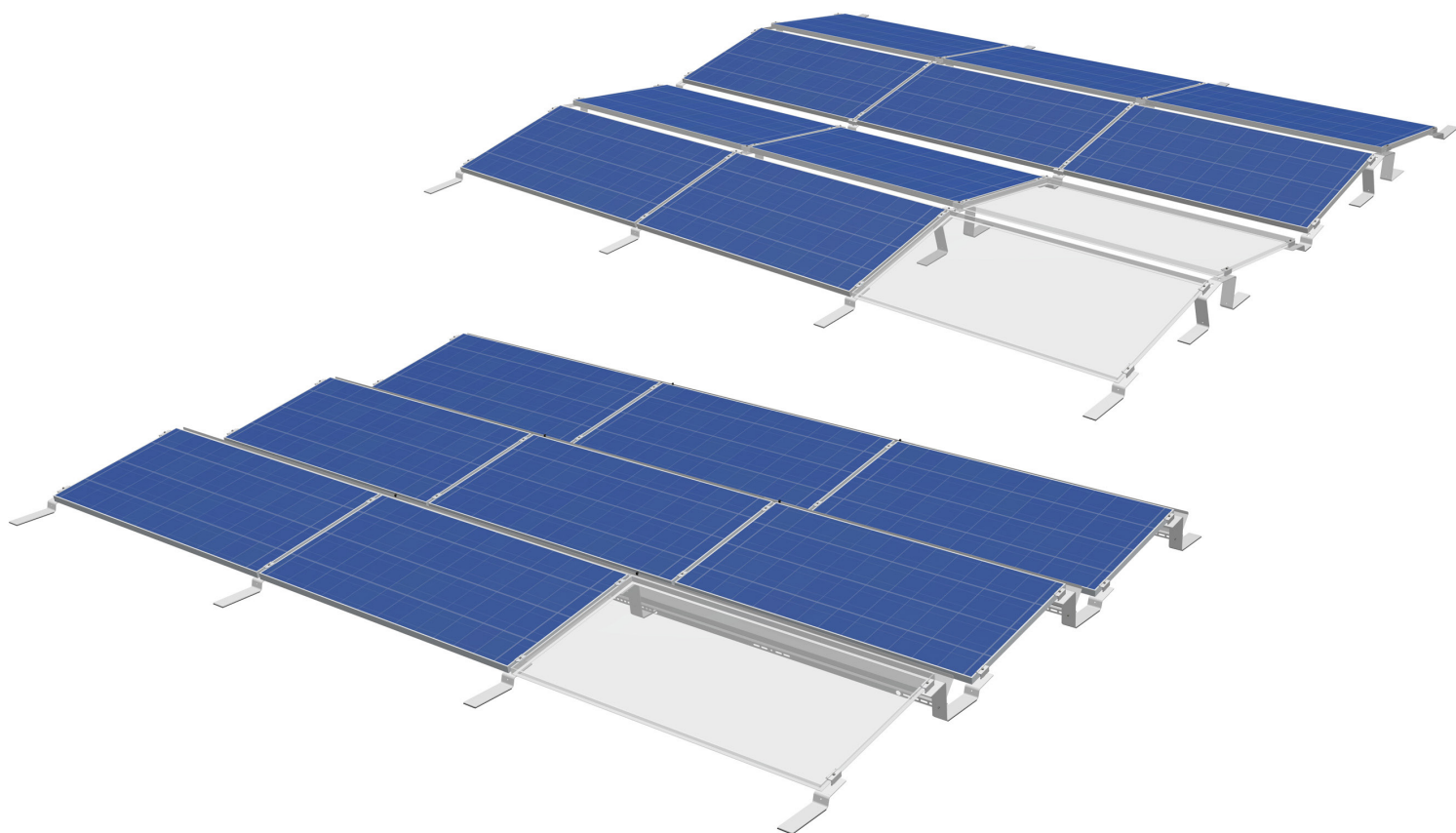
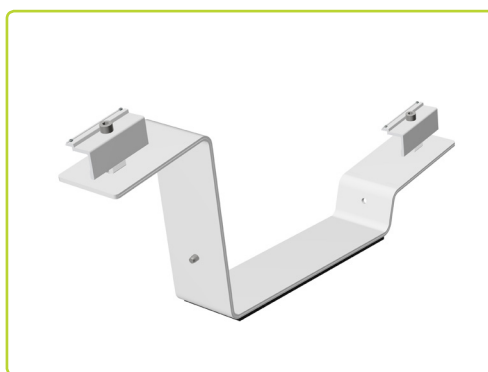
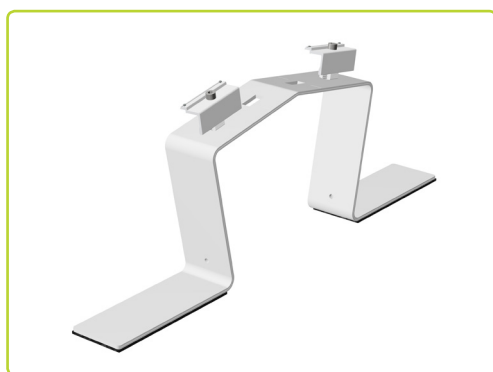




Installation Instructions

LEICHTmount CF S/EW

Aerodynamic flat roof system



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Read these installation guidelines carefully before installing the S:FLEX mounting system and retain them for future reference! These installation guidelines are only complete with the project-specific implementation plans (project report)!

1.1 Intended use

The S:FLEX PV mounting system LEICHTmount CF/EW is a frame system for mounting PV modules without roof penetration.

It is designed exclusively for the installation of PV modules.

The LEICHTmount CF S is designed for south-facing systems with a pitch angle of 10°.

The LEICHTmount CF EW is designed for east/west-facing systems with a pitch angle of 10°.

Both systems are configured for transverse module installation.

It can be used for almost all commercially available modules with the following dimensions:
module width 950 – 1150 mm; module length 1500 – 2000 mm.

The LEICHTmount CF system is designed for easy installation on the following standard industrial roof coverings:
foil, bitumen, gravel, extensive green roof, concrete.

Any other use is considered improper. In particular, compliance with the information in this installation guide is part of the intended use. S:FLEX GmbH accepts no liability for damage resulting from non-observance of the installation guide or from misuse or incorrect use of the product.

1.2 About this document

This installation guide describes the installation process for the LEICHTmount CF S10 system and the LEICHTmount CF EW10 system on flat roofs.

The LEICHTmount CF system provides suitable solutions for different load zones.

- LEICHTmount CF Standard Version S10/EW10 for standard load values
- LEICHTmount CF Alpine Version S10/EW10 for high load values

This document shows the installation recommendations for:

- LEICHTmount CF S10/EW10 with framed PV modules mounted transversely
- LEICHTmount CF S10/EW10 Alpine with framed PV modules mounted transversely

It must be ensured that only current and complete installation guidelines are used during the installation process.

1.3 Warnings

The warnings included in this installation manual identify safety-relevant information. They consist of:



Failure to comply will result in a significant risk of injury as well as a danger to life.



Failure to comply may result in damage to property.

1.4 General information — standards and guidelines

Photovoltaic systems must always be installed in accordance with the instructions contained in the installation manual and the project report.

This installation manual is based on the latest standards and many years of experience installing our systems on-site. Ensure that only current and complete installation guides are used during the installation and that a printed copy of the installation guide is kept in the immediate vicinity of the system. Subject to technical modifications.

The project report forms part of the installation manual and is created on a project-specific basis. All specifications in the project report must be strictly adhered to. The location-specific structural calculations are included in the project report. The design and planning of the S:FLEX mounting systems must be carried out using the S:FLEX software (Solar.Pro.Tool).

Since individual project-specific features must be taken into account for each roof, it is always necessary to seek expert advice before starting the installation. The manufacturer of the PV system must be consulted before the installation in order to ensure that the existing roofing and roof substructure is designed to support the additional loads. The condition of the roof substructure and the maximum load-bearing capacity of the roof covering must be checked by the manufacturer.

Contact a structural engineer to attend the site for this purpose.

When installing the PV systems, always observe the installation instructions provided by the module manufacturer. In particular, it is essential to check that the module manufacturer's specifications regarding the module clamping specifications (clamping surface and clamping area on the module) are complied with. If this is not the case, either the module manufacturer's declaration of consent must be obtained by the customer prior to installation or the frame must be adapted to meet the module manufacturer's specifications.

The requirements for lightning and surge protection of installation systems for PV modules must be met in accordance with DIN and VDE regulations. The specifications of the respective power supply company must also be complied with.

Care must be taken that the PV system to be installed does not impair the functioning of the existing lightning protection system. It is also important to ensure that the PV system is designed so that it can be included in the protection zone of the building's lightning protection system. The separation distances between the PV system and the lightning protection system prescribed by the applicable regulations must be adhered to. During installation, fire protection regulations must be satisfied; for example, fire protection walls should not be modified and the corresponding separation distances must be observed.

When changing the roof covering, the manufacturer's instructions must be followed. During and after installation, the frame parts must not be stood upon or used as a climbing aid. There is a risk of falling and the underlying roofing could be damaged.

Before installation, the manufacturer of the photovoltaic system must be consulted in order to ensure that the installation is strictly carried out in accordance with the national and site-specific building regulations, safety and accident prevention regulations, relevant industrial standards and environmental protection regulations.

All individuals who install S:FLEX PV mounting systems are obliged to independently inform themselves about all relevant rules and regulations relating to proper planning and installation, and to adhere to them during the installation process. This also includes obtaining the current versions of the respective rules and regulations. The installation of the PV system may only be carried out by appropriately trained specialists.



The installation of the S:FLEX substructure and the PV system may only be carried out by trained specialists. System components must not be used as stepladders; the modules must not be stepped upon. When working on roofs, there is a risk of falling off and through roofs. A fall may result in injury or death. Ensure that appropriate safe access equipment and fall protection (e.g. scaffolding) are provided as well as protection from falling parts.



Check the building statics and construction/condition of the roof substructure before starting the installation. During installation, the instructions in the installation manual and project report must be strictly observed. Failure to comply with the installation instructions and the project report may result in damage to the PV system and the building.

2.1 Description of the system

The LEICHTmount CF S10 system includes solutions to suit a range of different requirements.

System properties

Mounting angle:	the LEICHTmount CF S is available with 10° mounting angle
Roof edge spacing:	Roof areas F and G can be used
Module dimensions:	950 – 1150 mm x 1500 – 2000 mm (width x length). The use of modules with deviating dimensions must be tested and approved for each project.
Module frame height:	30 – 46 mm
Max. roof pitch:	5°
Building height:	max. 25 m
Wind load:	max. 2.4 kN/m ² (design value as combined load of dead weight and wind pressure)
Snow load:	LEICHTmount CF Standard or loads up to 2.4 kN/m ² LEICHTmount CF Alpine for high loads up to 4.4 kN/m ²
Modules:	The system requires approval for use of modules up to 4.4 kN/m ² with this type of fastening (clamp at the short module side and clamp in the middle of the long module side). This approval can either be given generally as part of the module certification or, as the case may be, issued by the module manufacturer on a project-specific basis.
Materials:	Aluminium structural supports EN AW 6060 T64, aluminium module mid clamps EN AW 6063 T66, stainless steel screws, galvanised steel wind shields and ballast trays.
Prerequisites:	Proof of static load capacity of the roof and the roof insulation must be provided by customer. General terms / warranty conditions and usage agreement apply.



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

Flat-roof coverings

The LEICHTmount CF S10 can be installed on the following flat-roof coverings:
foil, bitumen, gravel, extensive green roof, concrete.

The compatibility of the roof covering and the building screen mats must be ensured. The roof covering (and possibly the insulation layer) must be able to absorb the pressure loads of the PV system. The friction coefficient of the existing roof covering is used as the basis for the ballast chart and must be determined by the customer.

If the roofing gravel lies directly on the water-bearing roof skin, the system must not be placed on the gravel layer. In this case, the gravel must be removed in the area of the supports.

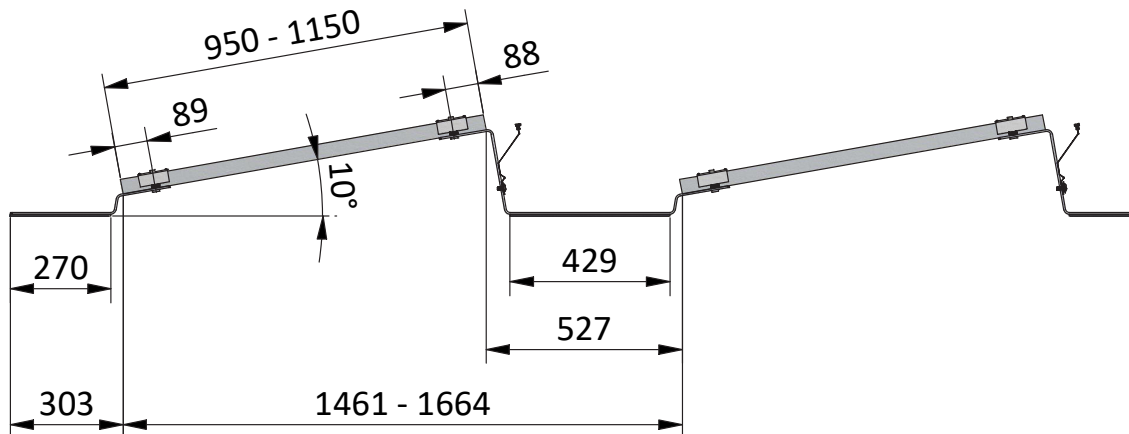


S:FLEX GmbH may provide a measuring device in order to determine the project-specific friction coefficient.

Row spacings

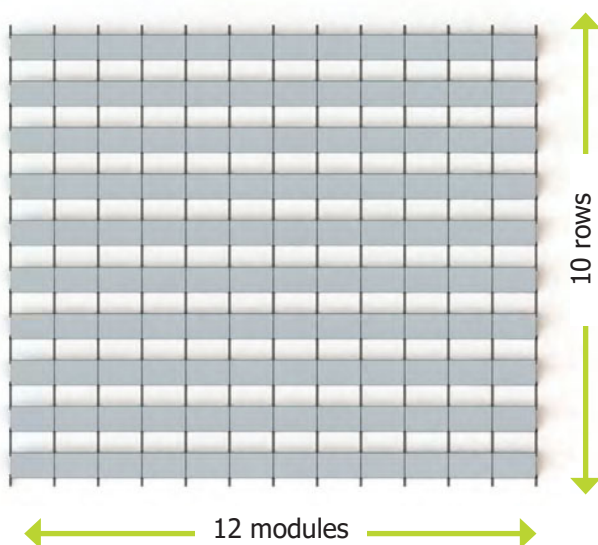
LEICHTmount CF S10 (18°): 527 mm module spacing

S10 – 18° irradiation angle



Basic conditions for the module array size

The S:FLEX LEICHTmount CF S system allows a variable module arrangement. This allows optimal utilisation of the roof area. In principle, the module layout should always be based on the module arrangement specified in the project report. The maximum size of the module array is 120 modules (12 modules per row and 10 rows).



Maximum module array size: 10 rows with 12 modules (120 modules).

System design

LEICHTmount CF S Standard

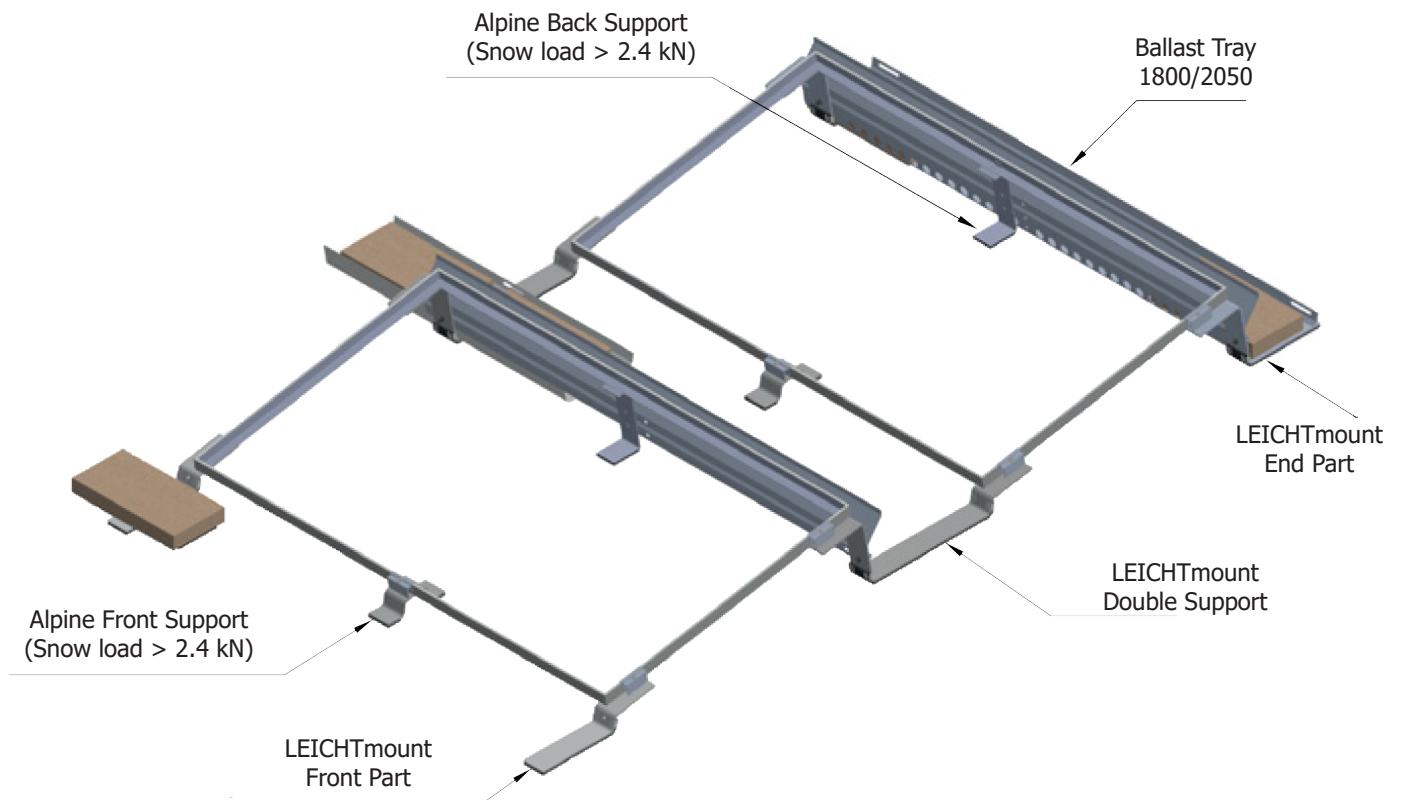
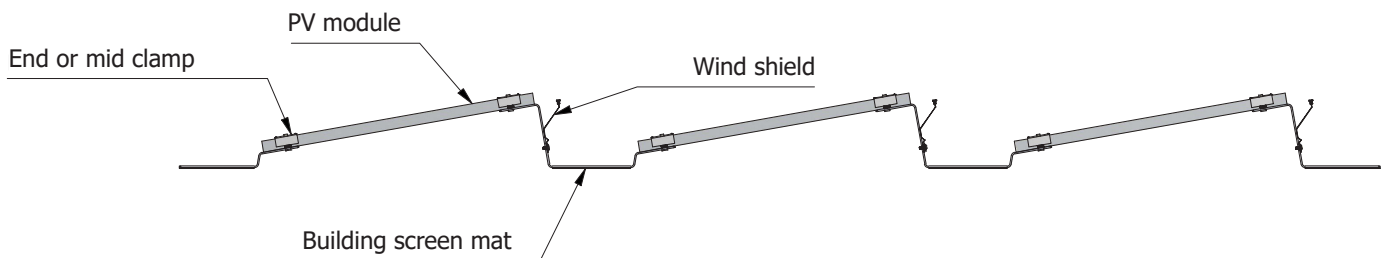
LEICHTmount CF S Alpine for high loads

The standard system is designed for normal wind and snow loads, the Alpine system for high wind and snow loads. All values are design values as a combined load of dead weight, wind and snow pressure.

This information should be used as a rough guide only. The information in the project report always takes priority!

Therefore, first determine the snow and wind load zone in which the system will be used.

The system is wind-tunnel tested and UL-certified.



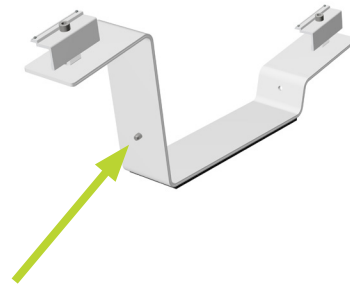
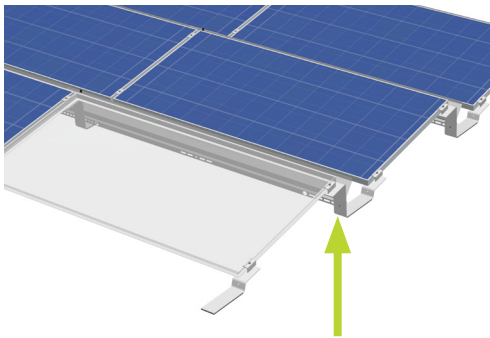
Grounding

Equipotential bonding between the individual system components must be ensured according to the respective country-specific guidelines and standards.



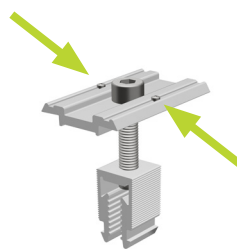
The module manufacturer's installation instructions must always be observed.

The requirements for the protection of PV mounting systems against lightning and surges must be met in accordance with the applicable regulations. The specifications of the relevant power supply company must be observed. Care must be taken that the PV system to be installed does not impair the functioning of the existing lightning protection system. It is also important to ensure that the PV system is designed so that it can be included in the protection zone of the building's lightning protection system. The separation distances between the PV system and the lightning protection system specified in the relevant regulations must be adhered to. Contact a local lightning protection specialist.



The grounding cable is attached using the screw of the wind shield.

Grounding pins



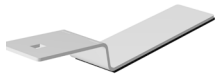
The functional capability of the earthing arrangements for the system via the module mid clamps with grounding pins, and of the system itself, was verified during UL 2703 certification.



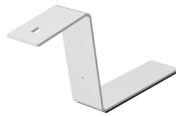
The requirements for the protection of PV mounting systems against lightning and surges must be met in accordance with the applicable regulations. Contact a local lightning protection specialist. The prescribed separation distance between the PV system and the lightning protection system must be observed. S:FLEX GmbH assumes no liability whatsoever for damage caused by lightning strikes or earthing problems.

2.2 System components

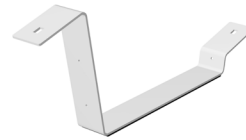
Front part



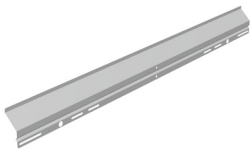
End part



Double support



Wind shield 1800/2050



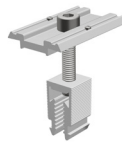
Ballast tray 1800/2050



Module end clamp



Module mid clamp



Wind shield clip



Cable clips



Groove screw M8x16



Flat washer M8x30



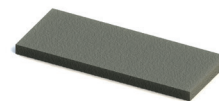
Alpine back support



Alpine front support



Building screen mat (PES)



Overview of LEICHTmount CF S basic and extension sets

Article no. 0010047058**Basic set 1st row
FD S 10°, without wind/ 2**

Component	Qty
Front part	2
End part	2
End clamp	4
Cable clips	1
Groove screw	2
Flat washer	2
Building screen mat	8

Article no. 0010047059**Basic set additional row
FD S 10° without wind/ 2**

Component	Qty
Double support	2
End clamp	4
Cable clips	1
Groove screw	2
Flat washer	2
Building screen mat	4

Article no. 0010047060**Extension set 1
FD S 10°, without wind/ 2**

Component	Qty
Front part	1
End part	1
Mid clamp	2
Cable clips	1
Wind shield clip	1
Groove screw	1
Flat washer	1
Building screen mat	4

Article no. 0010047061**Extension set 2
FD S 10°, without wind/ 2**

Component	Qty
Double support	1
Mid clamp	2
Cable clips	1
Wind shield clip	1
Groove screw	1
Flat washer	1
Building screen mat	2

Article no. 0010047062**Supplementary set Alpine
FD S 10°/ 2**

Component	Qty
Alpine front support	1
Alpine back support	1
End clamp	2
Groove screw	1
Flat washer	1

Article no. 0020228530**Supplementary set
Ballast tray 1800, flat roof**

Component	Qty
Ballast tray 1800	1
Groove screw	4
Flat washer	4
Building screen mat	2

Article no. 0010040141**Supplementary set
Ballast tray 2050, flat roof**

Component	Qty
Ballast tray 2050	1
Groove screw	4
Flat washer	4
Building screen mat	2

Article no. 0020228556**Wind shield 1800**

Component	Qty
Wind shield 1800	1

Article no. 0010040140**Wind shield 2050**

Component	Qty
Wind shield 2050	1

2.3 Installation — frame and modules



The design and planning of the LEICHTmount system must be undertaken using the S:FLEX Planning Software. Please make sure that the position of the modules on the roof and the ballast distribution correspond exactly to the specifications in the project report. If the module distribution on the roof is changed due to local circumstances, such as interfering surfaces, the static calculation must be repeated using the S:FLEX planning software.



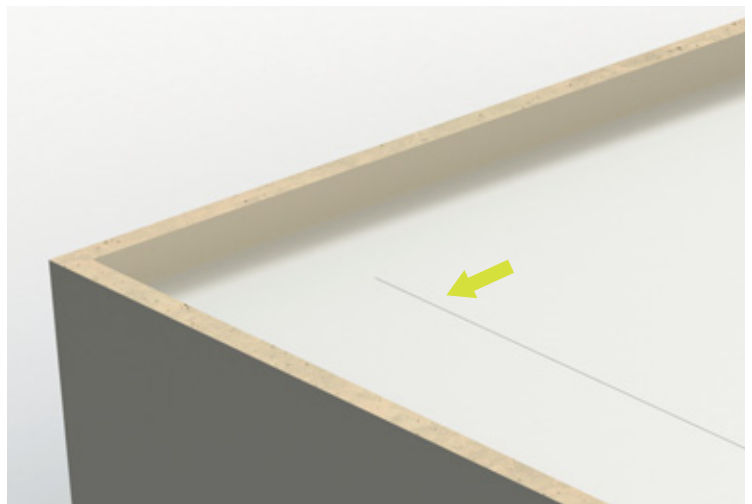
Do not leave the installation site until the wind shield and ballast for each module have been installed in accordance with the ballast chart. Without the wind shields and ballast, the stability of the module array is not guaranteed. The correct position of the ballast blocks and building screen mats should be checked as part of the annual maintenance inspection. It is the responsibility of the installing company to check the specification and weight of the required ballast blocks.

Measure the roof surface.

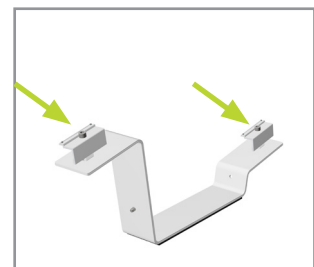
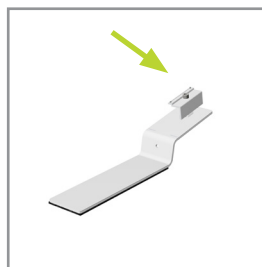
Mark the initial point with a chalk line.



Measure in accordance with the project report.



Place the module end clamps and module mid clamps on the LEICHTmount CF S supports.

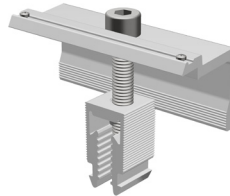


The module clamps CF MC und EC

The clamps are connected to the mounting bracket by clicking them into the square hole provided.

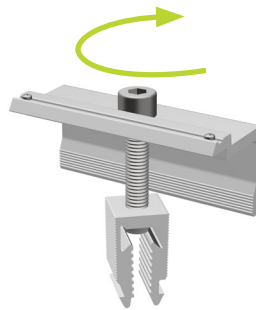
1. Clamp in sliding position

Make sure that the clamp is in the sliding position (the teeth must be visible on the side). The new clamp is able to clamp PV modules with a height of 30 - 46 mm.



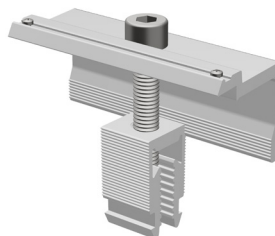
2. Turn clamp and click

To do this, it is necessary to use the grid function of the clamp by turning the upper part of the clamp 90° in the direction of the grid. It is fixed by clicking in. The elongated punching allows the clamp to be moved slightly.



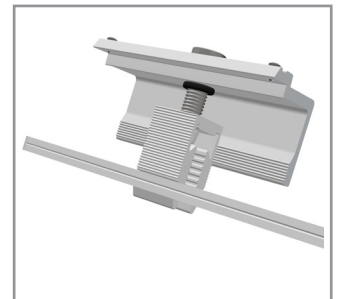
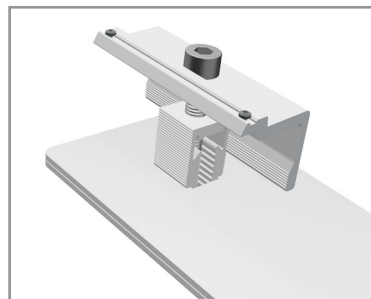
3. Clamp in grid position

With the help of the serration, the clamp can be adjusted to the thickness of the module frame.



4. Correctly applied clamp on the mounting bracket of the CF system.

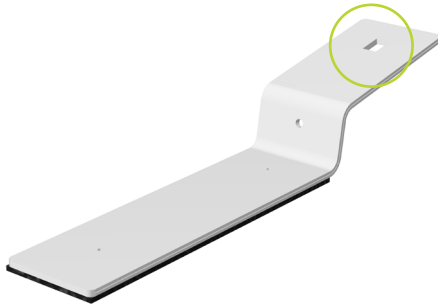
The clamp is locked in the square hole by pressing it in vertically. Make sure that the clamp is well clicked into the punched hole.



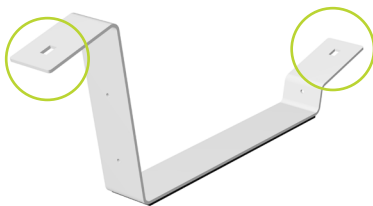
Fastening to the mounting bracket with square cut-out

The clamps are connected to the supports by simply clicking them into place. The strength of the connection comes from tightening the pre-assembled hexagon socket screw with the correct torque.

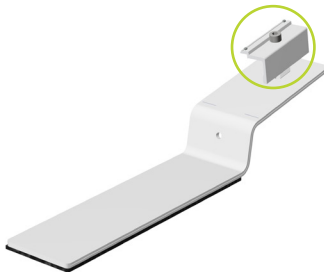
Cut-out for fixing the clamps at the front part.



Punching for fixing the clamps on the top part.

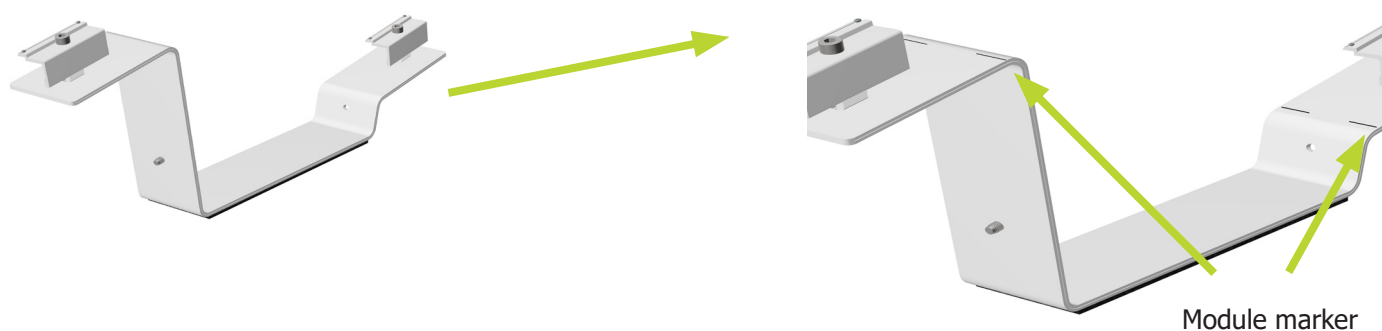


Correct pre-assembly of the end clamp on the front part.

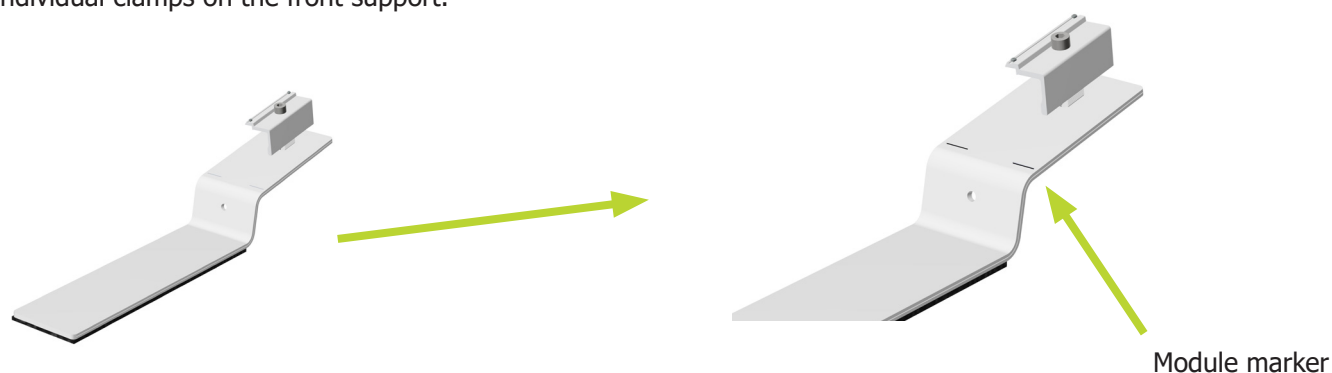


The module clamps are mounted on the short sides. When placing the modules, make sure that the module edge is in contact with the module marking.

Example of the correct pre-assembly of the individual clamps.



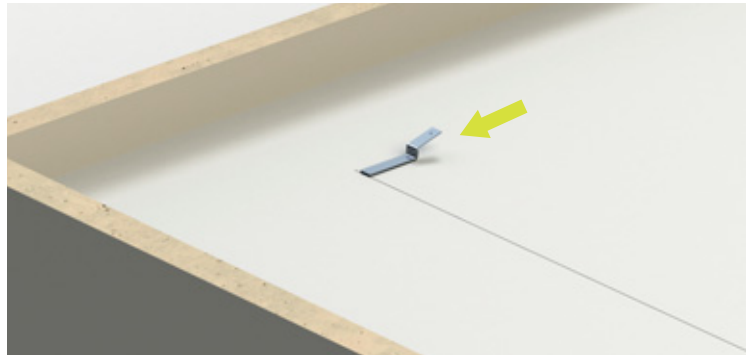
Example of the correct pre-assembly of the individual clamps on the front support.





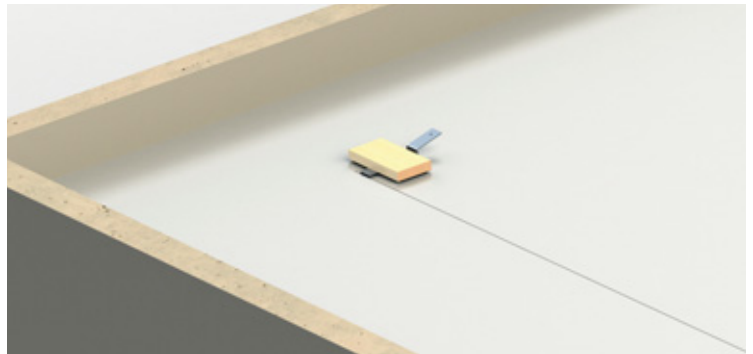
On bituminous roofs, all supports should be underlaid with an additional layer of bitumen roofing membrane to prevent possible sinking of the columns into the roofing membrane at higher temperatures.

Position the front part.

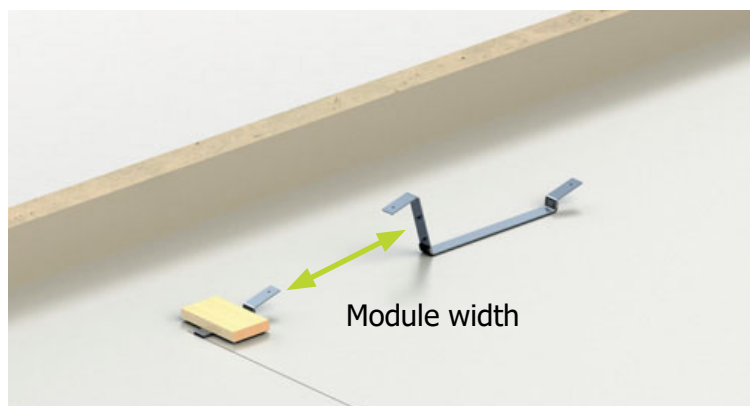


Secure the front part with a ballast block.

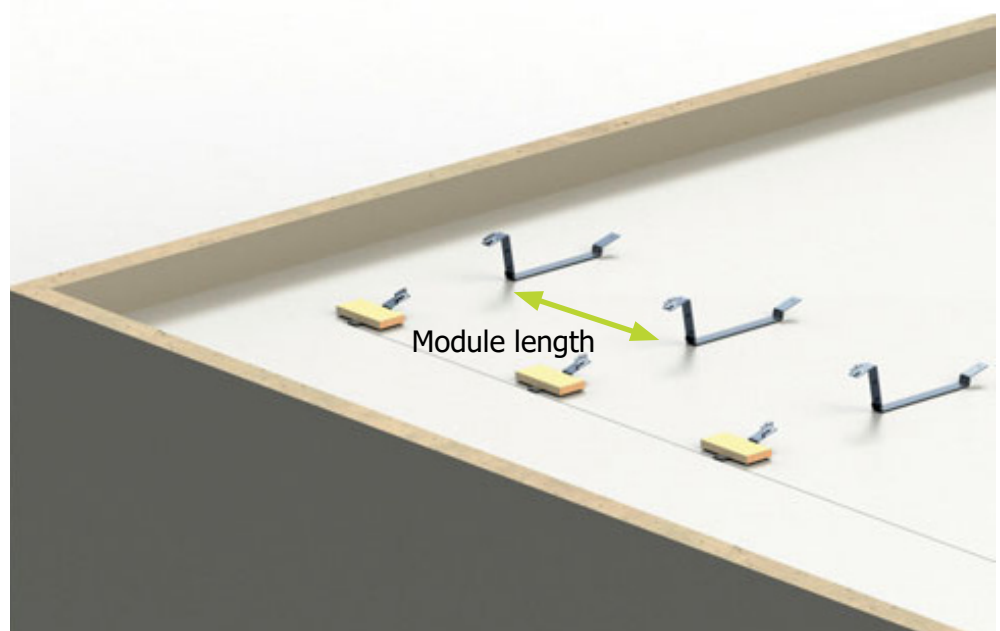
Place the ballast block on the front part and the supplied building screen mat (PES) to ensure a stable support.



Place the connector at approximately the required vertical distance (module width). The exact distance is adjusted during installation of the module.



Place the front parts and connectors at approximately the required horizontal distance (module length). The exact distance is adjusted during installation of the module.

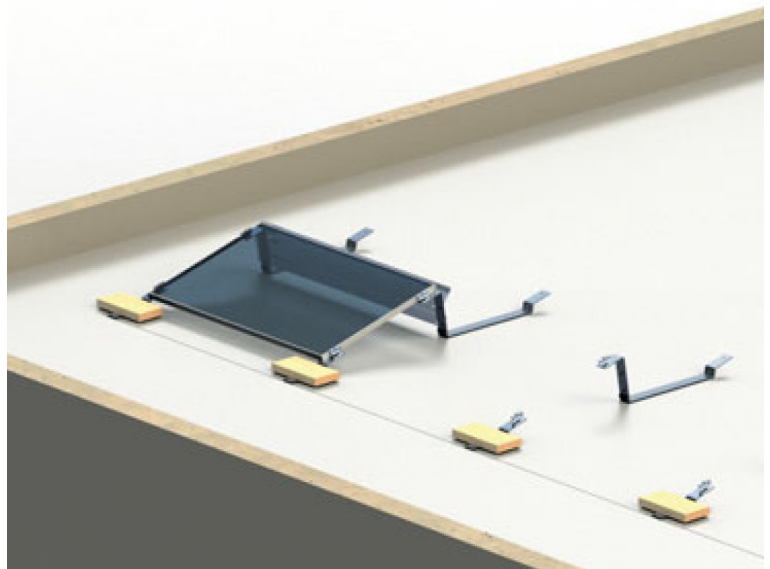


Align the front part and connector using a guideline.

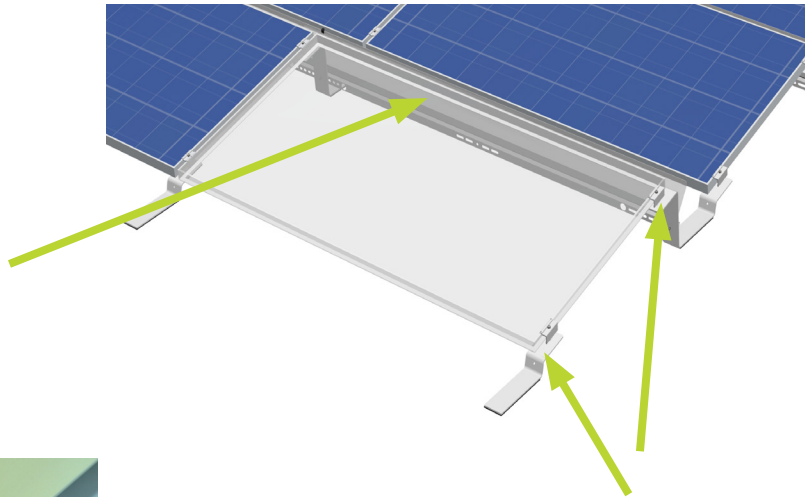
Install the module on the front parts in the horizontal orientation and align the top so that it sits flush with the LEICHTmount connector or end part.

Then install the wind shield and ballast tray (if required). The mounting procedure for the wind shields is shown in section 2.5, the installation of the ballast tray in section 2.6.

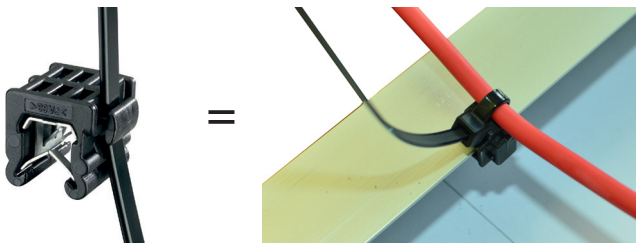
For easier orientation of the modules, markings for the lower and upper edge of the modules have been applied to the front parts and connectors.



The module end clamps or the module mid clamps on the previous module can then be tightened and another module installed. At the end of the row, attach a module end clamp and screw it tightly into position after aligning the last module. The clamps must be tightened with a torque of 15 Nm.



Click cable clips onto the module frame.



Tighten the module end clamps and mid clamps with 15 Nm.



For easier alignment, align the bottom and upper edge of the module with the markings.

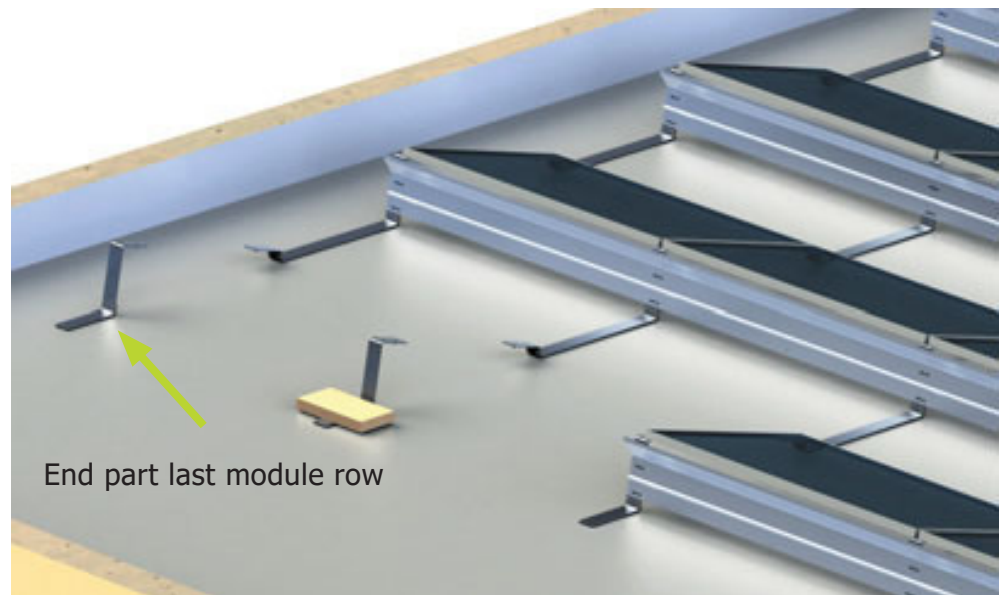
Laying the DC cable: The string cables are fixed to the module frame with cable clips.

Laying on the roof: The string cables are combined in cable management ducts. The cable ducts can be mounted on stone slabs and guided between or next to the module rows. The ducts and substructure are not included in the S:FLEX scope of delivery.



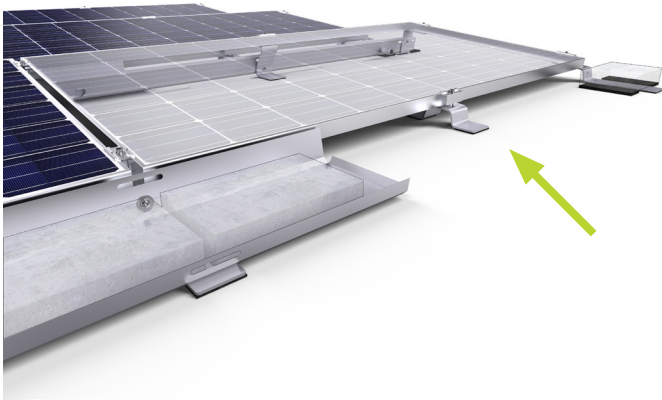
In order to minimise the installation time, the wind shield is always installed at the same time as the ballast trays. The installation guide for the wind shields and ballast trays can be found in section 2.5 and 2.6.

The end part is used at the end of the last module row. Mount the modules as described for the connectors. Then install the wind shield and ballast tray (if required).

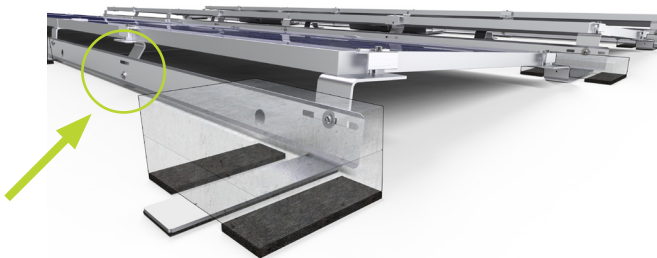


2.4 Installation – Alpine supports

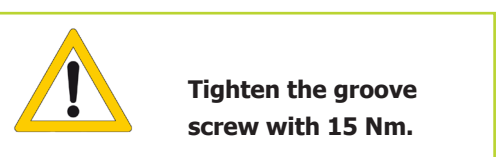
For snow loads from 2.4 kN (design load), additional support feet must be mounted in the module's centre. Align the Alpine back and front supports centrally with the module and secure the front support using a module end clamp.



Mounting the Alpine front support: fasten in the middle of the module's longer side with module end clamp.



Screw the upper Alpine support to the wind shield using a groove screw and flat washer.



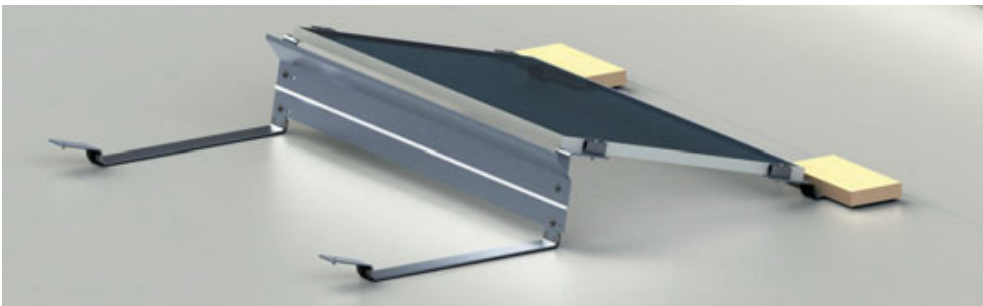
2.5 Installation – Wind shield

The wind shield is installed with an overlap on the connectors and end parts, and is secured using the supplied groove screws and flat washers. The groove screws are screwed to the respective row with 15 Nm after the modules have been installed.

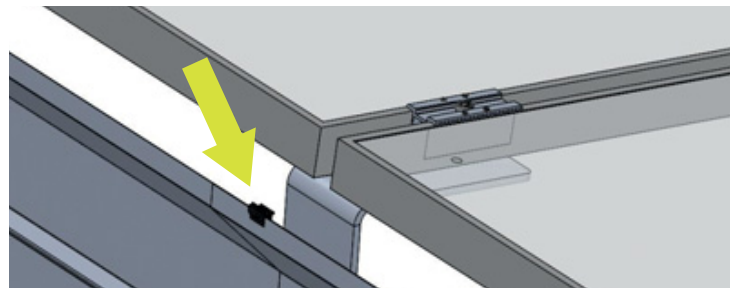
If necessary, the ballast tray is mounted in the same step using the same fasteners.



– 1 groove screw M8x16 per connector or end part for the LEICHTmount S10°



In the area of the overlap of the wind shields, the shields are connected via a cable clip attached to the upper edge of the shield.



The wind shield is available in two sizes for different module dimensions:

Type	Module width	x	Module width
Wind shield 1800	950 - 1.150 mm	x	1.500 - 1.750 mm
Wind shield 2050	950 - 1.150 mm	x	1.751 - 2.000 mm



In order to minimise the installation time, the wind shield is always installed at the same time as the ballast trays. The installation guide for the ballast trays can be found on the next page.

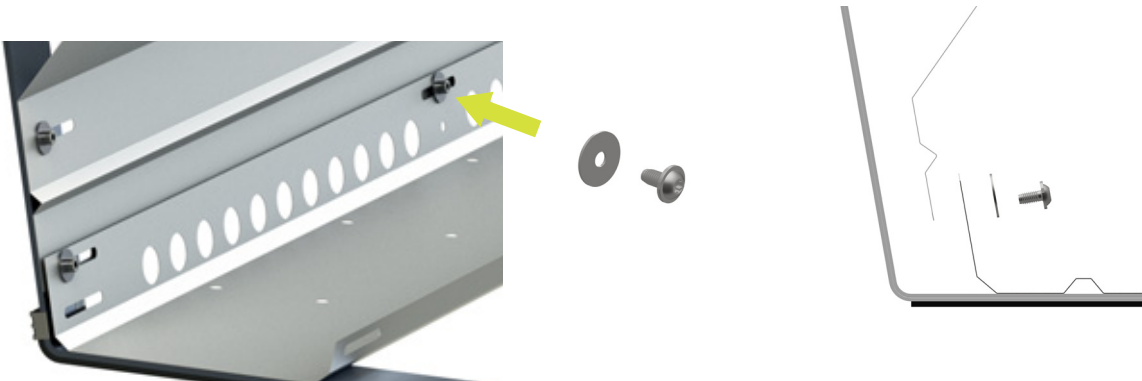
The ballast distribution must correspond to the plan in the project report. The quantity and distribution of the ballast depend on parameters such as location, building height, building surroundings, roofing type and roof pitch.

2.6 Installation — ballast trays

The ballast trays must be used as soon as the specified ballast weight per support is exceeded. The length of the ballast tray depends on the length of the module. The ballast trays are also used if the point load is too high for the roof skin. This ensures that the weight is spread over a larger supporting surface.

Ballast tray 1800/2050

For higher loads, the ballast tray 1800/2050 must be used. The tray is installed in front of the wind shield and secured with the same groove screw. The tray is additionally secured in the middle of the wind shield using a groove screw and flat washer. If several ballast trays follow each other, they are laid out in such a way that they overlap at the connectors or end feet.

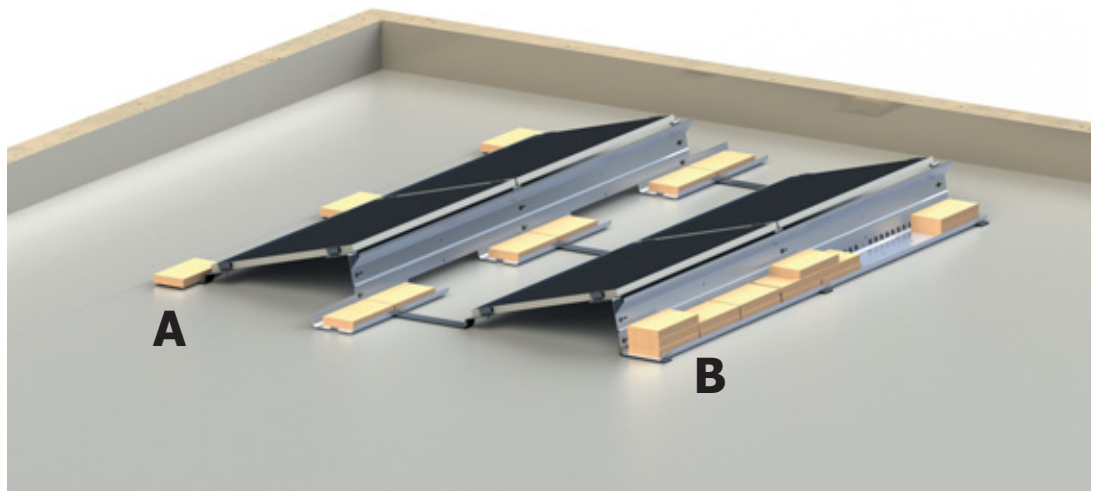


2.7 Installation – ballast

Place all required ballast blocks on the front parts, connectors, end parts and ballast trays in accordance with the structural calculation in the project report. Always attach building screen mats (PES) on the left and right side underneath the ballast blocks and trays. The following building screen mats (PES) are provided for the ballast trays:

- for ballast tray 1800: 3 building screen mats
- for ballast tray 2050: 4 building screen mats

The maximum width of a ballast block for the system is 200 mm. The blocks used must be able to withstand the local weather conditions and have a compressive strength of at least 21 N/mm².



Variant A: Standard ballast without tray; ballast lies directly on the front parts, end parts and connectors.

Variant B: Ballast tray 1800/2050 attached to two supports



The position of the ballasting must always be carried out in strict adherence to the planning documents. A different distribution or omission of ballast elements endangers the stability of the entire plant and represents an enormous risk. Do not leave the installation site until the ballast for each module has been installed in accordance with the ballast chart. The correct position of the ballast blocks and the building screen mats (PES) should be checked as part of the annual maintenance inspection. It is the responsibility of the installing company to check the specification and weight of the required ballast blocks.

3.1 Description of the system

The LEICHTmount CF EW system includes solutions to suit a range of different requirements.

System properties

Mounting angle:	the LEICHTmount CF EW is available with a 10° mounting angle
Roof edge spacing:	Roof areas F and G can be used
Module dimensions:	950 – 1150 mm x 1500 – 2000 mm (width x length). The use of modules with deviating dimensions must be tested and approved for each project.
Module frame height:	30 – 46 mm
Max. roof pitch:	5°
Building height:	max. 25 m
Wind load:	max. 2.4 kN/m ² (design value as combined load of dead weight and wind pressure)
Snow load:	LEICHTmount CF Standard or loads up to 2.4 kN/m ² LEICHTmount CF Alpine for high loads up to 4.4 kN/m ²
Modules:	The system requires approval for use of modules up to 4.4 kN/m ² with this type of fastening (clamp on the module's short side, clamping in the center of the long module side as well as clamping at the corner areas of the long module side, if necessary).. This approval can either be given generally as part of the module certification or, as the case may be, issued by the module manufacturer on a project-specific basis.
Materials:	Aluminium structural supports EN AW 6060 T64, aluminium module mid clamps EN AW 6063 T66, stainless steel screws, galvanised steel wind shields and ballast trays.
Prerequisites:	Proof of static load capacity of the roof and the roof insulation must be provided by customer. Our general terms and conditions, warranty conditions and the user agreement apply.



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

Flat-roof coverings

The LEICHTmount CF EW can be installed on the following flat-roof coverings:
foil, bitumen, gravel, green roof extensive, concrete.

The compatibility of the roof covering and the building screen mats must be ensured. The roof covering (and possibly the insulation layer) must be able to absorb the pressure loads of the PV system. The friction coefficient of the existing roof covering is used as the basis for the ballast chart and must be determined by the customer.

If the roofing gravel lies directly on the water-bearing roof skin, the system must not be placed on the gravel layer. In this case, the gravel must be removed in the area of the supports.

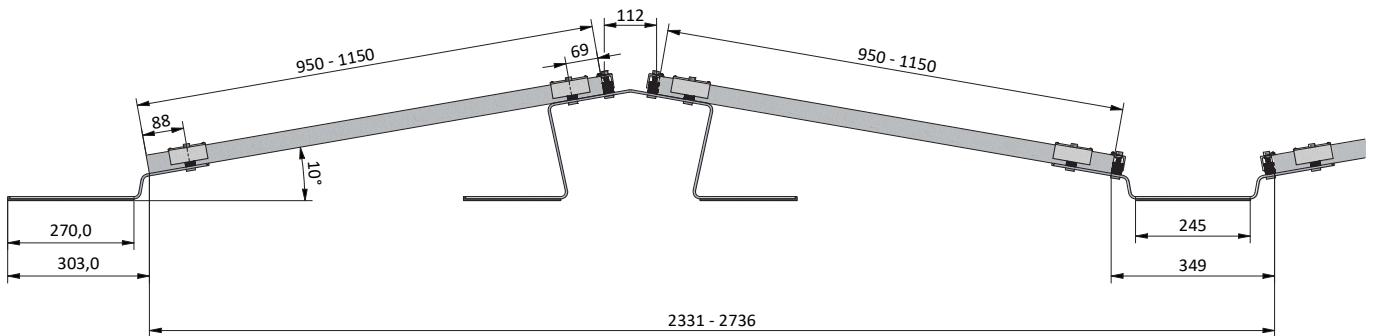


S:FLEX GmbH may provide a measuring device in order to determine the project-specific friction coefficient.

Row spacings

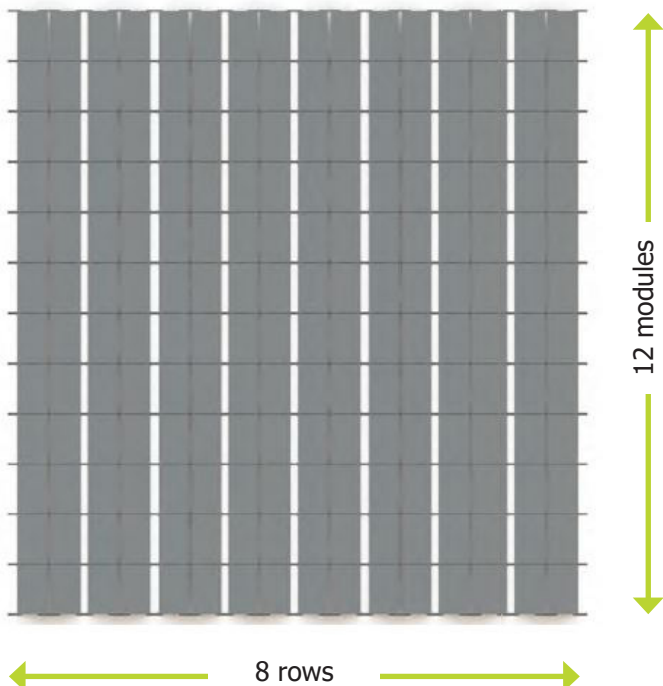
LEICHTmount CF E/W (18°): 464 mm module spacing with standard front support

EW 8° – 18° internal shading angle



Basic conditions for the module array size

The S:FLEX LEICHTmount CF EW system allows a variable module arrangement. This allows optimal utilisation of the roof area. In principle, the module layout should always be based on the module arrangement specified in the project report. The maximum size of the module array is 192 modules (12x2 modules per row and 8 rows).



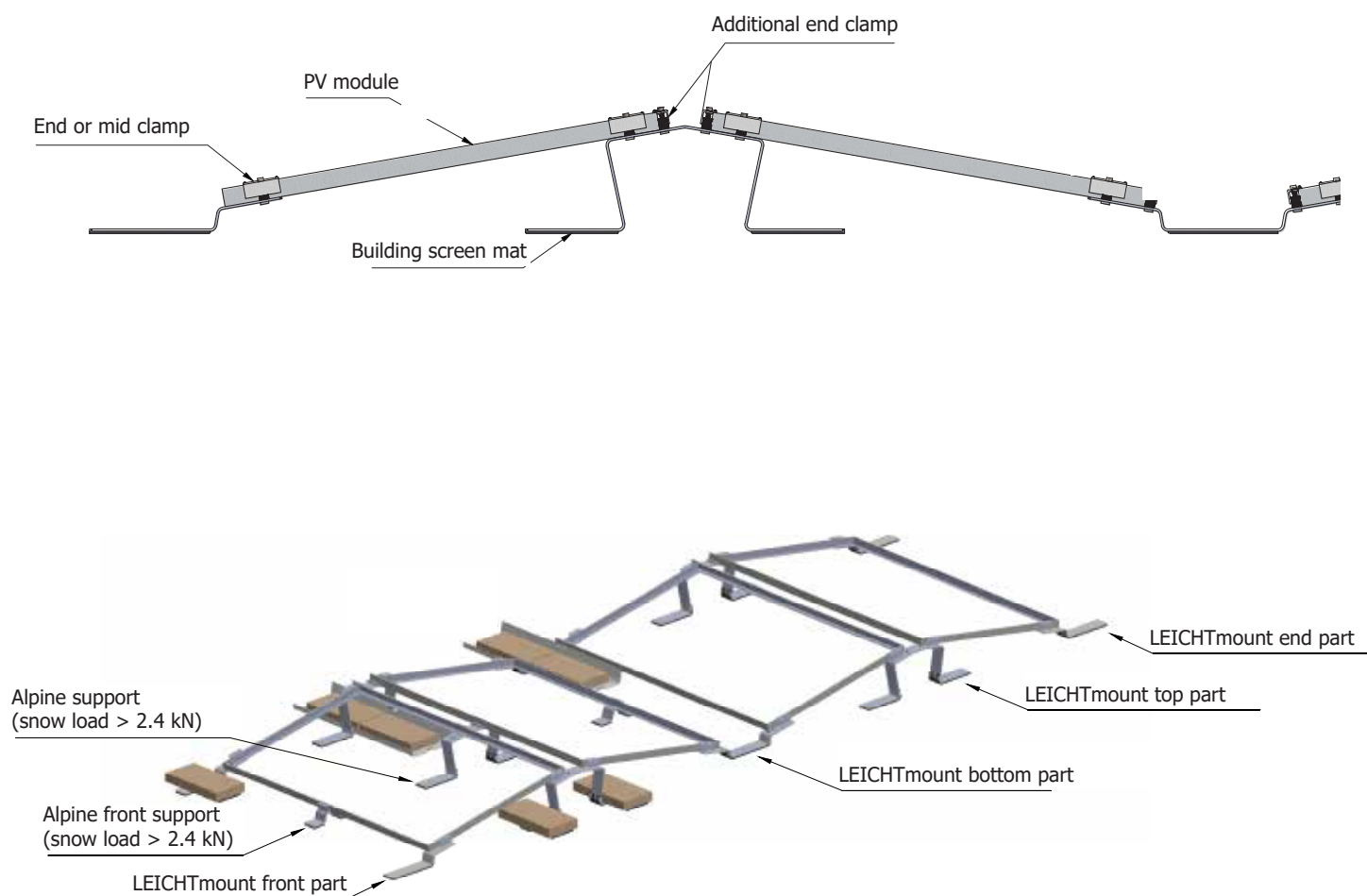
Maximum module array size: 8 rows with 12 double modules (192 modules).

System design

LEICHTmount CF EW Standard

LEICHTmount CF EW Alpine for high loads

Das Standard-System ist für gewöhnliche Wind- und Schneelasten, das Alpin System für hohe Wind- und Schneelasten ausgelegt. Alle Werte sind Design-Werte als Belastungskombination aus Eigengewicht, Winddruck und Schnee. Bei diesen Angaben handelt es sich um Orientierungswerte. Maßgeblich sind immer die Angaben aus dem Projektbericht! Prüfen Sie daher zuvor in welcher Schnee- und Windlastzone Sie das System einsetzen möchten. Das System ist windkanalgeprüft und UL-zertifiziert.



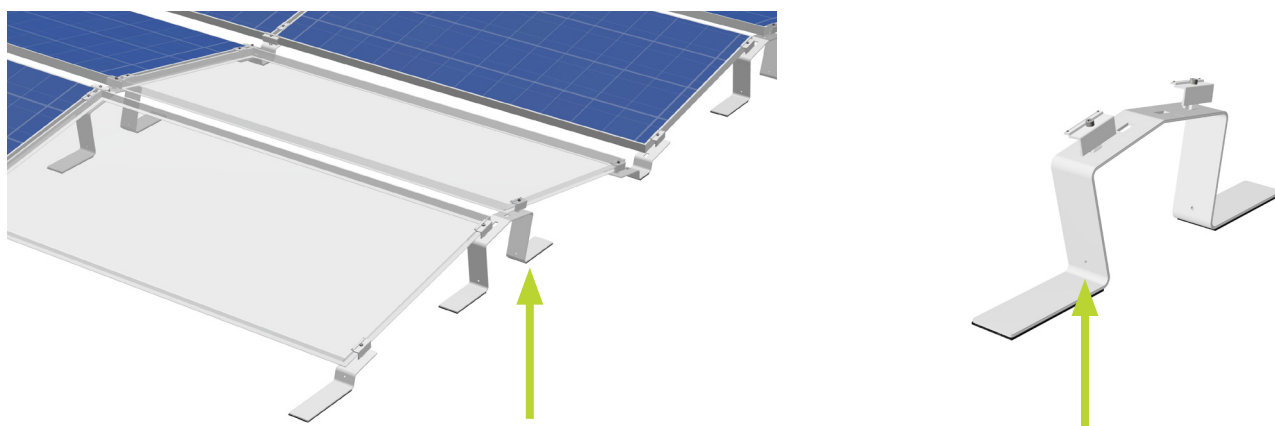
Grounding

Equipotential bonding between the individual system components must be ensured according to the respective country-specific guidelines and standards.



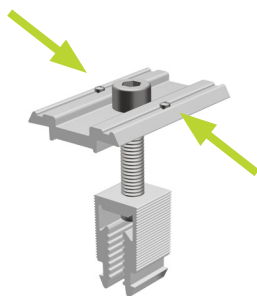
The module manufacturer's installation instructions must always be observed.

The requirements for the protection of PV mounting systems against lightning and surges must be met in accordance with the applicable regulations. The specifications of the relevant power supply company must be observed. Care must be taken that the PV system to be installed does not impair the functioning of the existing lightning protection system. It is also important to ensure that the PV system is designed so that it can be included in the protection zone of the building's lightning protection system. The separation distances between the PV system and the lightning protection system specified in the relevant regulations must be adhered to. Contact a local lightning protection specialist.



The grounding cable is attached via the round hole in the Top part.

Grounding pins



The functional capability of the earthing arrangements for the system via the module mid clamps with grounding pins, and of the system itself, was verified during UL 2703 certification.



The requirements for the protection of PV mounting systems against lightning and surges must be met in accordance with the applicable regulations. Contact a local lightning protection specialist. The prescribed separation distance between the PV system and the lightning protection system must be observed. S:FLEX GmbH assumes no liability whatsoever for damage caused by lightning strikes or earthing problems.

3.2 System components

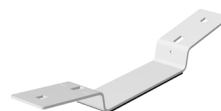
Front part



Top part



Bottom part



Ballast tray 1800/2050



Module end clamp



Module mid clamp



Groove screw M8x16



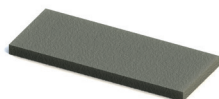
Flat washer M8x30



Cable clips



Building screen mat (PES)



Alpine front support



Overview of LEICHTmount CF EW basic and extension sets

Article no. 0010047063**Basic set 1st row
FD EW 10°/ 2**

Component	Qty
Front part	4
Top part	2
End clamp	8
Cable clips	2
Building screen mat	12

Article no. 0010047064**Basic set additional row
FD EW 10°/ 2**

Component	Qty
Top part	2
Bottom part	2
End clamp	8
Cable clips	2
Building screen mat	8

Article no. 0010047065**Extension set 1
FD EW 10°/ 2**

Component	Qty
Front part	2
Top part	1
Mid clamp	4
End clamp	2
Cable clips	2
Building screen mat	6

Article no. 0010047066**Extension set 2
FD EW 10°/ 2**

Component	Qty
Top part	1
Bottom part	1
Mid clamp	4
End clamp	4
Cable clips	2
Building screen mat	4

Article no. 0020228530**Supplementary set
Ballast tray 1800, flat roof**

Component	Qty
Ballast tray 1800	1
Groove screw	4
Flat washer	4
Building screen mat	2

Article no. 0010040141**Supplementary set
Ballast tray 2050, flat roof**

Component	Qty
Ballast tray 2050	1
Groove screw	4
Flat washer	4
Building screen mat	2

Article no. 0010047067**Supplementary set Alpine
FD EW 10°/ 2**

Component	Qty
Top part	1
Alpine front support	2
End clamp	4

3.3 Installation – frame and modules



The design and planning of the LEICHTmount system must be undertaken using the S:FLEX Planning Software. Please make sure that the position of the modules on the roof and the ballast distribution correspond exactly to the specifications in the project report. If the module distribution on the roof is changed due to local circumstances, such as interfering surfaces, the static calculation must be repeated using the S:FLEX planning software.



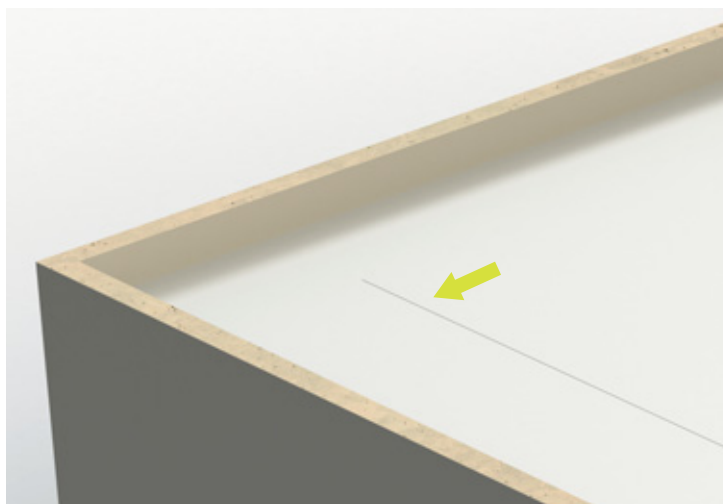
Do not leave the installation site until the wind shield and ballast for each module have been installed in accordance with the ballast chart. Without the wind shields and ballast, the stability of the module array is not guaranteed. The correct position of the ballast blocks and the building protection mats should be checked as part of the annual maintenance inspection. It is the responsibility of the installing company to check the specification and weight of the required ballast blocks.

Measure the roof surface.

Mark the initial point with a chalk line.



Measure in accordance with the project report.



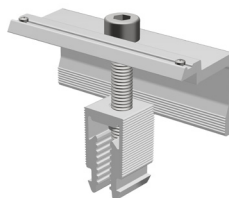
On bituminous roofs, all supports should be underlaid with an additional layer of bitumen roofing membrane to prevent possible sinking of the columns into the roofing membrane at higher temperatures.

The module clamps CF MC und EC

The clamps are connected to the mounting bracket by clicking them into the square hole provided.

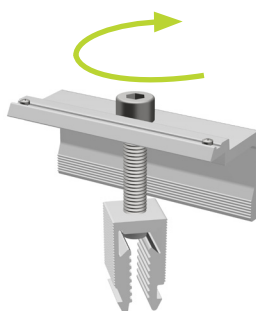
1. Clamp in sliding position

Make sure that the clamp is in the sliding position (the teeth must be visible on the side). The new clamp is able to clamp PV modules with a height of 30 - 46 mm.



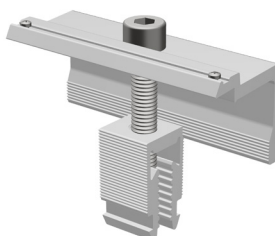
2. Turn clamp and click

To do this, it is necessary to use the grid function of the clamp by turning the upper part of the clamp 90° in the direction of the grid. It is fixed by clicking in. The elongated punching allows the clamp to be moved slightly.



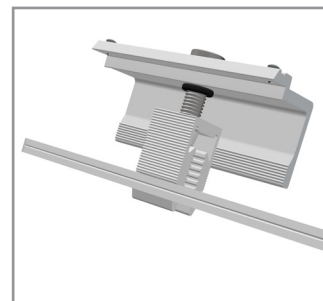
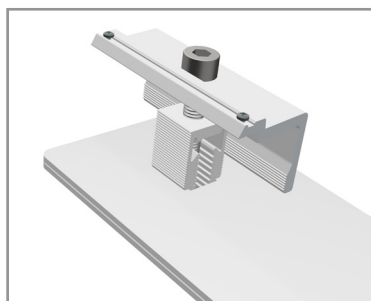
3. Clamp in grid position

With the help of the serration, the clamp can be adjusted to the thickness of the module frame.



4. Correctly applied clamp on the mounting bracket of the CF system.

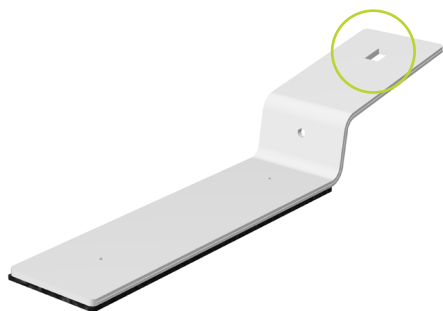
The clamp is locked in the square hole by pressing it in vertically. Make sure that the clamp is well clicked into the punched hole.



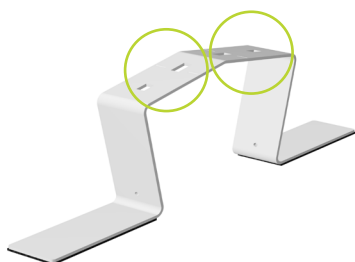
Fastening to the mounting bracket with square cut-out

The clamps are connected to the supports by simply clicking them into place. The strength of the connection comes from tightening the pre-assembled hexagon screw with the correct torque.

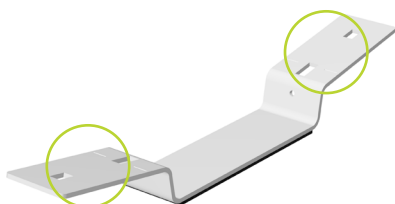
Cut-out for fixing the clamps at the front and end part.



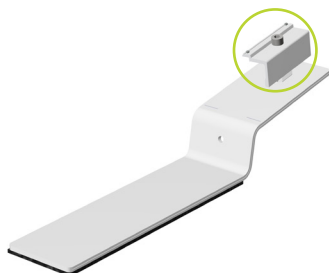
Punching for fixing the clamps at the top part.



Punching for fixing the clamps at the top of the bottom part.



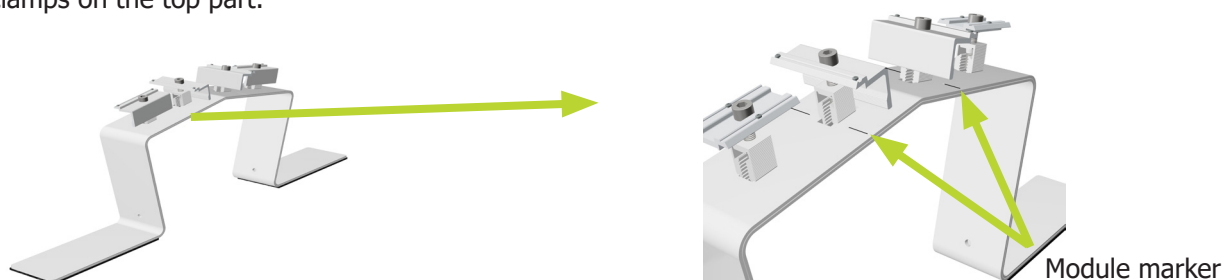
Correct pre-assembly of the end clamp on the front and end part.



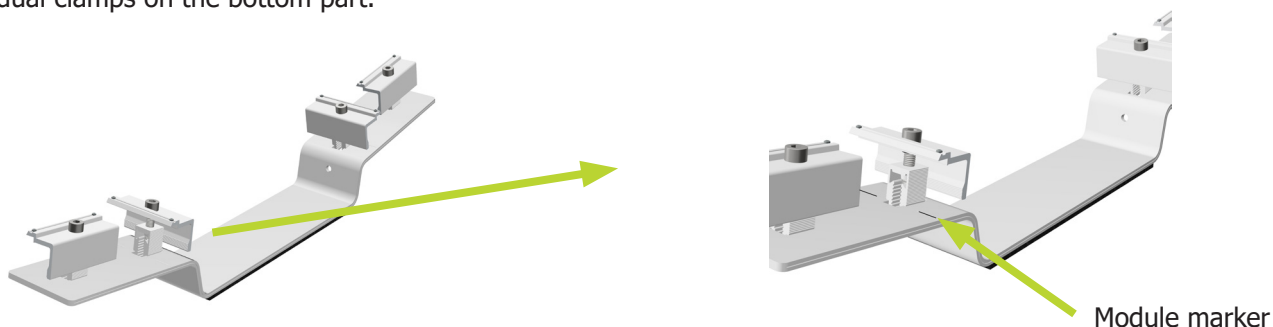
The module clamps are mounted on the short sides. At the end of each module row, one end clamp per support is mounted. In the area between two modules, one module clamp per support is mounted. In addition, one end clamp each is mounted to fix the module ends on the long side.

When placing the modules, make sure that the module edge is in contact with the module marking.

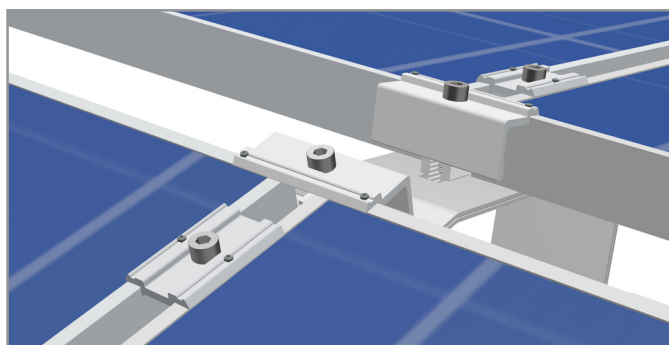
Example of the correct pre-assembly of the individual clamps on the top part.



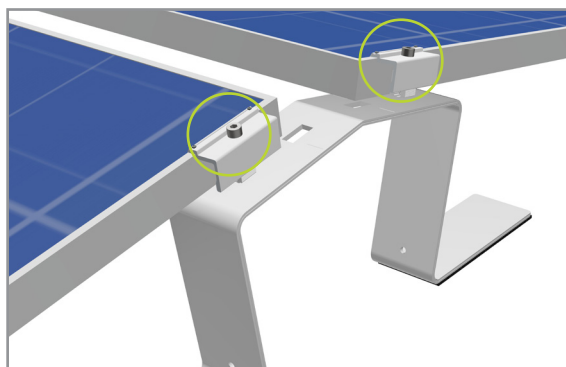
Example of the correct pre-assembly of the individual clamps on the bottom part.



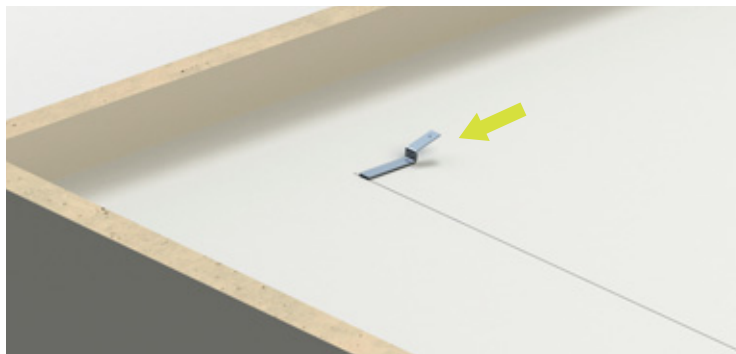
Correct assembly of the modules with CF EC and CF MC.



In the edge area of the LEICHTmount CF E/W system, no supplementary end clamps are required, only the end clamps CF EC.

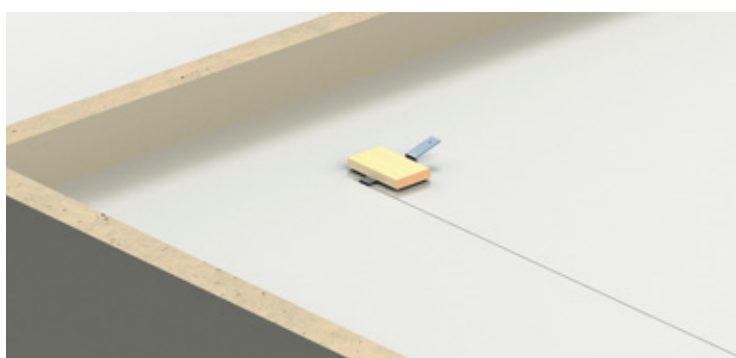


Position the front part.

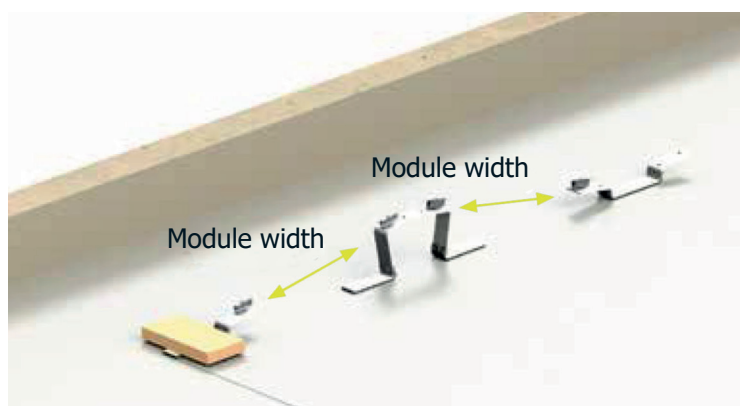


Secure the front part with a ballast block.

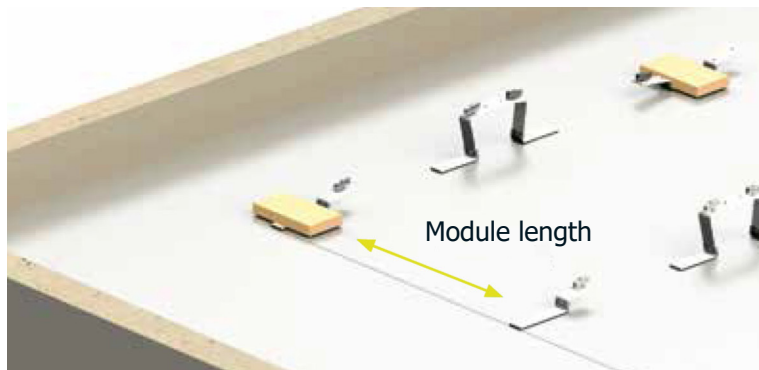
Place the ballast block on the front part and the supplied building screen mat (PES) to ensure a stable support.



Place the connector at approximately the required vertical distance (module width). The exact distance is adjusted during installation of the module.

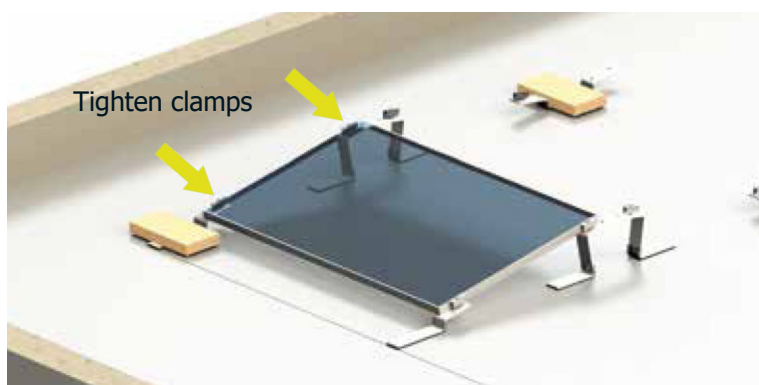


Place the front parts and connectors at approximately the required horizontal distance (module length). The exact distance is adjusted during installation of the module.



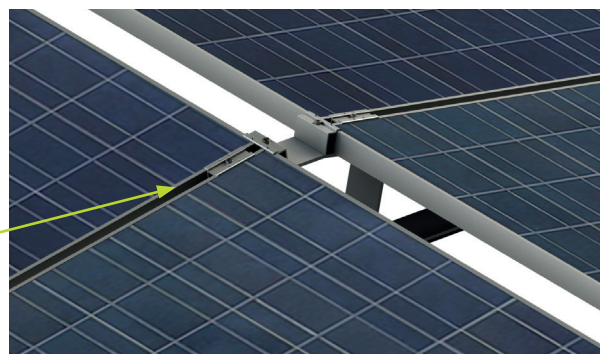
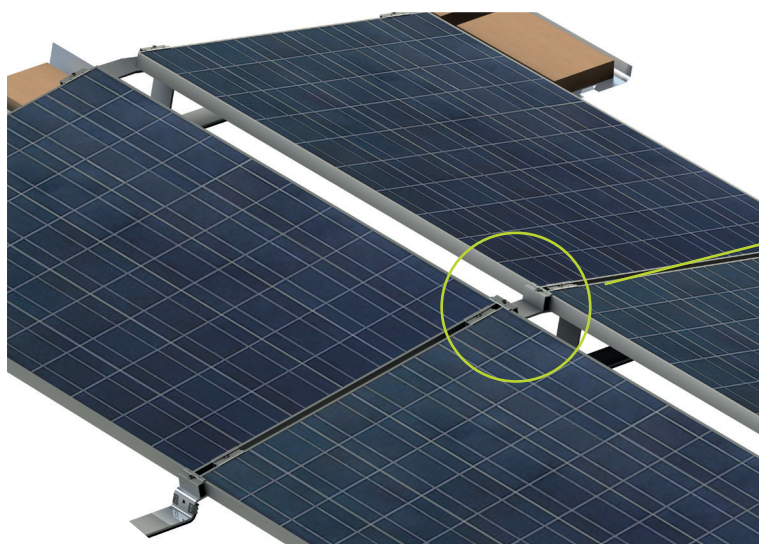
Align the front part and connector using a guideline.

Install the module on the front parts in the horizontal orientation and align the top so that it sits flush with the LEICHTmount connector or end part. Tighten the module end clamps (tightening torque 15 Nm).



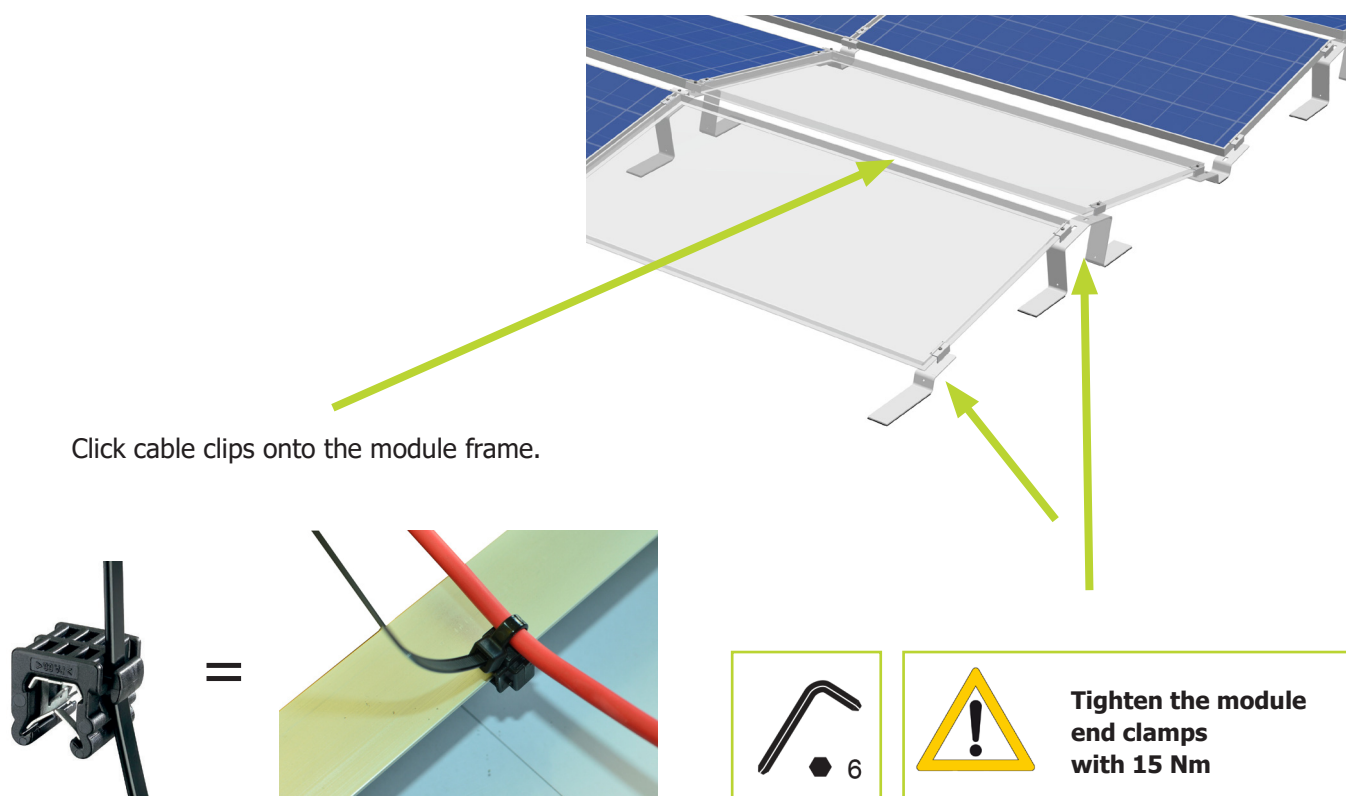
Tighten the end clamps with 15 Nm.

Now slide the next module under the module mid clamps and align it with the additional module end clamps. Then the module mid clamps and the additional module end clamps can be tightened and another module mounted. (Tightening torque 15 Nm).



Mount the module mid clamps and additional module end clamps with 15 Nm.

At the end of the row, attach a module end clamp and screw it tightly into position after aligning the last module. The clamps must be tightened with 15 Nm torque. For easier orientation of the modules, markings for the upper/lower edge of the modules have been applied to the front parts and connectors. Lay modules exactly at the markings (see page 33).



Laying the DC cable:

The string cables are fixed to the module frame with cable clips.

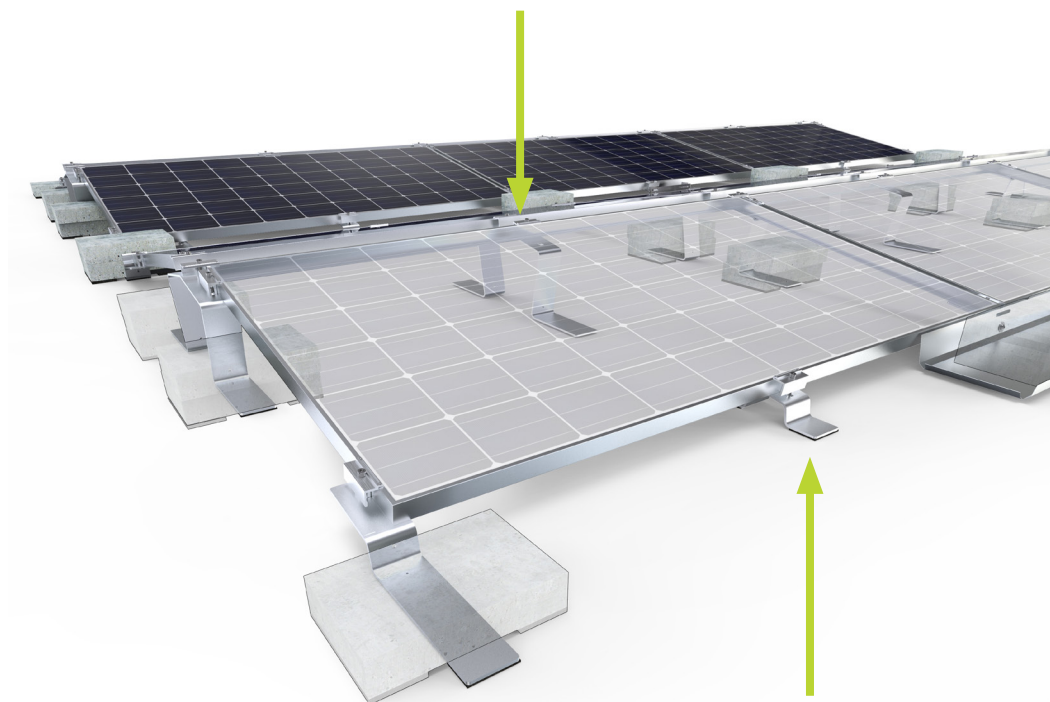
Laying on the roof:

The string cables are combined in cable management ducts. The cable ducts can be mounted on stone slabs and guided between or next to the module rows. The ducts and substructure are not included in the S:FLEX scope of delivery.

Proceed as described for the following rows.

3.4 Installation - Alpine supports

Position the top part in the centre of the module and secure it with two module end clamps.



The alpine support at the bottom is used at the beginning, at the end and in the middle of a module field. It is placed in the middle of the module by means of an end clamp and and screwed tightly.

The ballast distribution must correspond to the plan in the project report. The quantity and distribution of the ballast depend on parameters such as location, building height, building surroundings, roofing type and roof pitch.

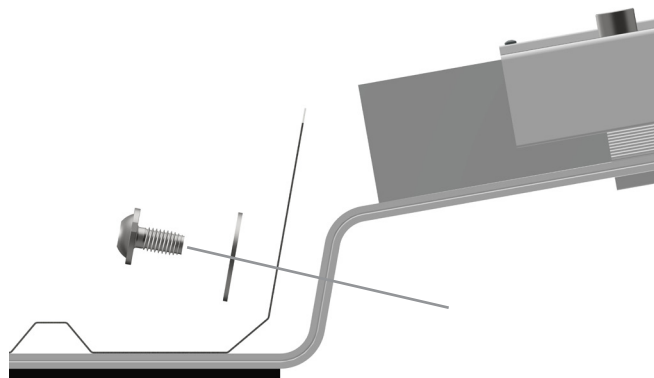
3.5 Installation – ballast trays

The ballast trays must be used as soon as the specified ballast weight per support is exceeded. The length of the ballast tray depends on the length of the module. The ballast trays are also used if the point load is too high for the roof skin. This ensures that the weight is spread over a larger supporting surface.

With the LEICHTmount CF system, no nuts are required for the screws. Due to the use of self-tapping screws for holes at the exact mounting position, the attachment of the ballast tray to the initial support and the double support at the top is possible by only screwing in the screw.



**Groove screw mit
15 Nm montieren.**



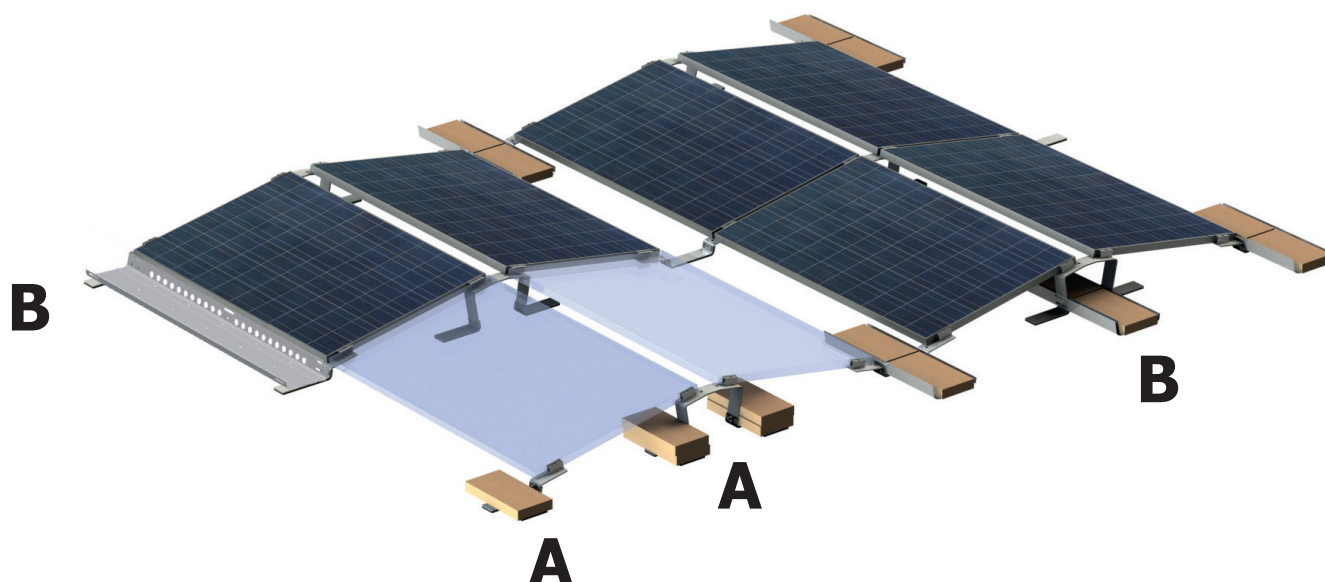
3.6 Installation – ballast

Place all required ballast blocks on the front parts, connectors, end parts and ballast trays in accordance with the structural calculation in the project report. Always attach building screen mats (PES) on the left and right side underneath the ballast blocks and trays.

The following structural protection mats (PES) are provided for the ballast trays:

- for ballast tray 1800: 3 structural protection mats
- for ballast tray 2050: 4 structural protection mats

The maximum width of a ballast block for the system is 200 mm. The blocks used must be able to withstand the local weather conditions and have a compressive strength of at least 21 N/mm².



Variant A: Standard ballast without tray; ballast lies directly on the front part and connectors.

Variant B: Ballast tray 1800 / 2050, mounted on two front parts or connectors



The position of the ballasting must always be carried out in strict adherence to the planning documents. A different distribution or omission of ballast elements endangers the stability of the entire plant and represents an enormous risk. Do not leave the installation site until the ballast for each module has been installed in accordance with the ballast chart. Without the ballast, the stability of the module array is not guaranteed. The correct position of the ballast blocks and the building screen mats (PES) should be checked as part of the annual maintenance inspection. It is the responsibility of the installing company to check the specification and weight of the required ballast blocks.

4.1 Disassembly

Disassembly of the S:FLEX mounting system may only be carried out by appropriately trained specialists. The same safety instructions, standards and guidelines as for installation must be observed. The disassembly always mirrors the steps described for the installation, except in reverse order.



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



Then remove the modules and store them safely. Improper disassembly may result in damage to the modules.



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

4.2 Disposal

The S:FLEX mounting system consists of aluminium, stainless steel and steel components. These can be recycled after disassembly. Disposal of the frame system must be performed by a specialist waste management company. Observe the applicable national standards and guidelines.

5.1 User agreement for the LEICHTmount CF

We wish to point out that the mounting system is sold under a purchase agreement.

Installing/processing the system or its acquisition by third parties does not take place on account of, or on behalf of, S:FLEX GmbH. Installation of the system must be carried out by appropriately qualified personnel in strict adherence to the installation instructions.

The design and planning of the system must be carried out using the S:FLEX software (Solar.Pro.Tool). S:FLEX GmbH is not responsible for the project-related structural analysis of the roof structure, nor for obtaining and documenting the consent of the roof manufacturer for use of the respective fasteners on the roof in question (in the context of warranties), nor for the professional execution of the installation.

S:FLEX GmbH accepts no liability for faults and damage and/or a restricted or limited operational capability of the system resulting from defective installation and/or installation which was not undertaken in accordance with the installation instructions and/or the project report (Solar.Pro.Tool). In the case of improper installation of the system, the buyer's right to assert claims for material defects shall expire.

The system warranty is only valid if all system components are purchased from S:FLEX GmbH.

The system requires that modules may also be used in this installation layout (clamp on the short module side). This approval is available either generally as part of the module certification or, in some cases, project-specific from the module manufacturer.

5.2 Warranty / disclaimer

The instructions for dimensioning contained in this manual are merely suggestions based on prior experience. Binding static loading requirements for the mounting frame can be compiled using the S:FLEX planning software.

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

As an installation company, you are responsible for ensuring the mechanical durability of the installed interface connections to the building envelope, and in particular for their leak-tightness. The components supplied by S:FLEX GmbH are designed in accordance with the expected loads and the current technological state of the art. In this context, you must provide the company S:FLEX GmbH with information about all general technical conditions in writing via the project data collection sheet (information about the supporting structure, snow load zone, building heights, wind loads, etc.).

The company S:FLEX GmbH shall not be liable for improper handling of the installed parts. Use of the system near the sea must be clarified directly with S:FLEX GmbH on a case-by-case basis due to the increased risk of corrosion. Provided that the system is handled properly and dimensioned according to the structural conditions and normal environmental and ambient conditions, the company S:FLEX GmbH provides a warranty from the time of the transfer of risk to the warranty holder, which guarantees that the metallic components of the racks will remain free from defects with regard to material and workmanship for a period of 10 years. This warranty does not apply to wear parts. Further information can be found in the separate warranty conditions.

This applies in the context of the generally prevailing weather and environmental conditions.

