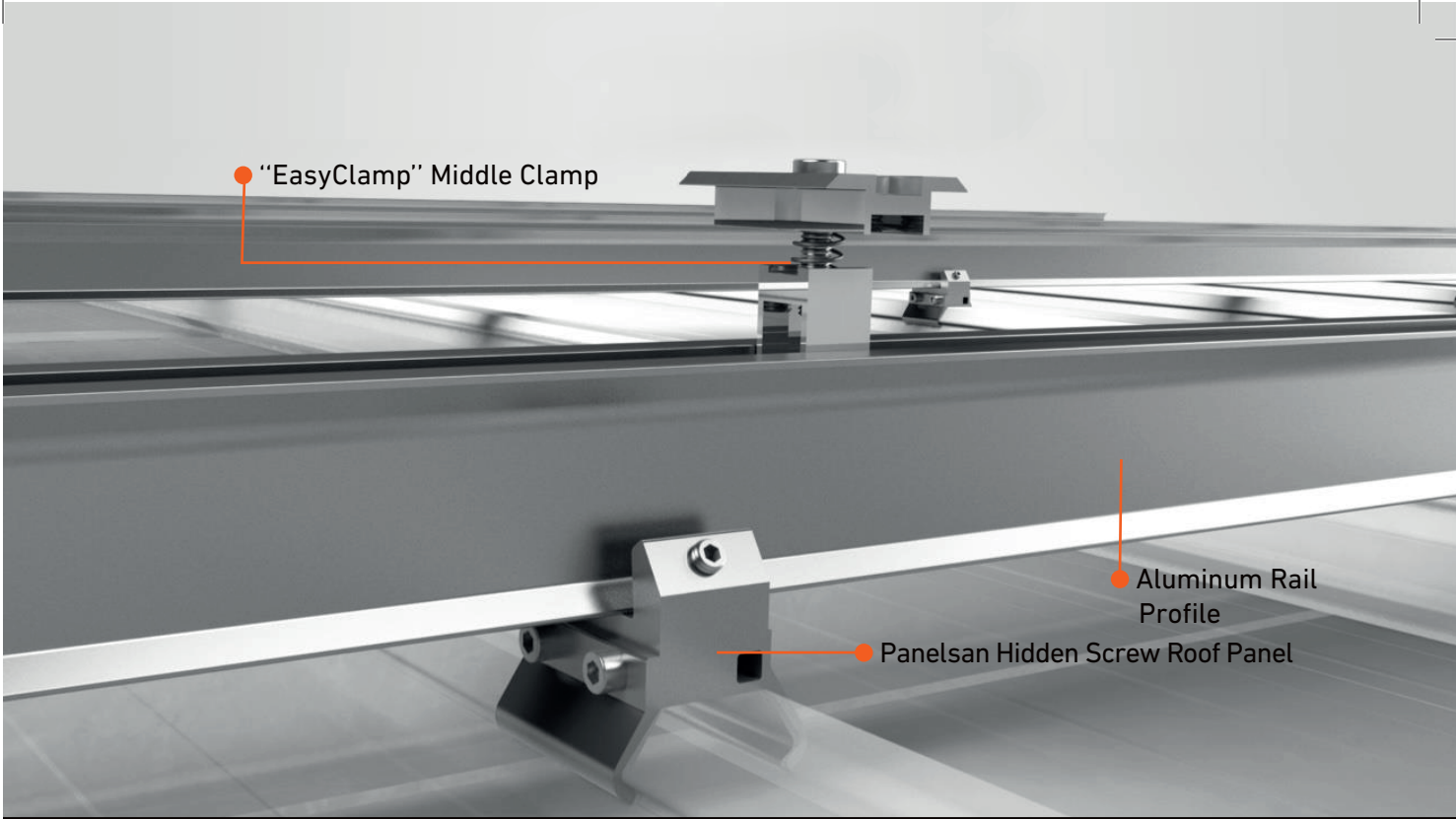


4.900 TREES HAS PLACE ON OUR ROOF

We believe in the importance of solar energy systems and their role in our future; For this this reason, we can reduce carbon emissions with 1.68 MW solar power plant we installed on our factory roof. We are living the joy of redound 4,900 trees to nature by preventing emissions.

GES installation of 1.2 MW electricity generation on the roof of the production facilities in Polatlı OSB in 2020 and raised the Panelsan, Created a green environment for future generations and raised the awareness about energy use and continuing its efforts to leave a clean nature with an extra solar power plant of 0.55 MW installed in 2023. A total of 1.68 MW was installed. With this setup, Panelsan it prevented 837 tons of greenhouse gas emissions by saving 1,936,093.60 kWh of energy during the year.







panelsan.com