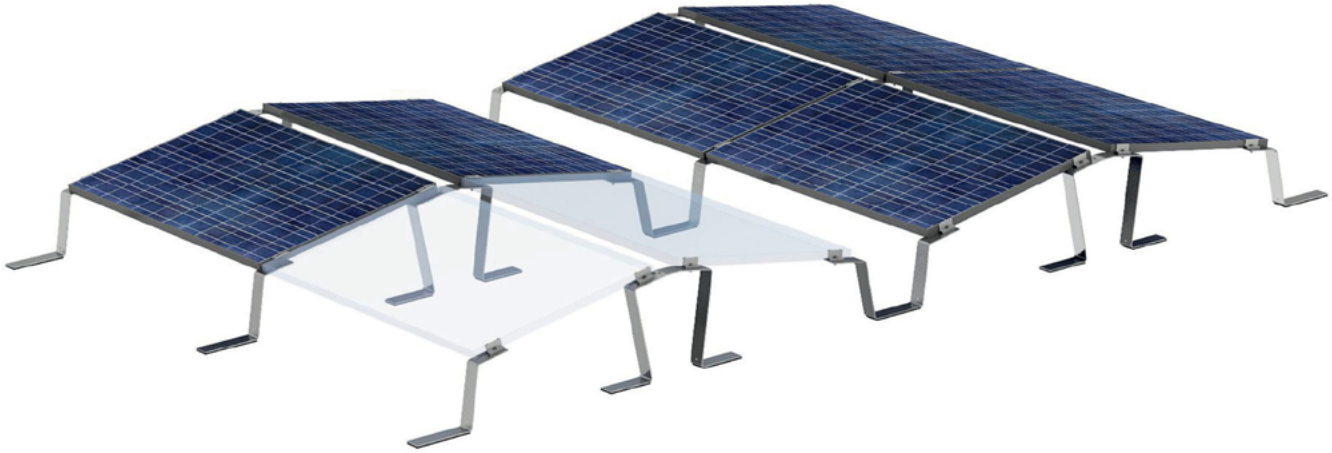
S:FLEX

Assembly Instructions

LEICHTMOUNT G E/W

Aerodynamic ground mount system for east-west orientation



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These installation instructions must be read carefully before installing the S:FLEX mounting system and kept for future reference!
These installation instructions are only complete with the project-related implementation planning (project report)!

1.1 Intended Use

The S:FLEX LEICHTmount G E/W is a robust mounting system for mounting PV modules on open spaces. It consists of aluminum mounting brackets with prepared screw connections, module clamps, ground screws, ballast trays and all the small parts required to ensure secure installation. This mounting system enables outdoor installation with large-area coverage with or without ballasting. The innovative system utilizes the entire frame composite and aerodynamic effects to secure the stand.

The S:FLEX LEICHTmount G E/W is designed for systems with an east-west orientation and a module tilt angle of 10° and can be used for most framed PV modules from leading manufacturers with the following dimensions can be used: Module width 950 - 1,150 mm; Module length 1,500 - 2,250 mm.

The system is designed for wind and snow loads of up to 2.4 kN/m2. The specified values are rated values as a combination of wind and snow load.

The aerodynamics of the system were determined through wind tunnel tests. The load bearing capacity was tested by TÜV Rheinland as part of the certification according to UL2703.

The S:FLEX LEICHTmount G E/W is compatible with various ground surfaces (refer to section 1.5 - Surfaces).

Any use that deviates from this must be considered improper. In particular compliance with the information in these installation instructions is part of the intended use. S:FLEX GmbH is not liable for damage resulting from non-compliance with the installation instructions or from misuse or improper use of the product.

1.2 About this document

This installation recommendation describes the installation of the S:FLEX LEICHTmount G E/W system outdoors.

It must be ensured that only current and complete installation recommendations are used for installation.

1.3 Warnings

The warning notices used in these installation instructions indicate safety-relevant information.
They consist of:

Ignoring this can result in serious injury or danger to life.

Ignoring this may lead to property damage.

1.4 General information - Standards and guidelines

An important part, in addition to these installation instructions, is the supplied project report in which the static calculation was carried out based on the location. Please ensure that the position of the modules in the field and the ballast distribution are carried out exactly according to the specifications in the project report. If the module distribution changes due to local conditions, such as unforeseen obstacles, the static calculation must be redone. The S:FLEX LEICHTmount G E/W must be planned using the S:FLEX planning tool.

The technical documentation is part of the product. S:FLEX is not liable for damage resulting from non-compliance with the installation instructions, especially the safety instructions, or from misuse of the products. of the products. The current general terms and conditions and warranty conditions also apply.

S:FLEX GmbH is not responsible for investigating and documenting the subsoil, including assessing its load-bearing capacity for the system and ballast, determining the pull-out forces for any ground screws that may be used, or ensuring proper installation.

Ground-mounted photovoltaic systems are not maintenance-free. Maintenance, especially ensuring the correct position of the ballast stones and the tight fit of ground screws, should be carried out annually. After exceptionally strong wind events, we recommend maintenance immediately after the storm.

Faults and damages, as well as limited or deficient functionality of the system due to incorrect installation or deviations from the installation manual and/or project report (S:FLEX planning tool), do not constitute a material defect for which S:FLEX GmbH is responsible. If the system is not properly installed, the buyer's rights regarding material defects are void. The system warranty is only valid if all components are sourced from S:FLEX GmbH.

The ground fleece mat, which is included in the scope of delivery on request, inhibits the growth of plants on the surface, which makes maintenance easier. Complete suppression of plant growth, even over a limited period of time, cannot be guaranteed. For maximum effectiveness, ensure that the fleece mats are laid with generous overlap and that no soil material is present or accumulates on the mats. This accumulation can be caused by installation and maintenance work, as well as by wind or water bringing in soil material.

The S:FLEX substructure and the PV system may only be installed by appropriately trained specialists. System components must not be used as stepladders; the modules must not be stepped on.

The instructions from this document and from the project report must be strictly followed during installation. Failure to follow the instructions can lead to damage to the PV system and the building.

1.5 Description of the system

The S:FLEX LEICHTmount G E/W system offers suitable solutions for different requirements:

System properties

Set-up angle:	10°
Row spacing:	upper spacing: 151 mm, lower spacing 247 mm
Module dimensions:	1500 – 2250 mm x 950 – 1150 mm
Slope of the terrain:	10° / up to 20° upon request
Wind load/snow load:	up to 2,4 kN/m²
Modules:	The system requires that the PV modules are approved to be clamped on the short side under the design loads. This approval can either be generally available as part of the module certification or may be given by the module manufacturer on a project-specific basis.
Materials:	Load-bearing connecting parts made of aluminium EN AW 6060 T64, module mid clamps made of aluminium EN AW 6063 T66, stainless steel screws, ballast trays made of strip galvanized steel, ground screws made of die-cast aluminium
Packing volume:	approx. 40 kW per pallet, approx. 1 MW per truck

The module manufacturer's installation instructions must always be observed.

Surfaces

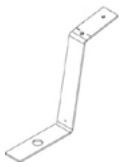
The S:FLEX LEICHTmount G E/W can be used on the following surfaces:
- grassland
- Sand, gravel and crushed stone surfaces
- solid surfaces (asphalt, concrete)

S:FLEX GmbH can provide a measuring device to determine the project-specific coefficient of friction.

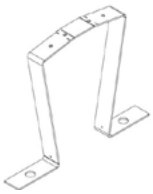
2.1 System components

(1) System accessories

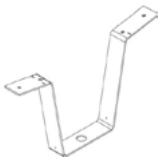
LEICHTmount 2.1 G E/W front part pure



LEICHTmount 2.1 G E/W top part pure

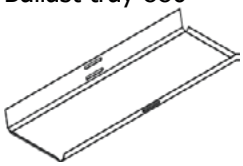


LEICHTmount 2.1 G E/W bottom part pure

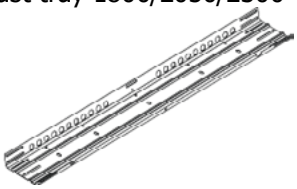


(4) Ballasting accessories

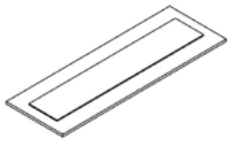
LEICHTmount CF Ballast tray 880



LEICHTmount CF Ballast tray 1800/2050/2300

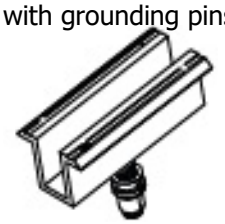


Ground fleece 50x2 (optional)



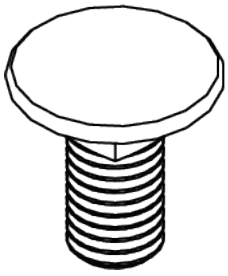
(4) Module accessories

Module mid clamp 80 mm with grounding pins 30-50



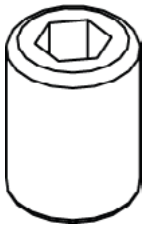
Module end clamp grounding pins

Thread-forming screw M8x20 A2

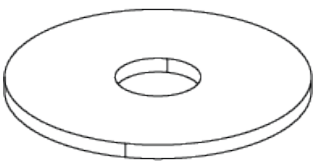


Cable tie clip 0,7-3,0 mm KC 15

LEICHTmount Allen nut M8x16 A2



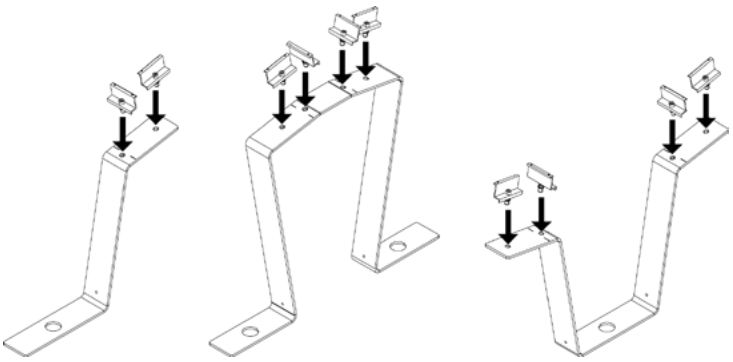
LEICHTmount CF Washer DIN 9054 30x8,4x1,5



2 .2 Installation

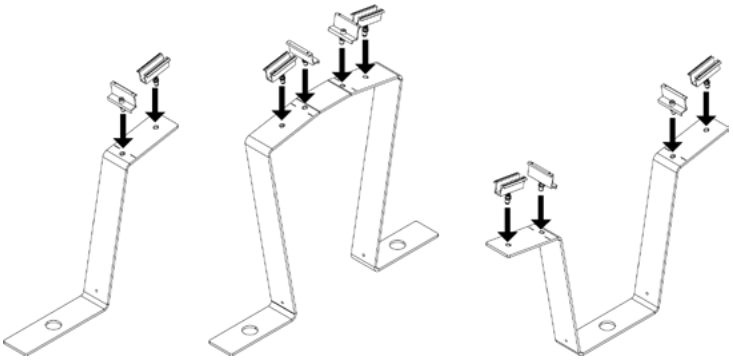
2.2.1 Pre- installing the clamps

When pre-assembling the end and mid clamps, it is important to ensure that the front, bottom and top parts are correctly assigned. For more information on this, refer to the „Measuring the module field" section on on the next page.



End clamps (North and south side)

Attach the end clamps to the front, top and bottom parts - screw in 2 to 3 thread depths, but do not tighten

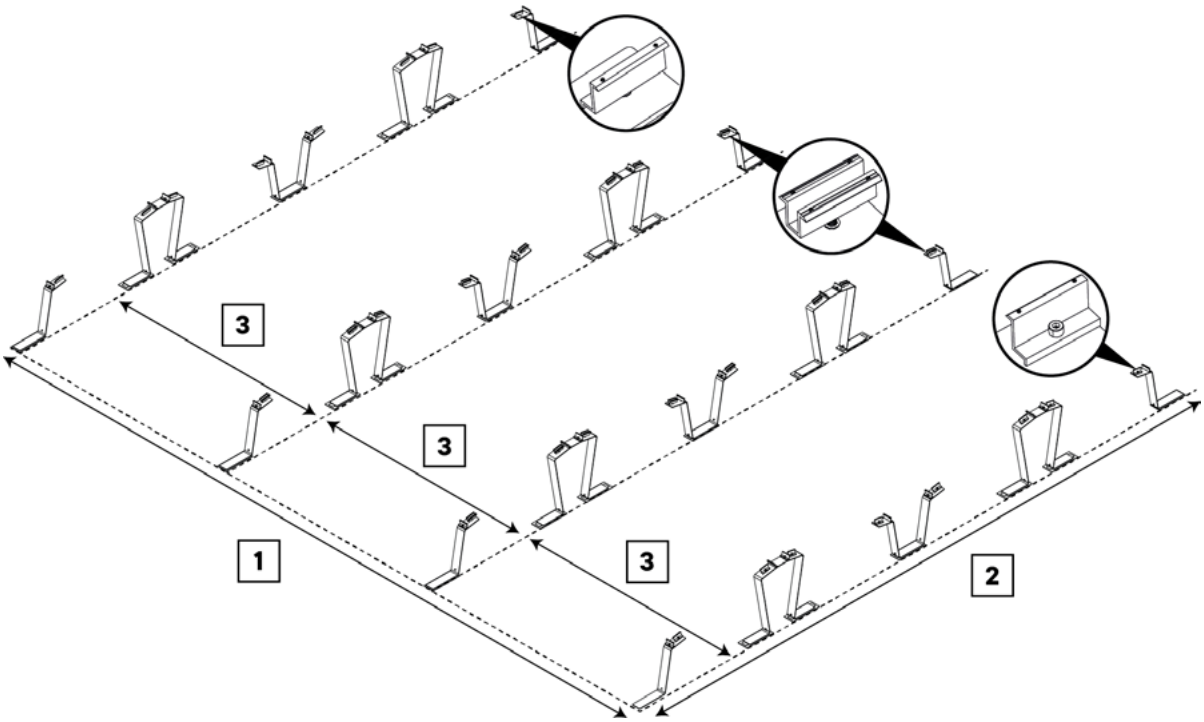


End clamps and mid clamps

Attach the end and mid clamps to the front, top and bottom parts - screw in 2 to 3 thread depths, but do not tighten

2.2.2 Measuring the module field

Measure the length (1) and width (2) of the entire module field and mark the lines. Measure the individual module rows (3) and mark the lines. Distribute the front, top and bottom parts in the module field according to the planning documents (Project Report) and secure them with ballast to facilitate the set-up and simplify the subsequent installation.

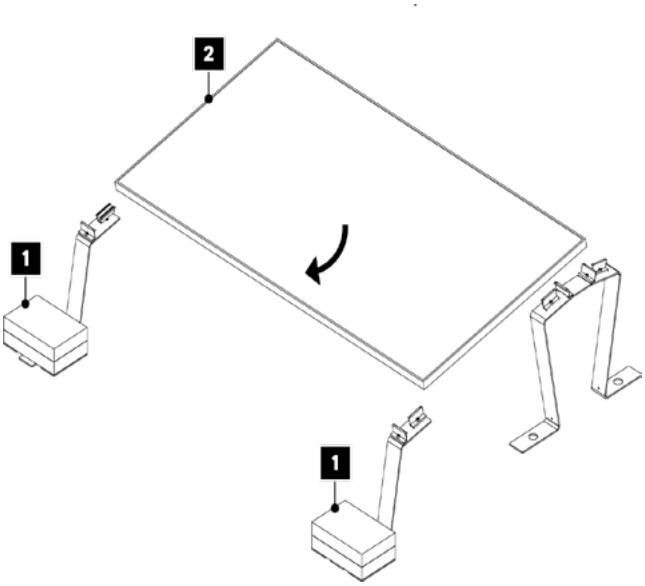


The exact dimensions can be found in the attached planning documents.

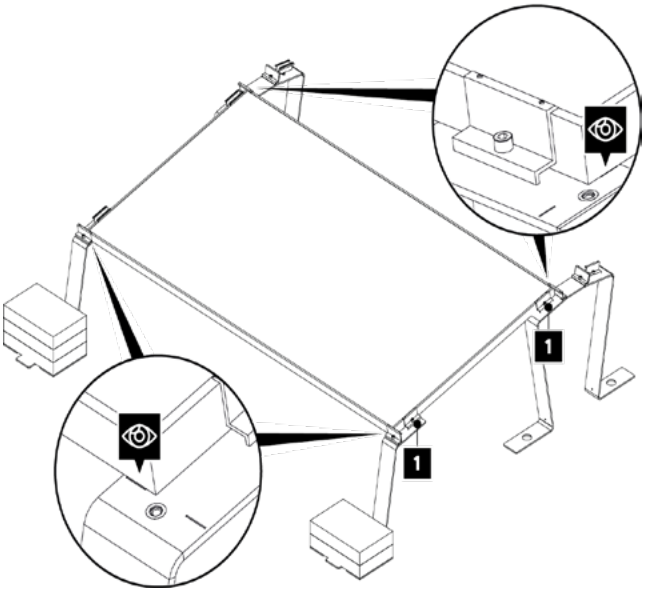
Ensure that the module mid clamps and that the module end clamps are correctly placed during set-up.

2.3 Installing the modules

2.3.2 Installing the first row of modules

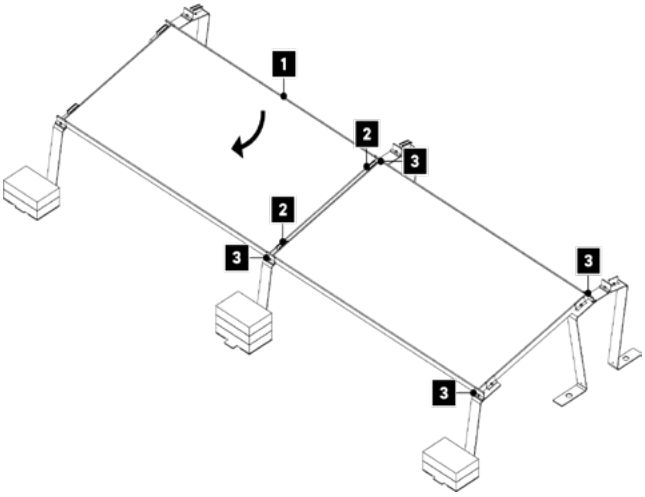


Weigh down the front part with ballast blocks (1)
Place the module (2) on the front and top parts.



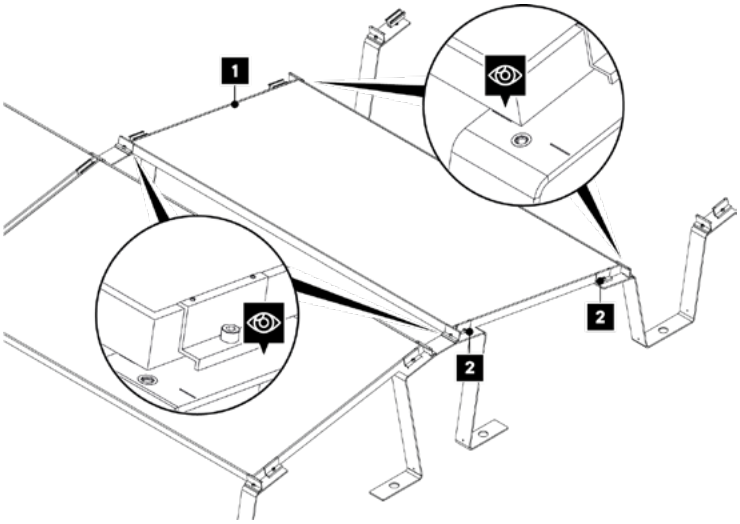
Align each module with the marks on the front part/ top part. Tighten the screws of the side end clamp (1) to 15 Nm.

When installing, wire the modules at the same time. The cables can be attached to the module mid clamp with the cable tie clip. The distance between the clamps is determined by the support or by the module size.

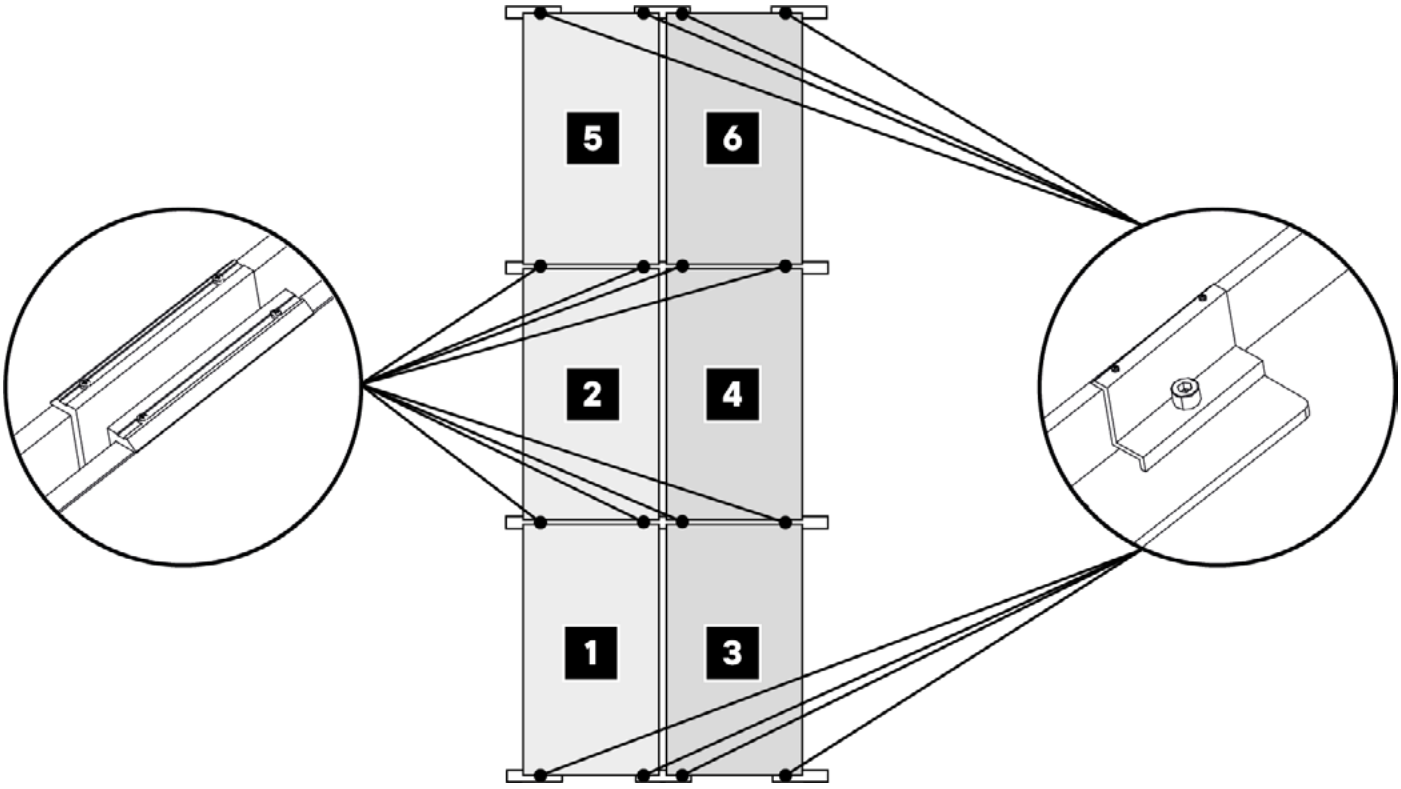


Place the next module (1). Tighten the screws of the mid clamp (2) of the previous module with 15 Nm. Tighten the screws of the end clamp (3) at the bottom of the modules to 15 Nm.

2.3.2 Install the second module row



Place the module (1) on the top parts and bottom part.
Align each module with the marks on the parts.
Tighten the screws of the end clamp (2) with 15 Nm.
Install remaining modules as in the first row.



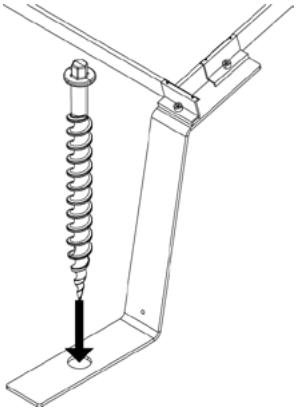
Install other modules in the recommended order. Tighten all mid and end clamps to 15 Nm

2.4 Ballasting LEICHTmount G E/W

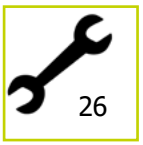
The ballasting of the system varies depending on the given conditions. The following section describes the three variants. **Important:** The ballast trays may only be tightened by hand until the module installation is complete.

2.4.1 Fastening with ground anchors

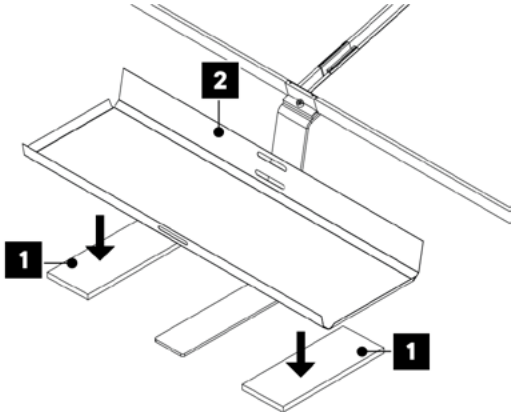
The system is anchored to the ground using the ground anchors on the front, bottom, top or rear parts. The exact number and position of the ground anchors can be found in the Project Report.



Position the ground anchor in the hole provided.
Then screw in the ground anchor completely.
The wrench size of the ground anchor is 26 mm.



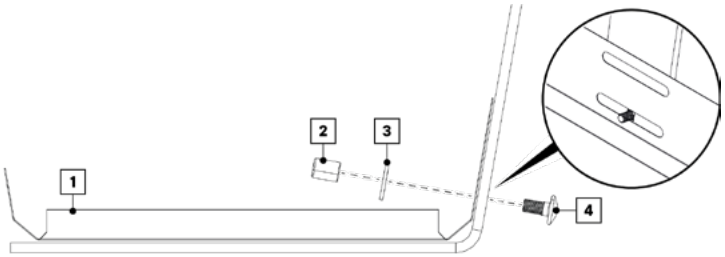
2.4.2 Short ballast tray



Position the ground fleece mats (1) on the right and left at the edge of the ballast tray.

Place the ballast tray (2) in the center of the front or bottom part

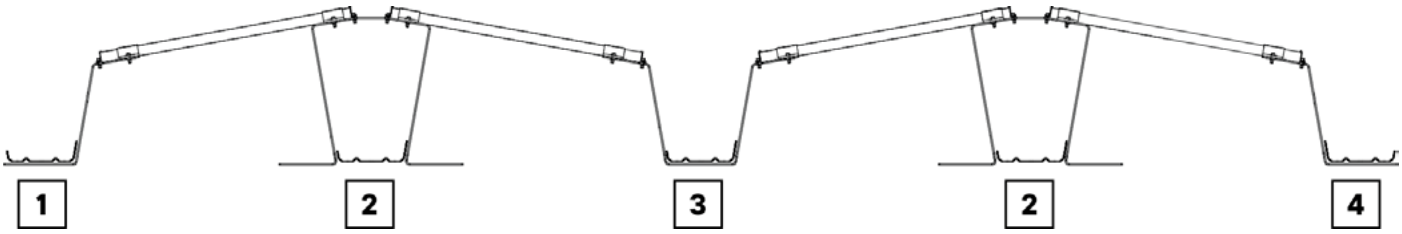
The exact number and position of required ballast trays is specified in the Project Report

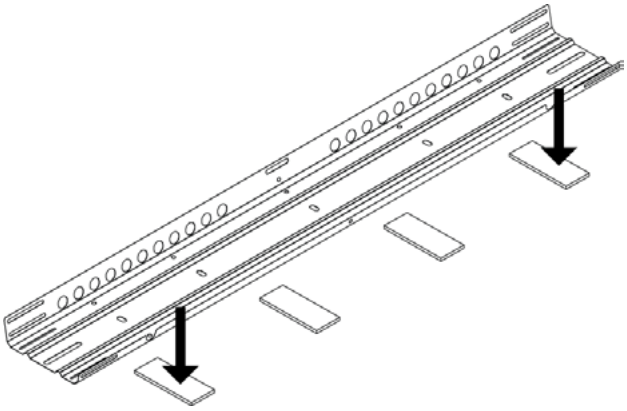


Tighten the ballast tray (1) to the front part or bottom part with the Thread-forming screw (4), washer (3) and Allen nut (2).

Tighten the screw (4) with a torque of 15 Nm

2.4.3 Long ballast tray





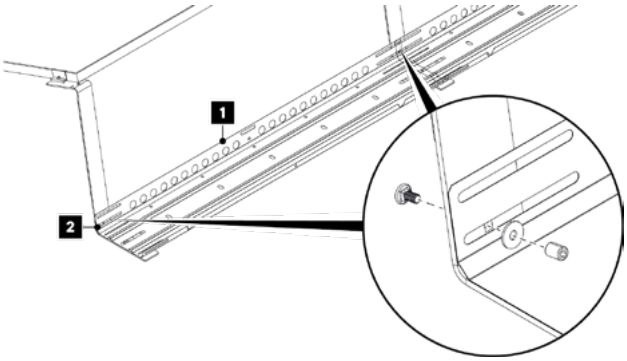
The long ballast tray can be attached in the following positions:

(1) on the front part
(2) on the top part
(3) on the bottom part
(4) on the front part (last row, mirror-inverted).

When positioning the fleece mats, ensure that the drainage holes on the floor are not covered.

Distribute the fleece mats evenly under the ballast trays.

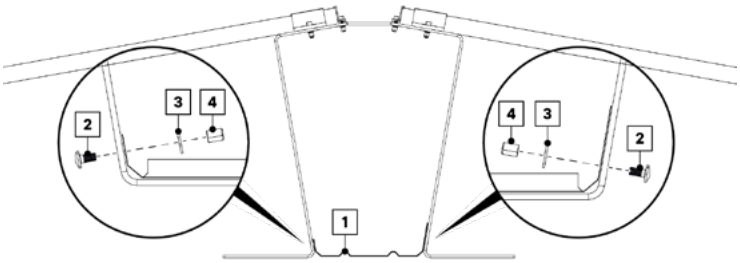
Installing a long ballast tray with overlap



If several ballast trays follow one another: Lay out the ballast trays (1) so that they overlap at the respective parts.

Tighten the screws with a torque of 15 Nm.

Fitting long ballast tray to top part



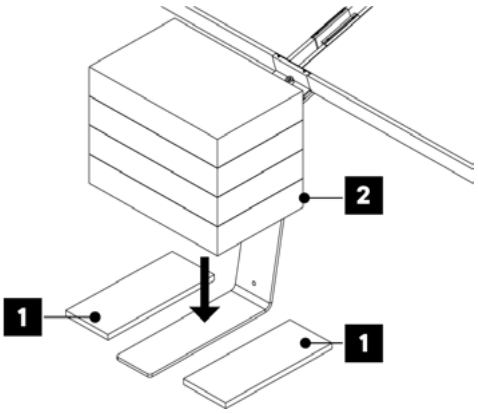
Place the ballast tray (1) under the top part.

Tighten the ballast tray to the centre part using the Thread-forming screw (2), washer (3) and Allen nut (4).

Tighten the screws to a torque of 15 Nm.

2.4.4 Direct ballasting

With this ballasting variant, ballast stones are placed directly on the front, bottom and top parts.



Position the fleece mats (1) to the right and left of the front, bottom or top part.
Then place the ballast blocks (2).
The exact number and position of the ballast blocks can be found in the planning documents (project report).

To minimize maintenance work, the fleece mats should be glued to the ballast blocks. We recommend using a weather-resistant construction adhesive for this purpose

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3.1 Disassembly

The S:FLEX mounting systems should only be dismantled by trained specialists. The safety instructions, standards, and guidelines used during installation are also applicable and must be followed. Disassembly should be performed in the reverse order of assembly.

Before disassembly, disconnect the PV modules from the mains network. Disconnect all electrical cables (string lines and plug connectors) from the PV modules and remove them from the frame system.

Then remove the modules and store them safely. Improper disassembly can lead to damage to the modules.

Disassemble the frame system and safely store all parts. Any holes in the roof must be sealed by a specialist

3.2 Disposal

The S:FLEX mounting system is made from aluminium, stainless steel and steel components. These materials can be recycled after disassembly. The frame system may only be disposed of by a specialist waste management company. Observe the applicable national standards and guidelines.

4.1 User agreement for the LEICHTmount G E/W

Please note that the mounting system is sold as part of a sales contract. Assembly / processing or purchase by third parties is not carried out in the name of or on behalf of S:FLEX GmbH. It must be carried out by qualified specialist personnel strictly in accordance with the installation instructions.

The system must be designed and planned using the S:FLEX planning tool.

Faults and damages, as well as limited or deficient functionality of the system due to incorrect installation or deviations from the installation manual and/or project report (S:FLEX planning tool), do not constitute a material defect for which S:FLEX GmbH is responsible. If the system is not properly installed, the buyer's rights regarding material defects are void. The system warranty is only valid if all components are sourced from S:FLEX GmbH.

The system requires that the PV modules are approved to be clamped on the short side under the design loads. This approval can either be generally available as part of the module certification or may be given by the module manufacturer on a project-specific basis.

4.2 Warranty / disclaimer

The dimensioning guidance contained in these instructions are merely practical advice. The structural calculations for the mounting system can be created using the S:FLEX planning software.

As the installation company, you are responsible for the correct execution of the installation. S:FLEX GmbH is not liable for the dimensioning guidelines contained in commercial system quotations.

As the installation company, you are responsible for the mechanical durability of the installed interface connections on the building envelope, in particular for their watertightness. The components from S:FLEX GmbH are designed for this purpose in accordance with the expected loads and the current state of the art. When making an inquiry or placing an order with S:FLEX GmbH, you must provide all general technical conditions in the project data sheet (including information on the load-bearing structure, snow load zone, building heights, wind loads, etc.) in writing.

S:FLEX GmbH is not liable for improper handling of the installed parts. Useage on coastal areas must be discussed directly with S:FLEX GmbH on a case-by-case basis due to the risk of corrosion. With proper handling, dimensioning according to structural conditions, and normal environmental conditions, S:FLEX GmbH guarantees for a period of 10 years from the transfer of risk that the metallic components of the frames are free from material and workmanship defects. Wear parts are excluded from this guarantee. For more detailed information, please refer to the separate warranty terms.

This applies under generally prevailing weather and environmental conditions.