



IVENDO Solar
ul. Wojska Polskiego 2D
14-200 Iława

Manual for system installation on a flat roof

KDP-BIFACIAL-M

These instructions contain information on how to assemble a superstructure for for 4 horizontally arranged modules.

Materials:

- Stal nierdzewna A2
- Aluminium 6060 T66
- Stal konstrukcyjna z powłoką Magnelis S320 ZM430

It is essential that you familiarize yourself thoroughly with the instructions and use them in accordance with the intended purpose.

Information about the security

Before starting the assembly work, you should familiarize yourself with the following safety instructions, which will reduce the risk of an accident.



Attention! The setup and connection should be performed by qualified personnel with the appropriate authorizations. The general safety rules must also be observed.



Attention! During the work, it is necessary to observe the applicable national and European standards, especially the electrical installations. It is also necessary to follow the instructions of the other components, e.g. the inverter.



Attention! Danger of falling from heights. The rules for working at heights and the necessary safety equipment such as harnesses and safety ropes must be observed.



Attention! Danger of falling objects. Special care must be taken. Before starting work, the assembly area must be appropriately secured to avoid hazards.



Attention! Warning of electric current. Be particularly careful when performing electrical work, especially when connecting modules and when setting up and connecting the inverter to the modules.

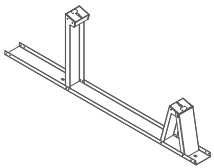
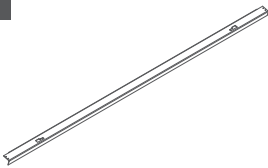
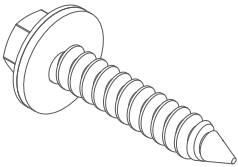
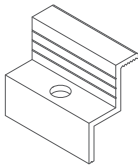
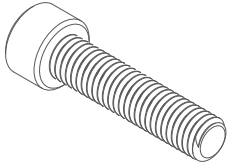
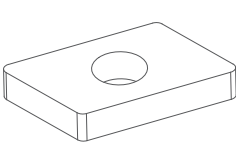
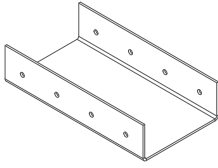
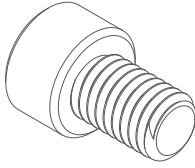
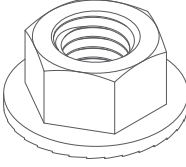
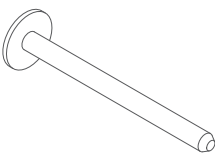
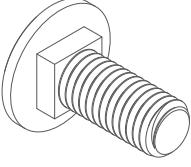
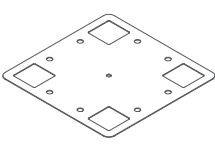


Attention! Warning about highly flammable materials. Photovoltaic modules, inverters and other electrical equipment should not be used near easily flammable materials.



Attention! The assembly work must not be carried out by persons under the influence of alcohol or other intoxicating substances.

Elements list

	<p>Mounting triangle</p> <p>5 Piece</p> <p><i>Material: Steel with Magnelis coating</i></p>		<p>Bifacial Module holder</p> <p>8 Piece</p> <p><i>Material: Steel with Magnelis coating</i></p>
	<p>Sheet metal screw</p> <p>32 Piece</p> <p><i>Material: Stainless steel</i></p>		<p>End clamp</p> <p>16 Piece</p> <p><i>Material: Aluminium</i></p>
	<p>Hexagon socket-screw M8</p> <p>16 Piece</p> <p><i>Material: Stainless steel</i></p>		<p>Part nut</p> <p>16 Piece</p> <p><i>Material: Stainless steel</i></p>
	<p>Connecting triangle</p> <p>5 Piece</p> <p><i>Material: Steel with Magnelis coating</i></p>		<p>Hexagon head screw M8x1 2</p> <p>20 Piece</p> <p><i>Material: Stainless steel</i></p>
	<p>Flange nut M8</p> <p>20 Piece</p> <p><i>Material: Stainless steel</i></p>		<p>Diaphragm spring</p> <p>30 Piece</p> <p><i>Material: plastic</i></p>
	<p>Locking screw M10</p> <p>10 Piece</p> <p><i>Material: Stainless steel</i></p>		<p>Mounting plate</p> <p>10 Piece</p> <p><i>Material: Stainless steel</i></p>

Assembly instruction



Necessary tools:

- Allen wrench (size 5)
- Ring wrenches (size 13, 15 and 17 mm)
- Cordless screwdriver with Torque adjustment
- Cross-recess bits / attachments for the Cordless screwdriver (PZ)



Tightening torques:

- Tighten middle and end clamps with a tightening torque of 8.5 Nm
- Tighten M8 bolts and nuts with a tightening torque of 18 Nm.
- Tighten M10 bolts and nuts with a tightening torque of 36 Nm



Staffing for assembly:

- At least 2 persons



Assembly time:

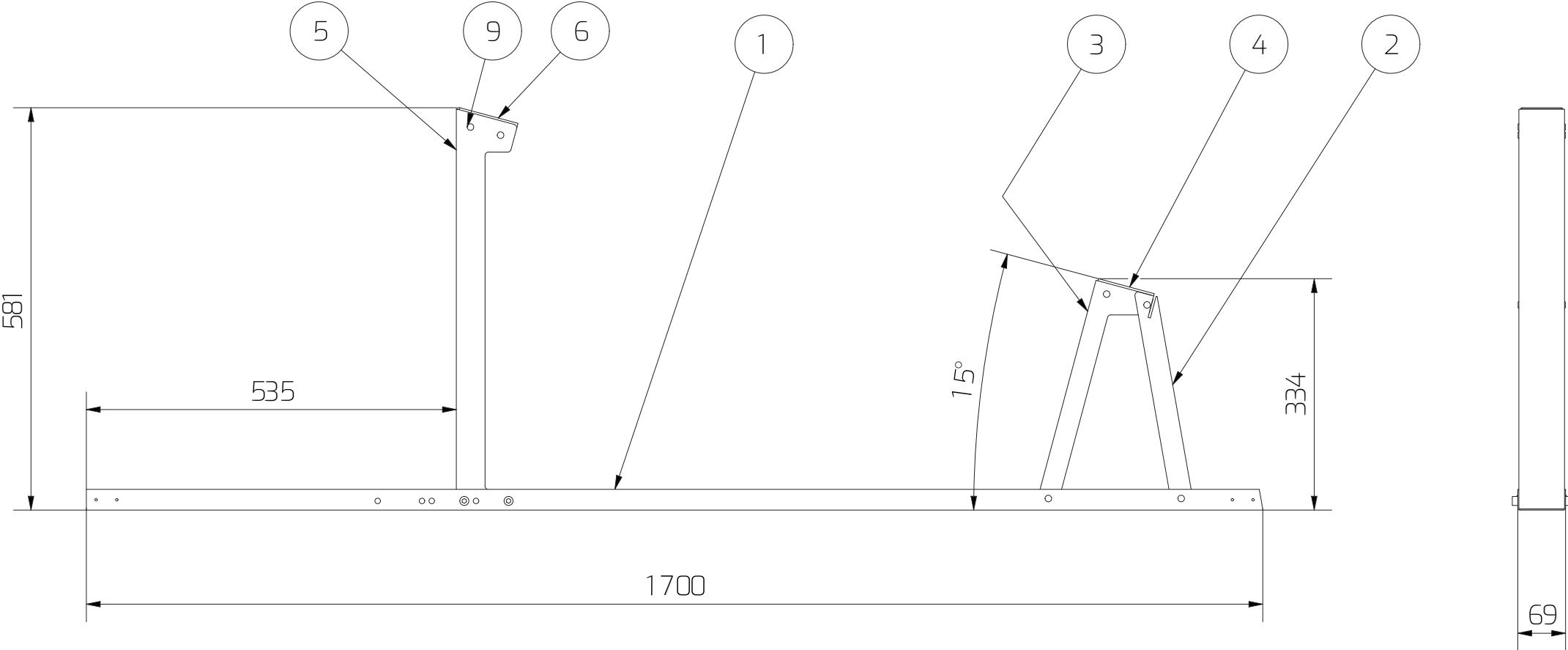
- About 2 hours

Control and maintenance

During the installation work, it must be ensured that the photovoltaic system is used according to its intended purpose. All changes in the use of construction elements, including connection with elements that do not come from IVENDO Solar, the modification of the construction by welding, shortening, lengthening, drilling, etc., and increasing the load on the systems will result in the loss of warranty claims and may have a direct impact on the life of the systems and their safe use.

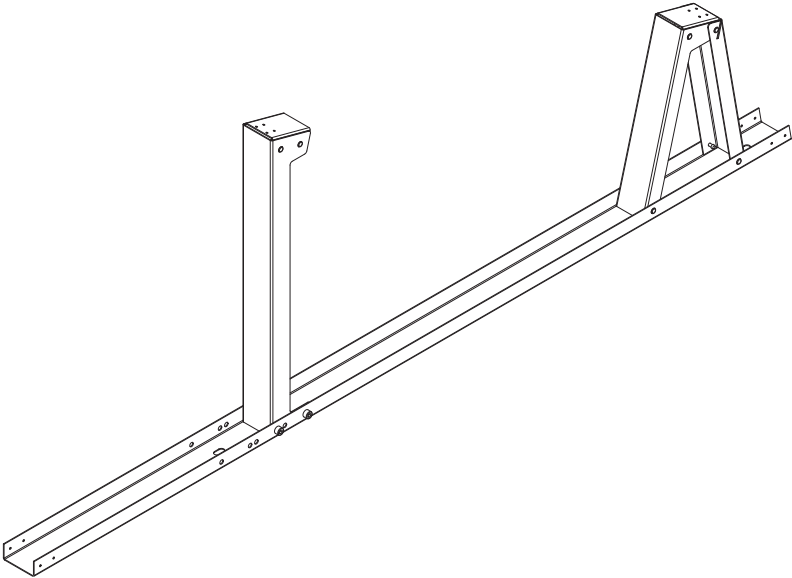
The technical inspection and maintenance of the mounting system should be carried out at least once every six months, special attention should be paid to:

- Bolted connections,
- The condition and connections of the electrical cables are checked,
- the visual condition of the PV modules (contamination, mechanical damage) is checked.



Tolerance of the length +/- 2 mm

Mounting triangle TR-2 15 degrees bifacial horizontal.
Product code: TR-2-15-BF



Teile-Liste			
POSITION	QUANTITY	PART NUMBER	DESCRIPTION
1	1	Base plate MN ECO	
2	1	Triangle bracket 81 MN ECO	
3	1	Angle bracket 83 MN ECO	
4	1	Triangle bracket 82 MN ECO	
5	1	Triangle stand A1 MN ECO	
6	1	Triangle bracket A2 MN ECO	
7	4	DIN 555-5 M8	Nuts
8	4	DIN 912 - M8 x 16	Cylinder head bolts with 2 Flat washers
9	12	DIN 7337 - A4. 8 x 16	Rivets set on one side

Signed by	Date	Last name	Signature			
Released by	15.06.2020	P.Ziótkowski	<i>Ziótkowski</i>			
	15.06.2020	M.Wodarczyk	<i>Wodarczyk</i>			
				Comments		
Scale	Drawing name					Format
1:2	Mounting triangle TR-2 15 degrees bifacial horizontal					A3

Assembly of the set

- 1 Before starting the assembly, the plan for the arrangement of the modules (Fig. 1) and the fastening elements (Fig. 2) should be determined. The method of fastening the mounting structure on the roof surface depends on its type and is selected individually.

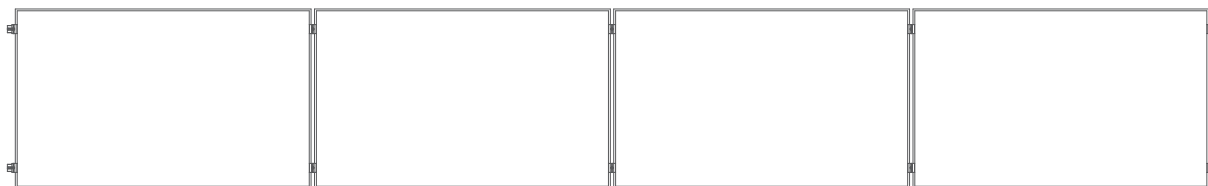


Fig. 1: Plan showing the arrangement of the modules.

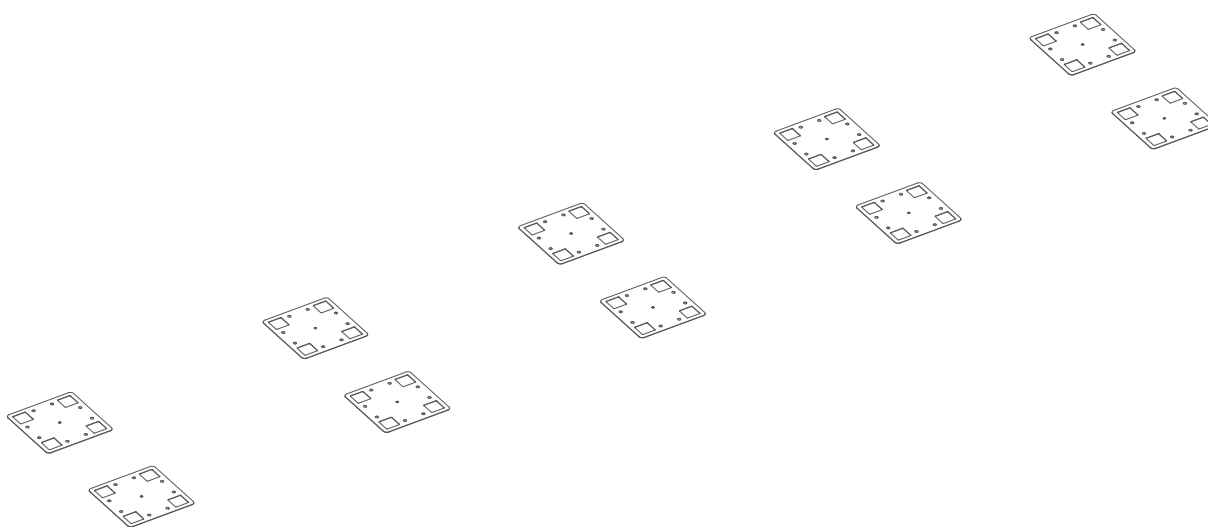


Fig. 2: Arrangement of the fastening elements.

- 2 Place the screws in the fasteners and fix the plate in the designated fasten the plate to the intended place on the diaphragm. The hooks should be attached to the through the fastened to the roof through the mounting holes (Fig. 3). In some cases it is possible to

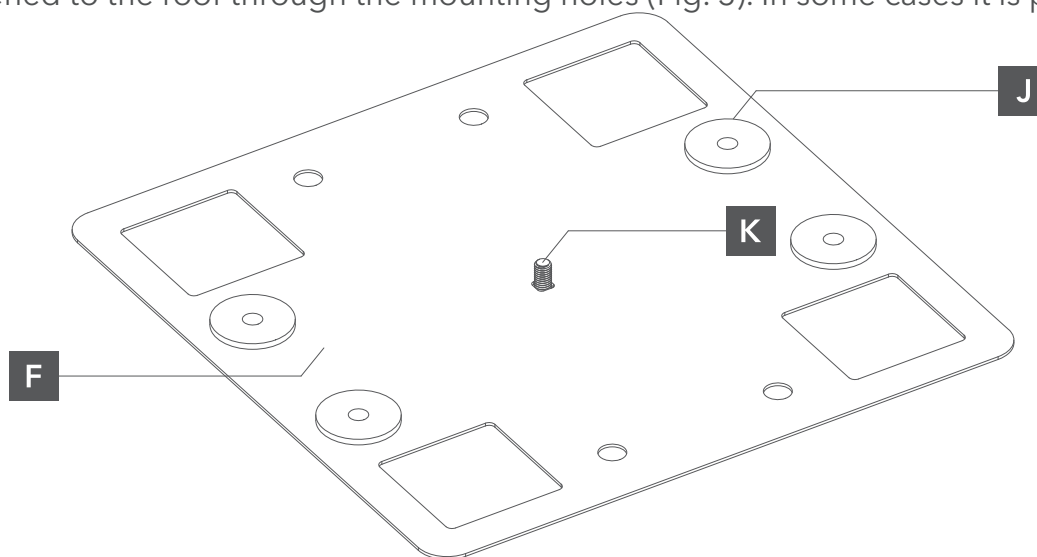


Fig. 3: Fasteners on a membrane-covered roof.

- 3** Attach the membrane with the dimensions 510 x 510 mm and drill holes for the drill holes for the screws. Weld the membrane at the four fastening points and over the entire 50 mm of the mounting surface (Fig. 4).

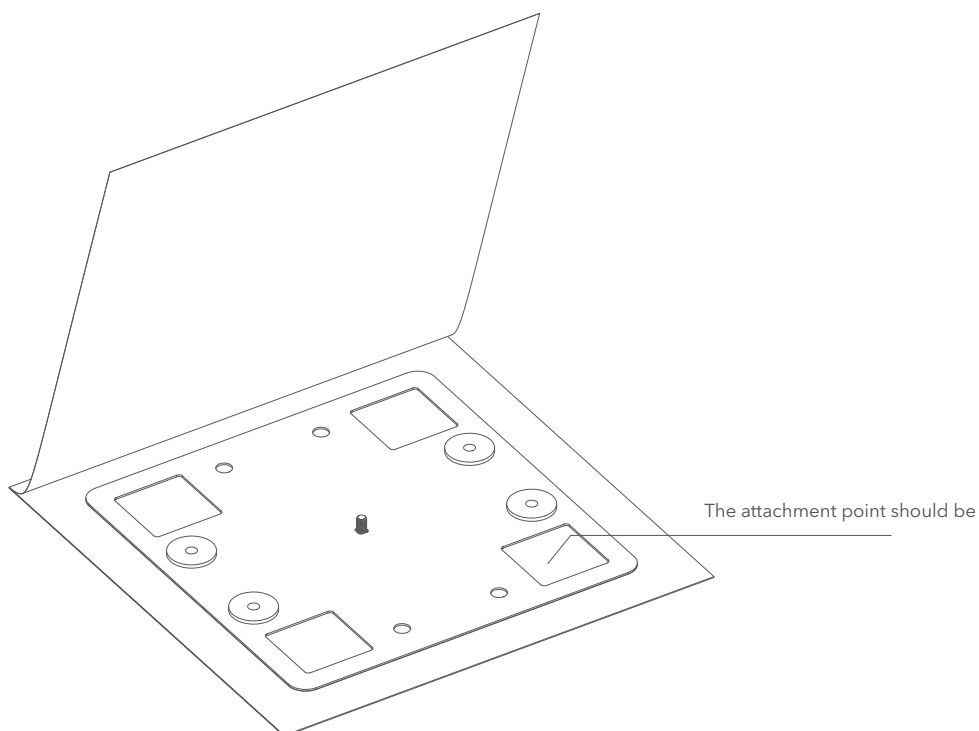


Fig. 4: Welding the diaphragm at the attachment points.

- 4** The mounting triangles should be fastened to the screws and tightened with a flange nut. tightened (Fig. 5).

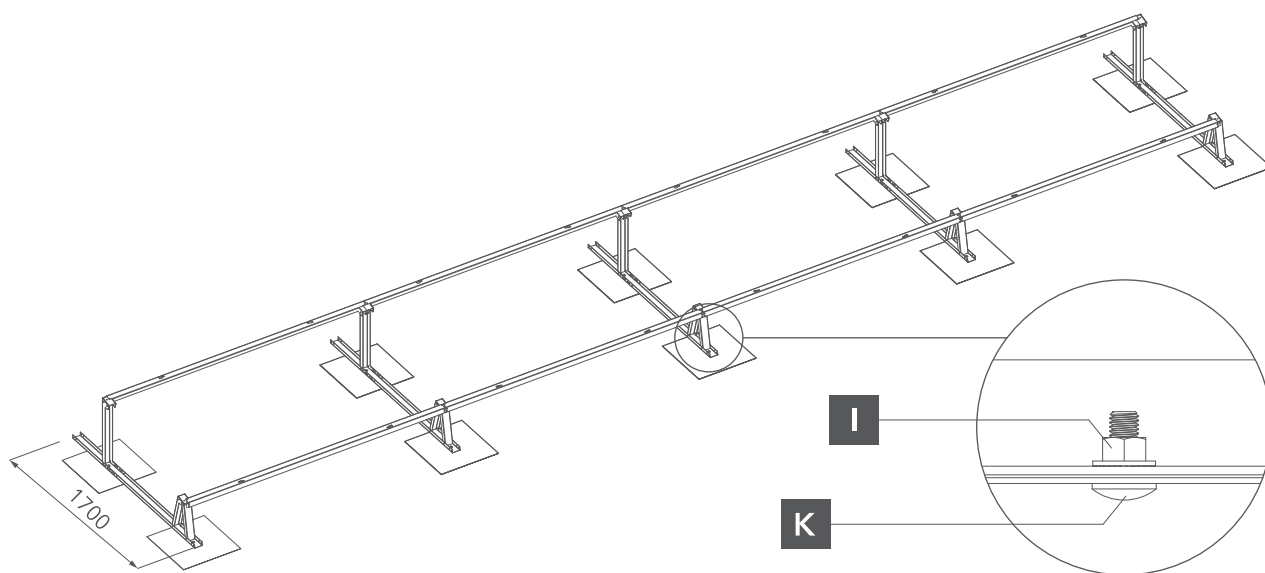


Fig. 5: Fastening the mounting triangle to the fastening element.

- 5** We recommend placing the first, outermost photovoltaic module on the mounting brackets and securing it with the end clamps. The clamps are fastened with M8 Allen screws and wing nuts. This should be repeated until all modules are mounted in a row (Fig. 6).

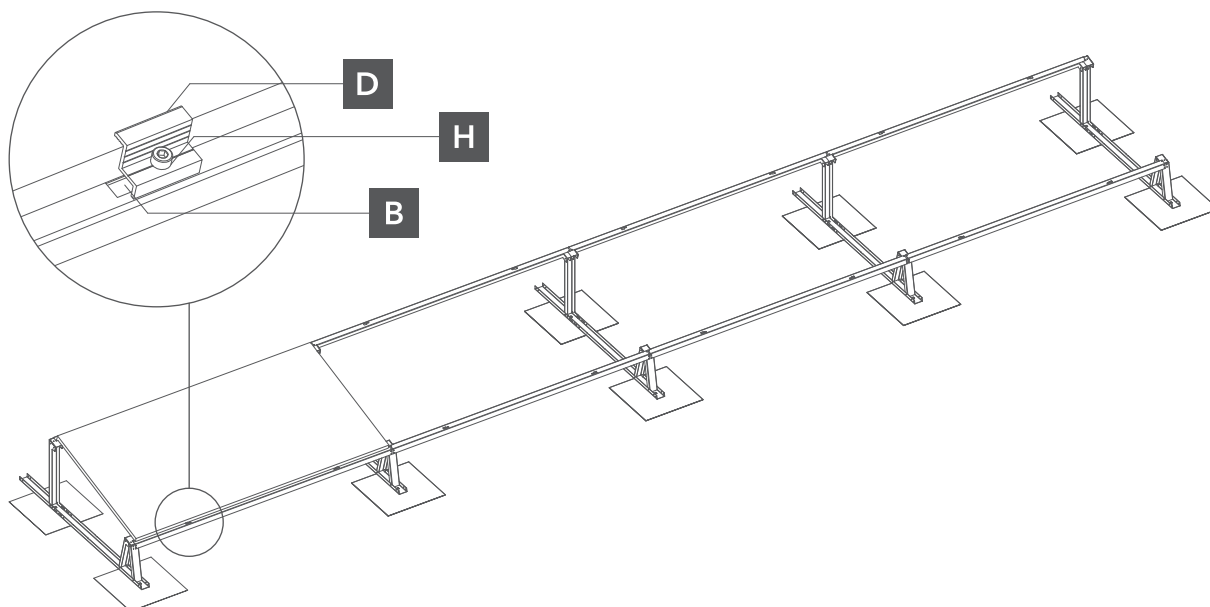


Fig. 6: Fastening the modules to the mounting triangle bracket.

- 6** If there are two or more rows of photovoltaic panels, the mounting triangles should be moved with a connector (Fig. 7).

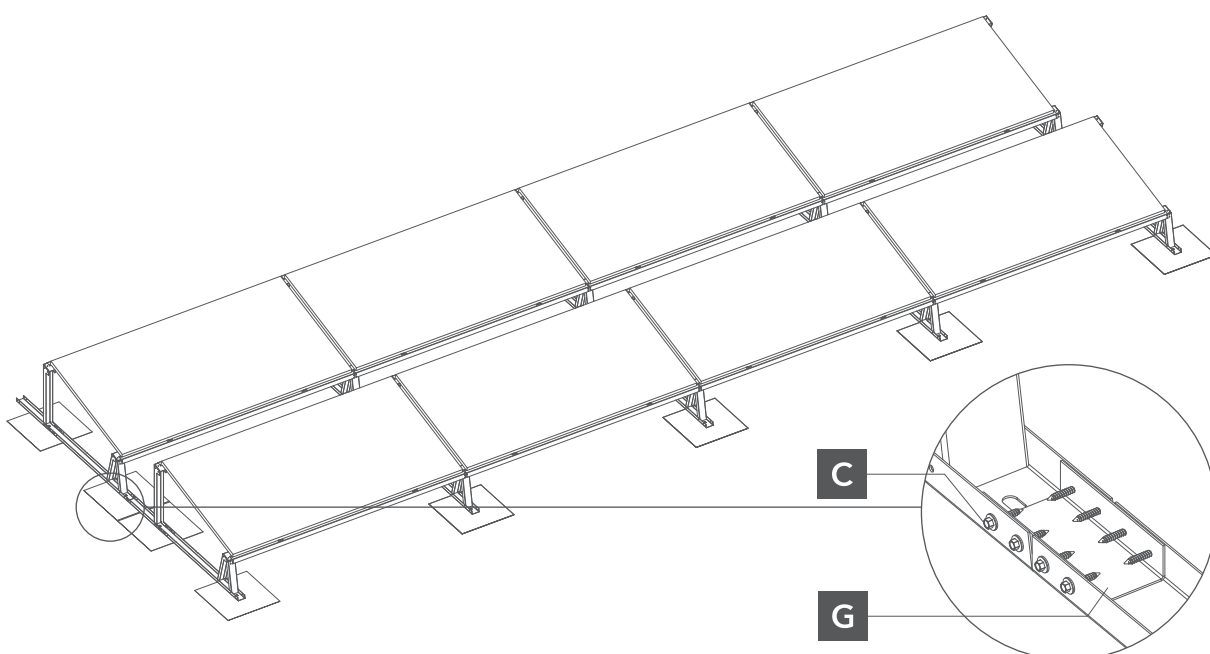


Fig. 7: Connecting the mounting triangles with a connector.

Legal clause

This manual sets out the basic standards for the installation and operation of a support system for photovoltaic modules. The instructions do not represent and do not replace a photovoltaic installation project. The correct selection of the mounting system for photovoltaic modules and the components that belong to it is the responsibility of the persons who directly perform the installation of this system. This work should be performed by professional installers with the appropriate qualifications and experience. It is the installers' responsibility to select the correct mounting system and its integration with the building or the ground depending on the conditions of the location and the needs of the customer. IVENDO SOLAR, as a manufacturer of mounting systems, does not assume any responsibility for the proper execution and installation of the structure. It is necessary that the technical inspection of the installation is carried out at least once a year by persons with the appropriate qualifications. In case of occurrence of weather anomalies (strong gusts of wind over 79 km/h, unusual amounts of snow), a technical inspection of the installation should be carried out immediately after its completion. The construction shall be used in accordance with its purpose and environmental protection requirements. It is expected that the construction will be kept in perfect technical condition and that no significant deterioration of its operational characteristics and technical performance will be allowed. Changes and modifications of mounting systems manufactured by IVENDO SOLAR, including their cutting, welding, shortening, stretching, reducing the elements specified in the instructions, increasing the spacing of the supporting posts, increasing the load on the systems or using systems against their purpose, will result in an immediate loss of warranty rights and may shorten the life of the systems and limit their safe use.