IVENDO Solar
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Manual for system installation on a flat roof

KDP-BIFACIAL

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

Materials:

- Stainless steel A2
- Aluminum 6060 T66
- Construction steel with Magnelis coating S320 ZM430

The structures can be used in the ground, but a geotextile mat must be used between the structure and the ground.

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.

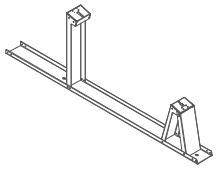
Attention! Warning of electric current. Be particularly careful when performing electrical work, especially when connecting modules and when setting up and connecting the inverter to the modules.

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

A

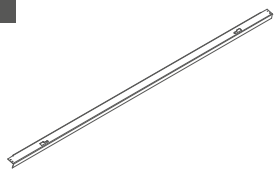


Fixing triangle

5 Piece

Material: Steel with Magnelis coating

B

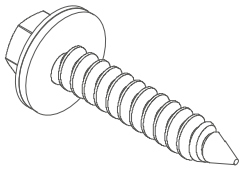


Bifacial Module holder

8 Piece

Material: Steel with Magnelis coating

C

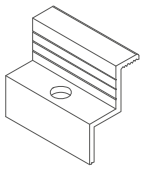


Sheet metal screw

32 Piece

Material: Stainless steel

D

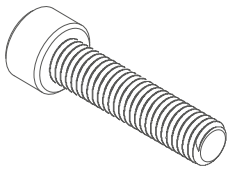


End clamp

16 Piece

Material: Aluminium

E

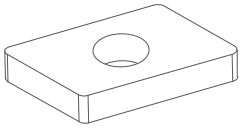


Hexagon socket-screw M8

16 Piece

Material: Stainless steel

F

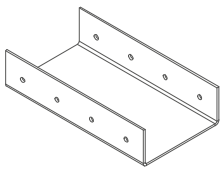


Part nut

16 Piece

Material: Stainless steel

G

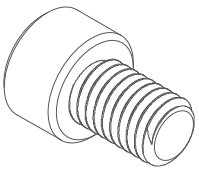


Connecting triangle

5 Piece

Material: Steel with Magnelis coating

H

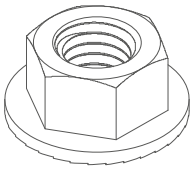


Hexagon socket-screw M8x12

20 Piece

Material: Stainless steel

I

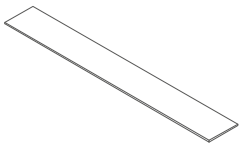


Flange nut M8

20 Piece

Material: Stainless steel

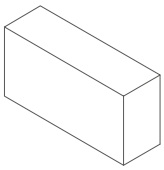
J



SBR rubber

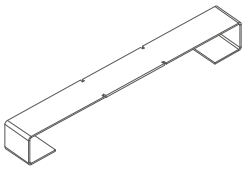
5 Piece

K



Concrete block or Paving stone

L



Base for Concrete block

Optional

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
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.
systems and their safe use.

The technical inspection and maintenance of the mounting system should be carried out at least once every
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
is checked.

Assembly of the set

1 Before starting the assembly, you should determine the arrangement of the modules (Fig. 1) and the mounting triangles (Fig. 2). The way of fixing the mounting structure to the roof depends on its type and is selected individually.

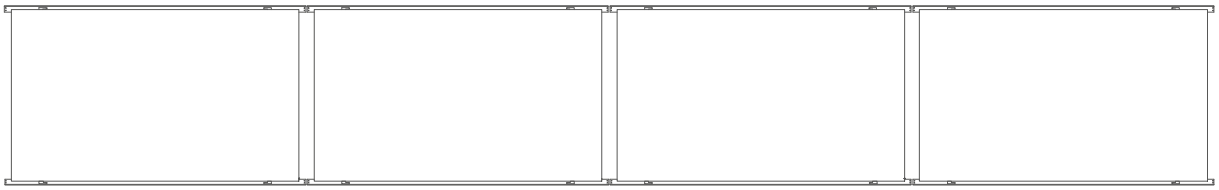


Fig. 1. plan for the arrangement of the modules

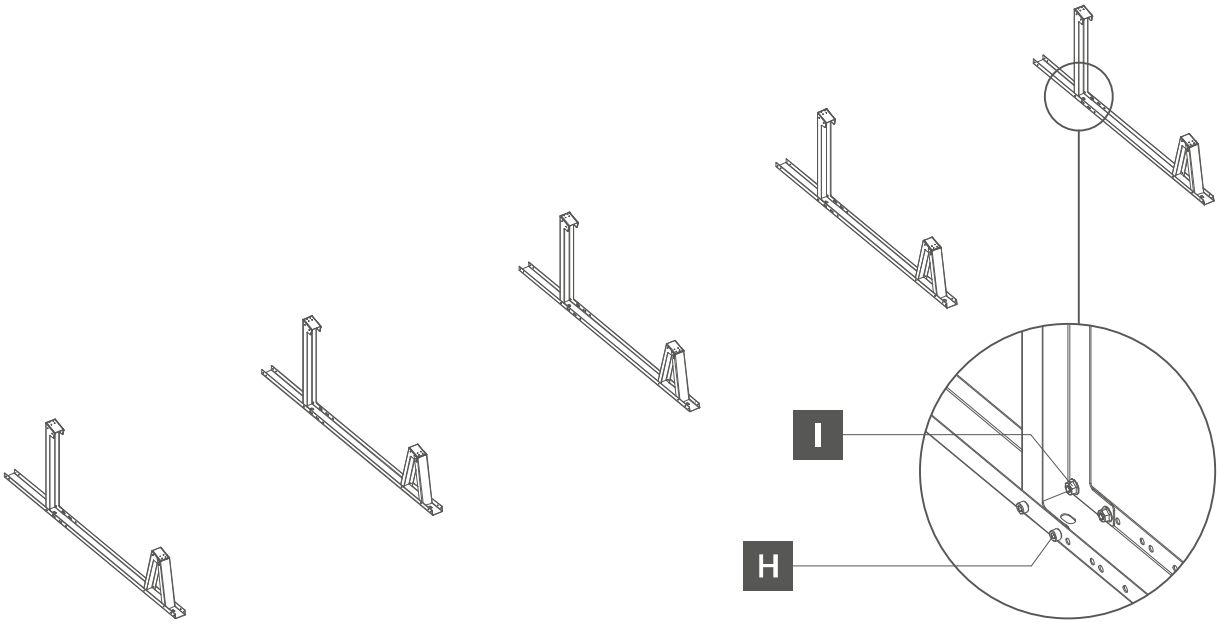


Fig. 2. arrangement of the mounting triangles

2 Under the lower base of the mounting triangle it is necessary to put a SBR rubber mat. After that, align the roof battens with the mounting triangle and fix them with with self-tapping screws (Fig. 3).

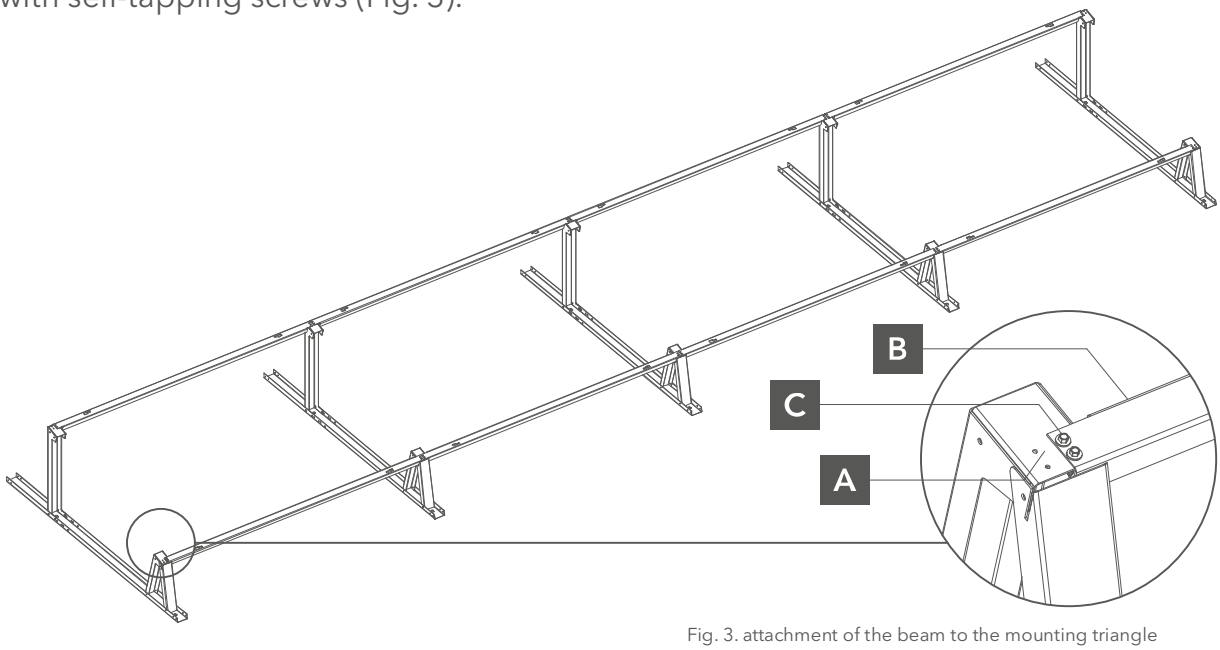


Fig. 3. attachment of the beam to the mounting triangle

3 On the roof battens we place the first, outermost photovoltaic module and hold it in order to to mount the end clamps. The screw terminals are equipped with M8 Allen screws and nuts. This procedure must be repeated for the assembly of all modules in the row be repeated (Fig. 4).

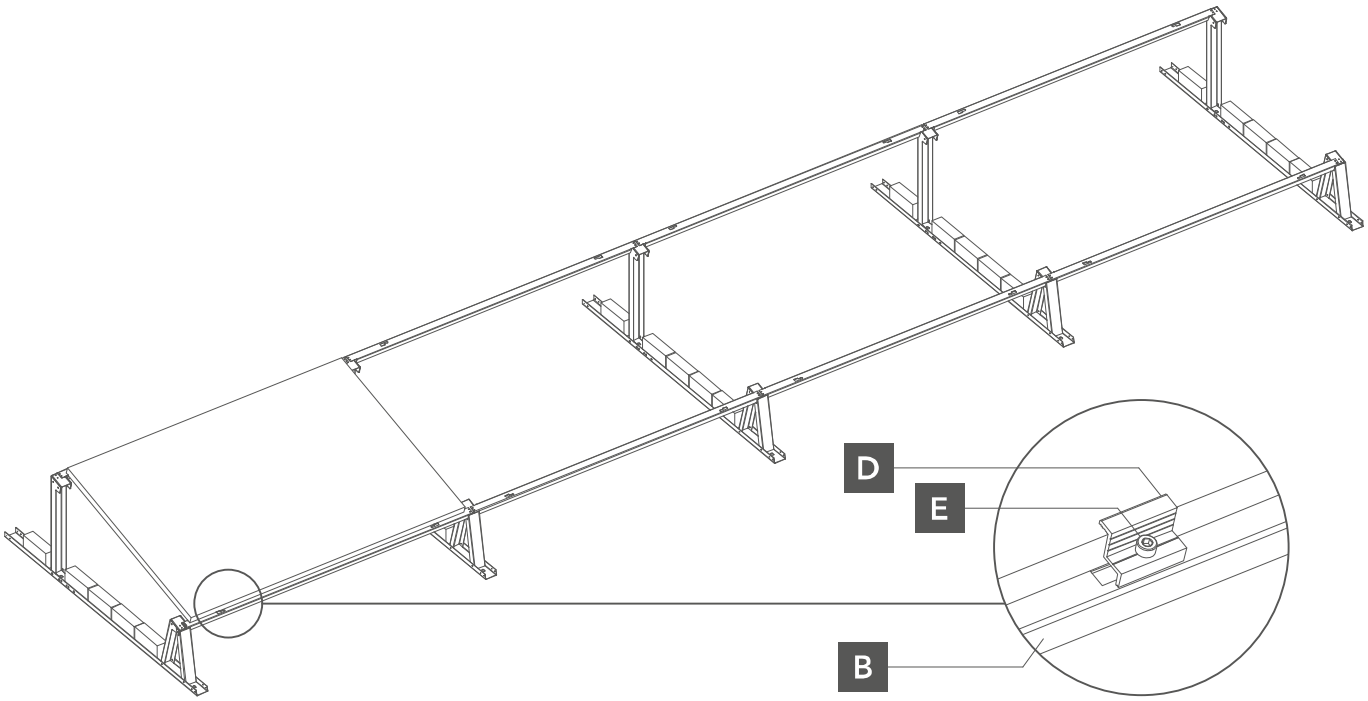


Fig. 4. attachment of the modules to the roof battens

4 If there is more than one row of photovoltaic panels, the mounting triangles must be be connected with a protractor (Fig. 5).

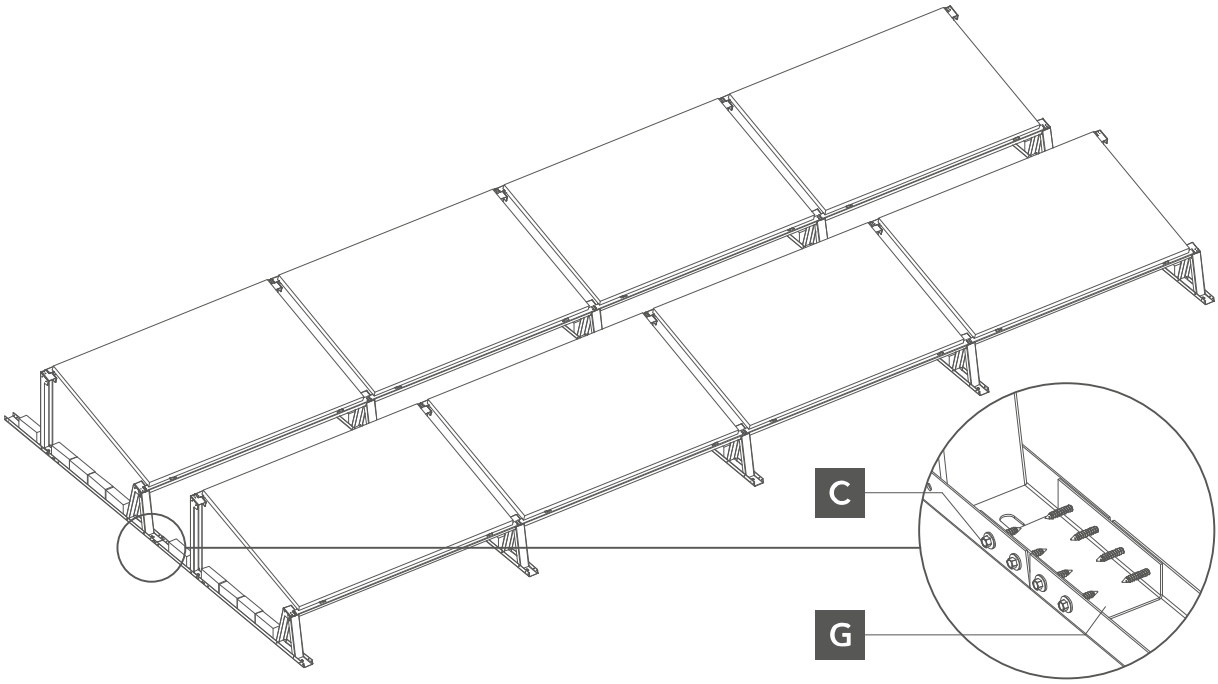


Fig. 5. connecting the mounting triangles with a protractor.

Distribution of the ballast in the wind zone I

5 The entire structure should be loaded with concrete blocks. The stones should be placed on the placed on the basis of the assembly-shaped triangle. If only one row of photovoltaic panels is present, the weight of the ballast per panel is 15 kg (Fig. 6).

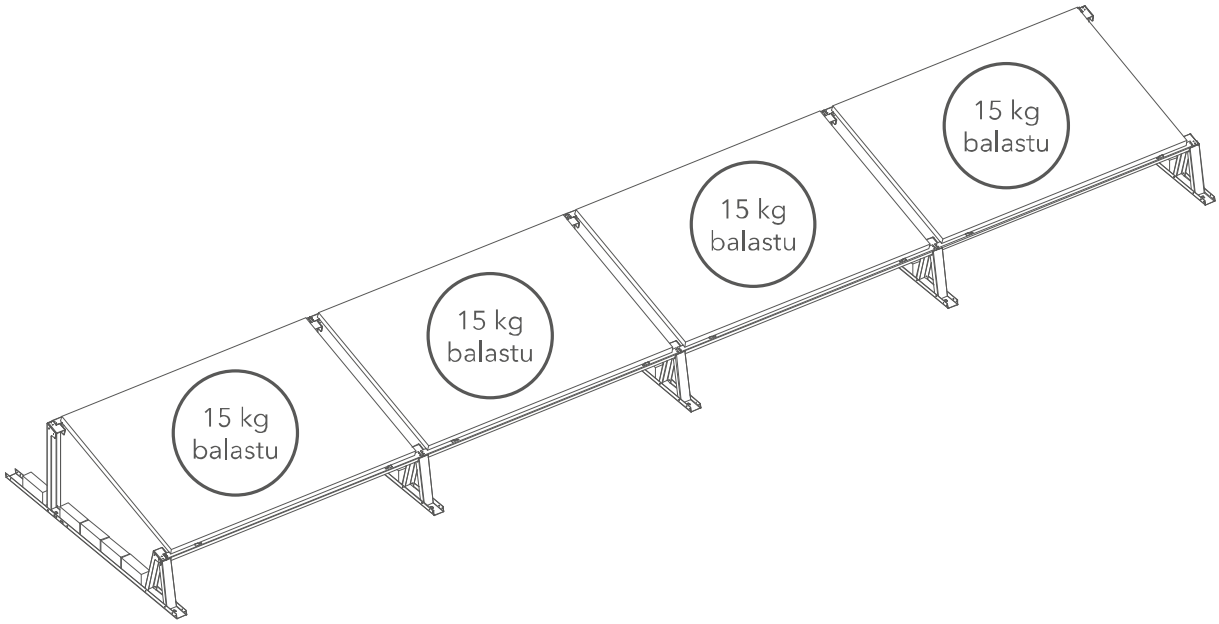


Fig. 6. distribution of the ballast on a row of photovoltaic panels.

6 If there are two rows of photovoltaic panels, the weight of the ballast is per panel is 12.5 kg (Fig. 7).

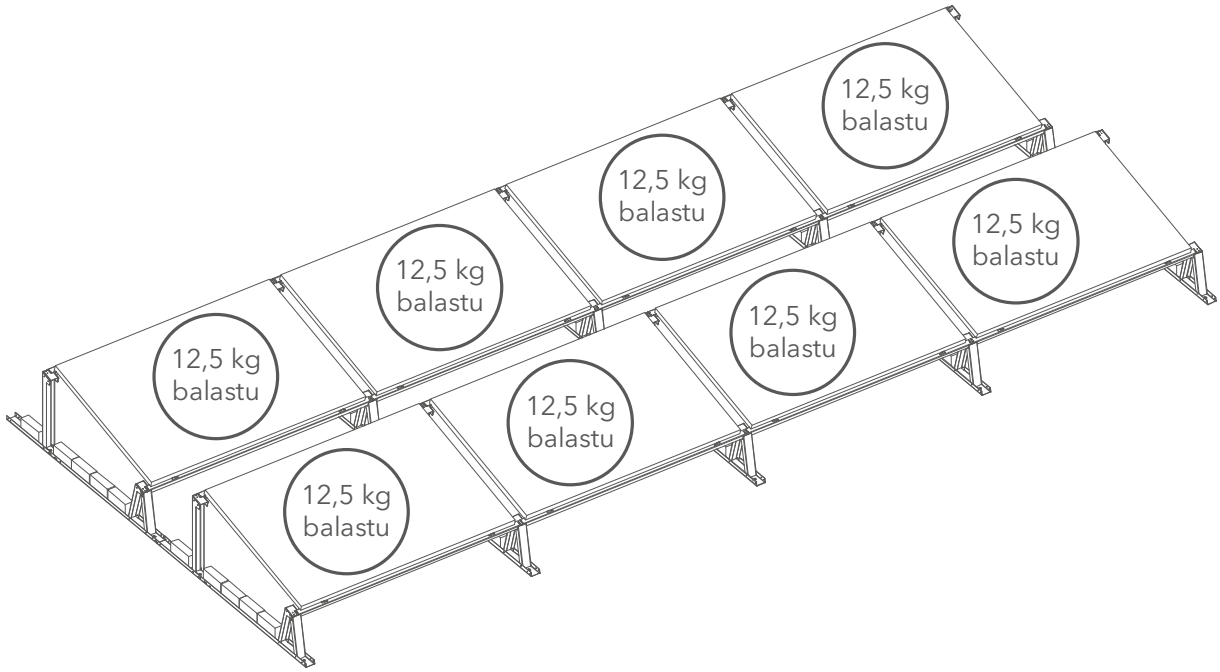


Fig. 7. distribution of the ballast on two rows of photovoltaic panels.

Distribution of the ballast in wind zone II

7 If there is only one row of photovoltaic panels, the weight of the ballast per panel is 45 kg (Fig. 8).

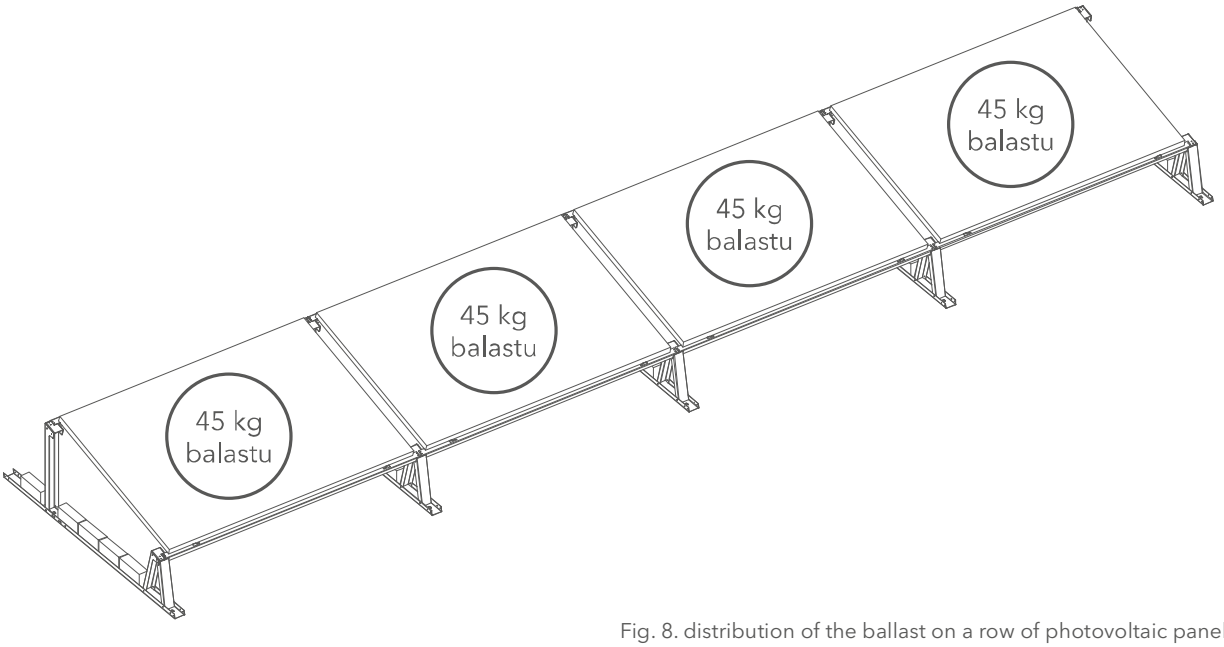


Fig. 8. distribution of the ballast on a row of photovoltaic panels.

8 If there are two rows of photovoltaic panels, the weight of the ballast is per panel is 35.5 kg (Fig. 9).

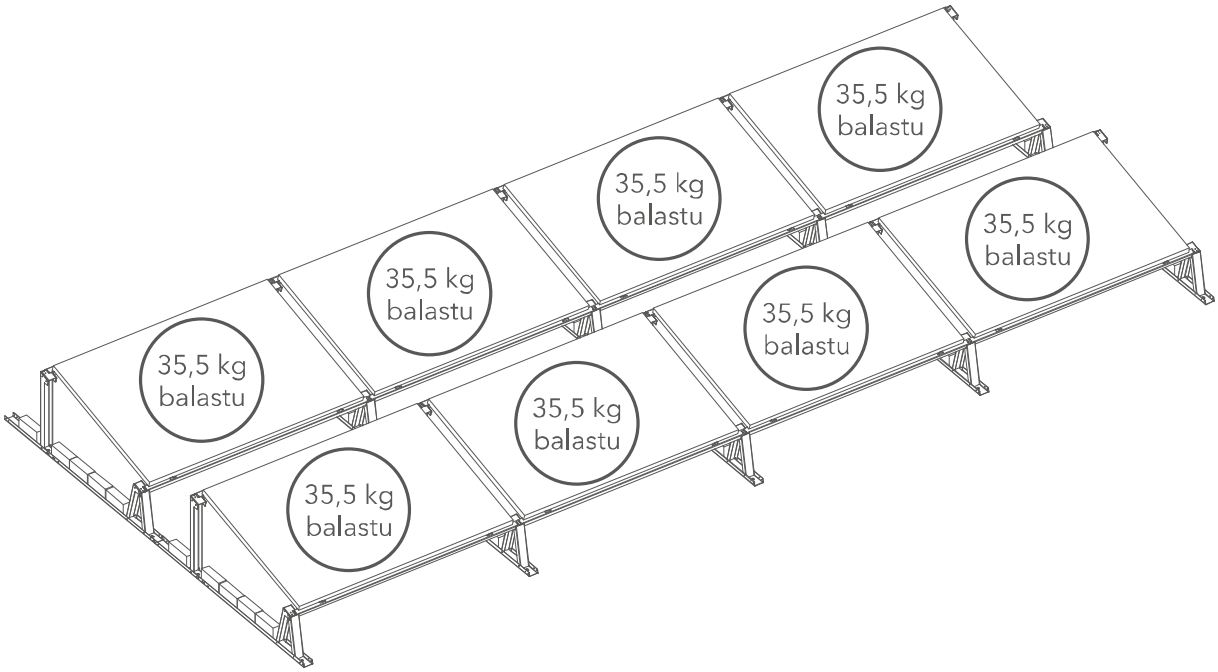


Fig. 9. distribution of the ballast on two rows of photovoltaic panels.

9 In order to stabilize the concrete block, it is recommended to use a base for the concrete block to be used (Fig. 10).

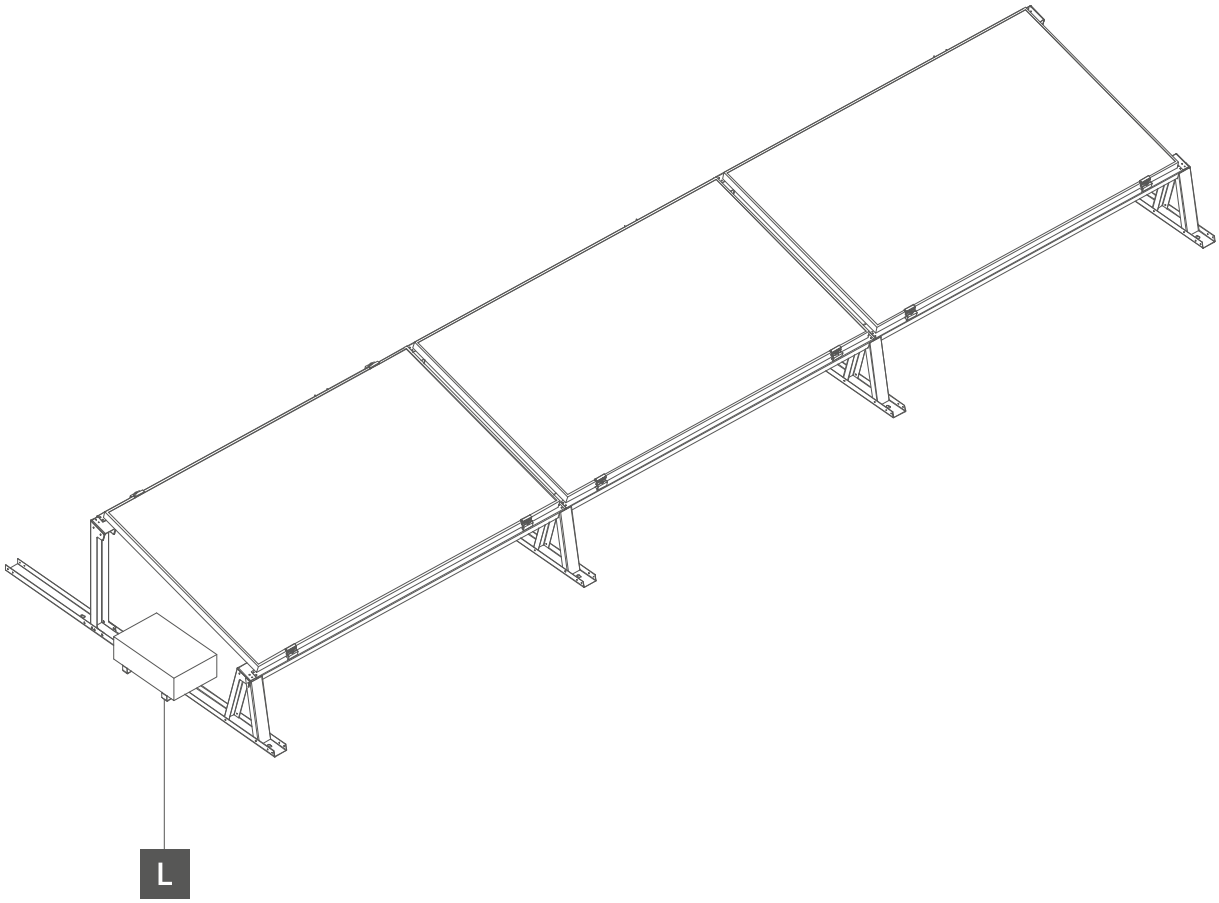


Fig. 10. example of the application of a base for a concrete block.

Assembly of power optimizers

10 We mount the power optimizer on the structure to support the module (Fig. 11).
the module (Fig. 11).

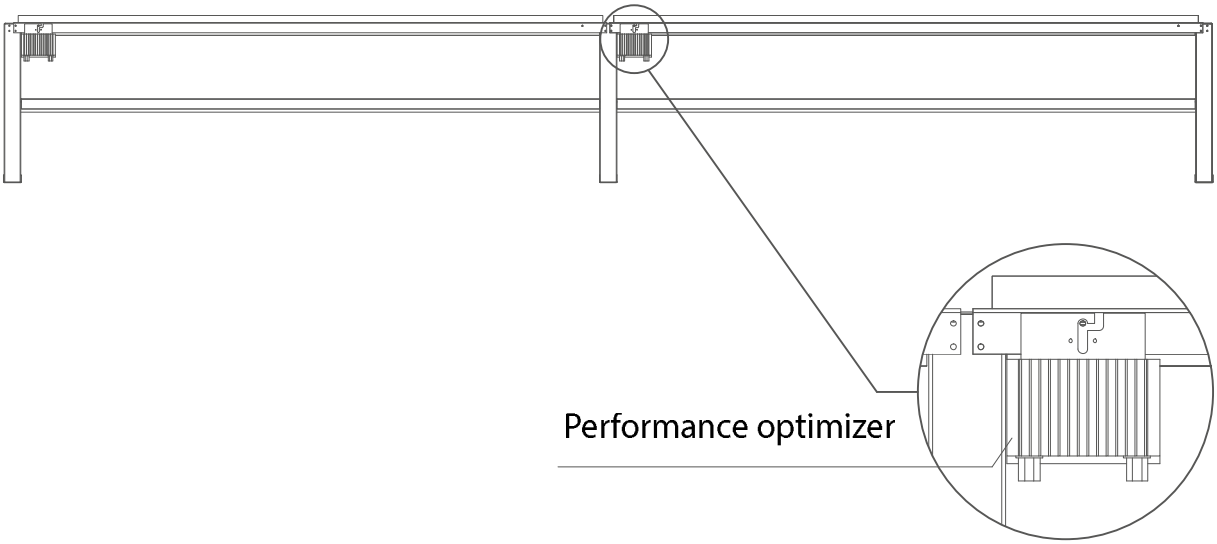
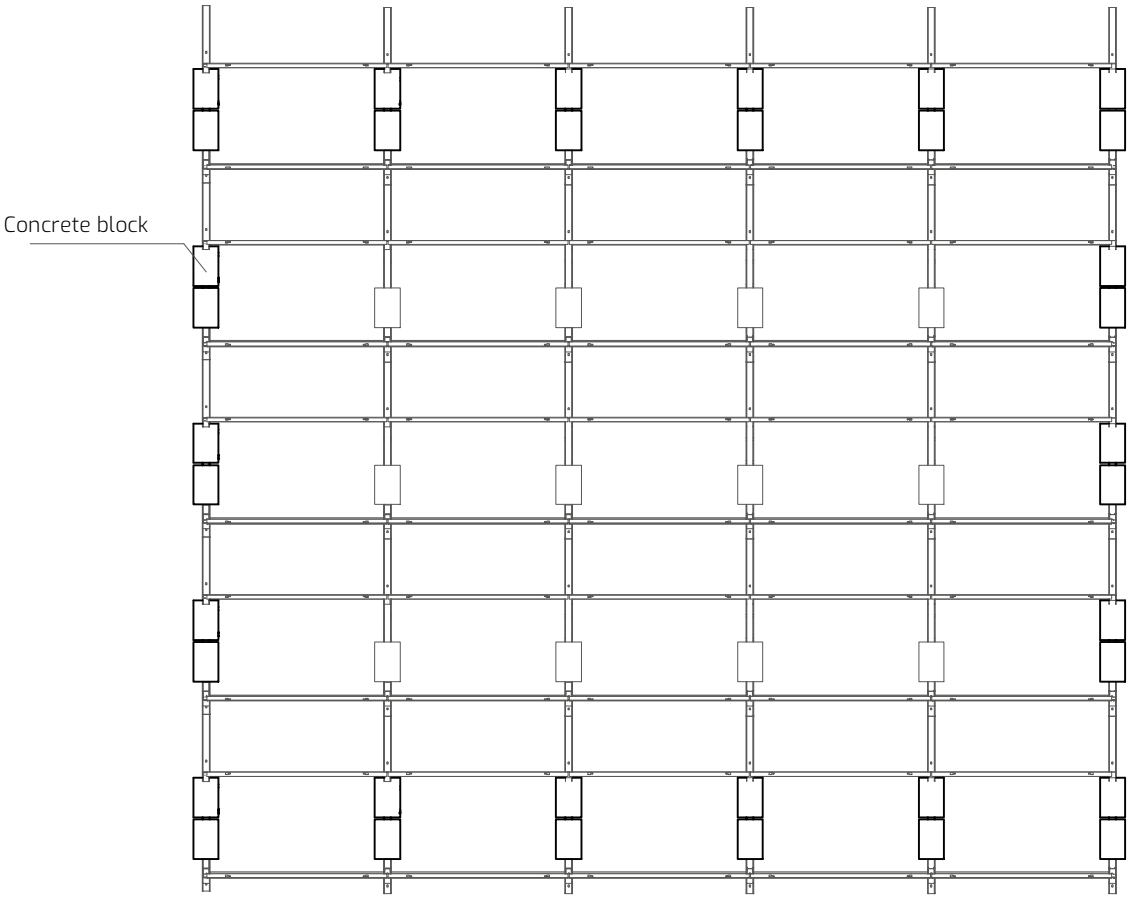


Figure 11. mounting method of the power optimizer.

11 We recommend placing more concrete blocks on the outside of the building.



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.