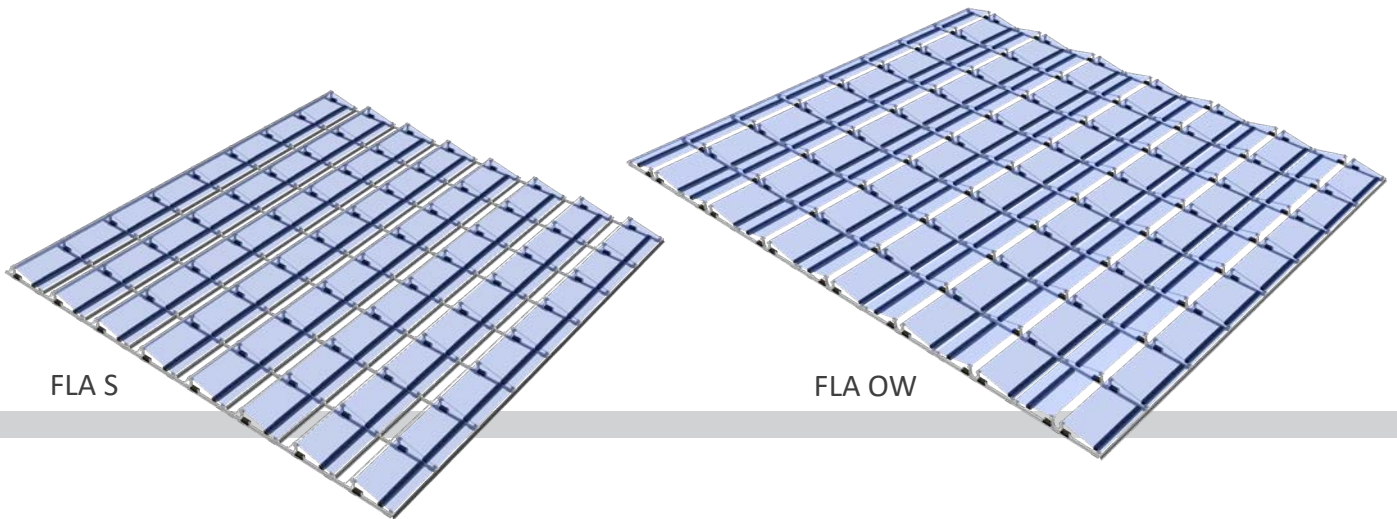




SL RACK FLAT ROOF SYSTEM



Product

SL Rack Flat roof system

Type

SL Rack Flat roof system FLA S

SL Rack Flat roof system FLA E/W

Serial number

Date of manufacture

from _____ to _____

Project name

Project number

Manufacturer & address

SL Rack GmbH

Münchener Straße 1

D-83527 Haag i. OB

Phone: [+49 80723767-0](tel:+49807237670)

www.sl-rack.com | info@sl-rack.com

1.	IMPORTANT BASIC INFORMATION	4
1.1.	Important Safety Instructions.....	4
1.2.	Responsibilities of the manufacturer.....	4
1.3.	Responsibilities of the operator.....	4
1.4.	Training of assembly and installation personnel.....	5
1.5.	Obligation of the operator.....	5
2.	SAFETY AND SECURITY	6
2.1.	Used characters and highlighting.....	6
2.2.	Used mandatory signs	7
2.3.	Safety and security guidelines.....	7
2.4.	Ensure authorised persons.....	7
2.5.	Wear personal protective equipment	9
2.6.	Securing the working environment.....	10
2.7.	Safemounting.....	10
2.8.	General instructions for intended usage.....	11
2.9.	Inappropriate usage.....	11
3.	SAFETY NOTES	13
3.1.	Convention for safety notes.....	13
3.2.	Behavior in case of emergency.....	14
4.	WARRANTY & LIABILITY	15
5.	REQUIREMENTS FOR PROJECT PLANNING AND ASSEMBLY	16
5.1.	Necessary information for project engineering.....	16
6.	PLANNING	18
7.	SCOPE OF DELIVERY	19
7.1.	Module supporting parts.....	19
7.2.	Connection components.....	20
7.3.	Windbreak / Ballasting.....	20
7.4.	Connection means.....	20
7.5.	Assembly instruction.....	20
8.	TOOLS REQUIRED FOR ASSEMBLY	21
8.1.	Measuring the bottom rails.....	21
8.2.	Rack mounting.....	21
8.3.	Module mounting.....	21

9.	TRANSPORTATION, LOADING & UNLOADING	22
10.	PREPARING FOR MOUNTING	24
10.1.	Preparing for mounting.....	24
10.2.	Observe required tolerances.....	24
11.	MOUNTING BOTTOM RAILS, FLA HOLDER	25
11.1.	Keep single components ready.....	25
11.2.	Observe planning requirements.....	25
11.3.	Previews and illustrations for orientation.....	26
11.4.	Execution assembly / mounting plan.....	27
11.5.	Attach wind deflector plates (on flat roof system FLA S).....	28
12.	SYSTEM GROUNDING	29
12.1.	Reasons for the necessary protective grounding.....	29
12.2.	Include modules in the equipotential bonding.....	29
13.	MOUNTING OF PHOTOVOLTAIC MODULES	30
14.	INSTALLATION	32
14.1.	Connecting the switch box.....	32
15.	MAINTENANCE MANUAL FLAT ROOF	33
15.1.	Visual control.....	33
15.2.	Mechanical control.....	33
15.2.1.	Control points - Module supporting parts.....	34
15.2.2.	Position and condition control of the building protection plate and of the ballasts....	34
15.2.3.	Control points wind deflector plates (for flat roof system FLA S).....	35
15.2.4.	Control points bottom rail connectors.....	35
	Test Protocol.....	36
16.	DISMANTLE & DISPOSE	37
16.1.	Taking out of service.....	37
17.	ADDITIONAL DOCUMENTS	39
17.	Additional documents (for project planning).....	39
17.1.	Bottom rail plan.....	39
17.2.	Drawings and layouts.....	39

1.1. Important Safety Instructions

Only use the system for the purpose described in this manual. Otherwise, you will endanger yourself or damage parts of the system.

You put yourself and others in danger if you install the system incorrectly or do not observe the safety or warning instructions. Serious injuries or considerable damage to property can result.

1.2. Responsibilities of the manufacturer

The manufacturer has a public law responsibility under the German Device and Product Safety Act (GPSG) to bring only safe systems onto the market. Market control is carried out by the state trade supervisory authorities of the federal states. If the equipment does not comply with the regulations when it is placed on the market, the trade supervisory authorities have the right to make complaints.

The CE marking is a prerequisite for the first placing on the market (or commissioning) of products for which a CE marking is required in accordance with the following EU directives, namely in all participating states of the European Economic Area (EEA).

The EEA comprises the EU member states and the EFTA states with the exception of Switzerland. This means that CE marking is not required when placing products on the Swiss market.

There are many special conformity labels, but the CE label is accepted according to the EU directives.

1.3. Responsibilities of the operator

The focus of responsibility and liability in occupational safety lies with the operator.

Since the operator's responsibility for health and safety is part of his overall corporate responsibility, most occupational health and safety regulations are also directed at him.

The operator has to ensure that

- all parts of the operating manual are always kept at the plant ready to hand.

The operator is obligated to allow only persons to work on the system who

- have read and understood all parts of the operating instructions relevant for the respective activity,
- are familiar with the basic regulations on occupational safety, accident prevention and environmental protection and
- have been instructed in the safe handling of the system (instruction).

1.4. Training of assembly and installation personnel

The system is only permitted to be assembled and installed by trained and instructed personnel.

Electrical equipment parts of the system may only be opened by a trained electrician.

- Assembly and installation work may only be carried out by **qualified personnel trained** for the respective task.
- These persons must, on the basis of their training and work experience, be demonstrably able to recognise the hazards and risks which arise or may arise from the activity in question.
- The responsibilities of the staff must always be clearly defined before any activity.
- Personnel to be trained may only work on the system under the supervision of an experienced person.






1.5. Obligation of the operator

Every operator is obliged to read and observe the relevant part of the instructions for the respective activity, in particular the safety instructions and warnings.






This chapter contains information for safe use of the system described in this document.

2.1. Used characters and highlighting

Residual hazards which emanate from the system and cannot be eliminated by design are pointed out in the description of the respective system component. The following notes are used for this purpose:

	Warning! Non-observance of the instructions can cause personal injury .
	Warning! Non-observance of the instructions can cause damage to the system .
	Dangerous electrical voltage! Potentially dangerous situation due to high electrical voltages.
	Warning of obstacles and tripping hazards on the ground
	This sign is placed in front of notes and useful information.

2.2. Used mandatory signs

	Wear high-visibility clothing
	Wear safety shoes
	Wear protective gloves
	Wear a safety helmet
	Use a safety / catching belt

2.3. Safety and security guidelines

The safety guidelines on which this is based regulate the authorization for the usage of the system and the resulting responsibility of the respective users.

2.4. Ensure authorised persons



 **WARNING**

Not sufficiently qualified personnel can cause personal injury and damage to property.

The descriptions and instructions contained in this document assume the knowledge of an instructed specialist.

Only work on or with the system if you

- have received instruction in safe operation, and
- have read and understood the contents of the operating instructions.
- Otherwise you will endanger yourself and others.
- Always comply with the relevant accident prevention and environmental protection regulations.

Never work on or with the system,

- if you're under the influence of alcohol
- Drugs or
- Medication.

Only assemble and install the system,

- if you are a **qualified personnel trained** for the job in question. Descriptions and instructions for maintenance, servicing and repair work require the technical knowledge of a trained specialist.
- Also observe the relevant accident prevention and environmental protection regulations.



DANGER

Danger from electric current

The system works with high voltage.

- **Never** open switch cabinets and terminal boxes of the electrical equipment if you are **not a trained electrician**.
- **Always** have a **trained electrician** check that no voltage is present before working on or near parts of the electrical equipment

Never work on or with the system,

- if you're under the influence of alcohol
- Drugs or
- Medication.

The solar modules of the system generate electricity through solar radiation.

With a large number of switched solar modules, the risk of sparking between the individual modules increases.

- Check the condition of the system's electrical equipment **daily**.
- **Never** work on or with the system if you discover any damage.
- In such a case, inform your supervisor and the maintenance personnel immediately.

2.5. Wear personal protective equipment



 **WARNING**

Warning of moving, heavy and sharp-edged parts

- Always wear a safety helmet and safety shoes when working on or with the system.
- In addition, wear your personal protective equipment as specified in your factory regulations for the respective activity.
- Observe your work instructions for this.



Warning of dusts and substances hazardous to health

- In addition, wear protective gloves, safety goggles and a breathing mask when
- carrying out grinding and cleaning work
- and also observe the safety data sheets of the substances used.



Warning of unsightly workplaces

- Wear a high-visibility vest as soon as you enter areas of the site.



2.6. Securing the working environment



 **WARNING**

Warning regarding the usage of foreign machines, tools and aids

- Also observe the operating instructions of the machines, tools, auxiliary and lifting equipment required for assembly, repair and maintenance.



Warning of tripping hazards

- Secured parts such as floor rails, building protection plates or ballast on traffic and running routes mean an increased risk of accidents for all persons present.

2.7. Safe mounting




 **WARNING**

Warning of unauthorised changes

- **Never** modify system components without obtaining a written clearance certificate from the manufacturer
- Only use original SL rack spare parts or accessories expressly approved by the manufacturer.


2.8. General instructions for intended usage

	<p>Warning! Improper use of the system is prohibited and can lead to serious physical injury or death if not observed.</p>
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The intended use of the system is generally subject to the following guidelines:

- The system may only be used and applied within the scope of the intended use- according to the technical specifications. Any other or further use is considered improper.
- The system may only be used under the installation, connection and operating conditions specified in these operating instructions.
- The faultless and safe operation of the system requires proper storage, proper transport, correct setup and assembly or installation and commissioning. Furthermore, careful operation, maintenance and service by sufficiently qualified personnel is a prerequisite for this.
- In addition, the operating instructions of any connected systems must be observed with regard to interfaces and signal sequences.

2.9. Inappropriate usage

	<p>Warning! Improper use of the system is prohibited and can lead to serious physical injury or death if not observed.</p>
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SL Rack GmbH does not accept any liability for any damage or injury of any kind that may occur in the event of improper usage and does not guarantee that the components will work and function properly.

Inappropriate use of the system includes, **for example**:

- The use of the system for purposes other than those specified in the intended use.
- The transport, installation and supply (electric and/or pneumatic/hydraulic), as well as the interface connection, if this was carried out under installation, connection and operating conditions other than those defined in these operating instructions.
- The electrical/pneumatic/hydraulic connection of individual modules that are separate from the system. Only the complete system may be connected and operated.
- The use of unauthorised spare parts, unauthorised accessories and additional modules.

2. SAFETY AND SECURITY

- Operating the system and carrying out service and maintenance work by unqualified personnel.
- Der Zugriff von code- und/oder passwortgeschützten Funktionen der Anlage durch hierfür nicht autorisiertes Personal.
- Opening service doors (e.g. switch cabinet) and/or removing protective covers by unauthorized persons.
- The operation of the system with manipulated or removed safety devices.
- Non-observance of the instructions in this operating manual.

3.1. Convention for safety notes

The system was designed and built under consideration of a hazard analysis and after careful selection of the harmonized standards to be observed, as well as other technical specifications. It therefore corresponds to the state of the art and guarantees a maximum of safety.



However, this safety can only be achieved in operational practice if all necessary measures are taken. It is the operator's duty of care to plan these measures and to control their implementation.

The operator must ensure in particular that

- the installation is only used for its intended purpose
- the system is only operated in a faultless, fully functional condition and especially the safety devices are regularly checked for proper functioning
- the necessary personal protective equipment for operating, maintenance and repair personnel is available and used
- the operating manual must always be available in a readable condition and complete at the place of operation at the site
- only sufficiently qualified and authorised personnel will operate, maintain and repair the system
- this personnel is regularly instructed in all applicable questions of occupational safety and environmental protection and is familiar with the operating instructions and in particular the safety instructions contained therein
- all safety and warning notices attached to the system are not removed and remain legible.

3.2. Behavior in case of emergency

It is necessary to make a difference here whether it is an emergency in the plant area from which hazards to personnel present e.g. pulling in, capturing, splashing out or electrical hazards or whether it is a case of fire.

In any case:

- Switch off the system via the emergency stop button
- Bring or rescue personnel and yourself to safety
- give first aid
- e.g. report fire ect.



4. WARRANTY & LIABILITY

In principle, the responsibility for the proper assembly and installation of the flat roof system lies with the installation company.

Exclusions

Warranty, guarantee and liability claims for personal injury and property damage against the manufacturer SL Rack GmbH are excluded if they are due to one or more of the following causes:

- Non-observance of the assembly and installation instructions or the operating and maintenance instructions
- Improper use of the flat roof system
- Improper installation, commissioning, maintenance or repair
- Operation with defective spare parts or equipment or with spare parts or equipment not approved by the manufacturer
- Unauthorized structural changes or manipulation of the flat roof system
- Use of foreign components
- Neglect of the duty of supervision
- Neglect or non-compliance with the specified maintenance and/or testing and inspection intervals

Damages and consequential damages which are due to or result from one or more of the above mentioned causes are to be borne exclusively by the customer.

The assembly and installation instructions as well as the operating and maintenance instructions refer exclusively to the mechanical metal construction supplied by SL Rack GmbH.

Components of the photovoltaic system itself, such as modules, cable and plug connectors, inverters or electrical control boxes are not included in these instructions and are therefore free of warranty and liability by SL Rack GmbH.

Material damage to objects which are not part of the scope of delivery is generally excluded from any liability.

FOR PROJECT PLANNING AND ASSEMBLY

The flat roof system is individually planned for the respective location and for the respective building on which it is to be installed.

In order to be able to apply the additional loads from the PV system to a roof, the load-bearing capacity of the roof and the insulation must be ensured by means of a static expert opinion prior to the installation planning of the photovoltaic system.

5.1. Necessary information for project engineering

5.1.1. Local conditions:

- Proof of the load capacity of the roof
- Information on typical weather & environmental conditions (wind, rain, snow, seismic activity, etc.)
- The route to the construction site must be passable at all times with suitable means of transport (e.g. truck, telescopic handler, etc.) (assembly, maintenance, repair)
- Determine roof inclinations
- Check the building before planning
- Determine obstacles such as domelights, chimneys, possible façade cleaning systems or other disturbing factors in advance
- Obtain documentation on the roof statics, insulation, lightning protection and drainage system

5.1.2. Ecological conditions:

- When planning your project, also indicate whether extreme ecological conditions are to be expected:
- Temperatures of -20°C or over 45°C
- Strong temperature fluctuations
- Air humidity of less than 10% or higher than 90%.
- Harmful or flammable gases
- Air conditions with excessive dust, salt or metal particles
- Shocks or vibrations
- Locations with expected shading
- Sites with chemical or oil contaminated environment

5. REQUIREMENTS

FOR PROJECT PLANNING AND ASSEMBLY

- Please inform the project engineering whether the following special ambient conditions are to be expected. If this is the case, electrical and electronic components may need special protection.
- Environments with static electricity
- Environments with strong magnetic fields
- Environment with possible radioactivity
- Near power cables

The flat roof system has been developed for mounting on almost any flat roof.

The maximum roof pitch should not exceed 5°.

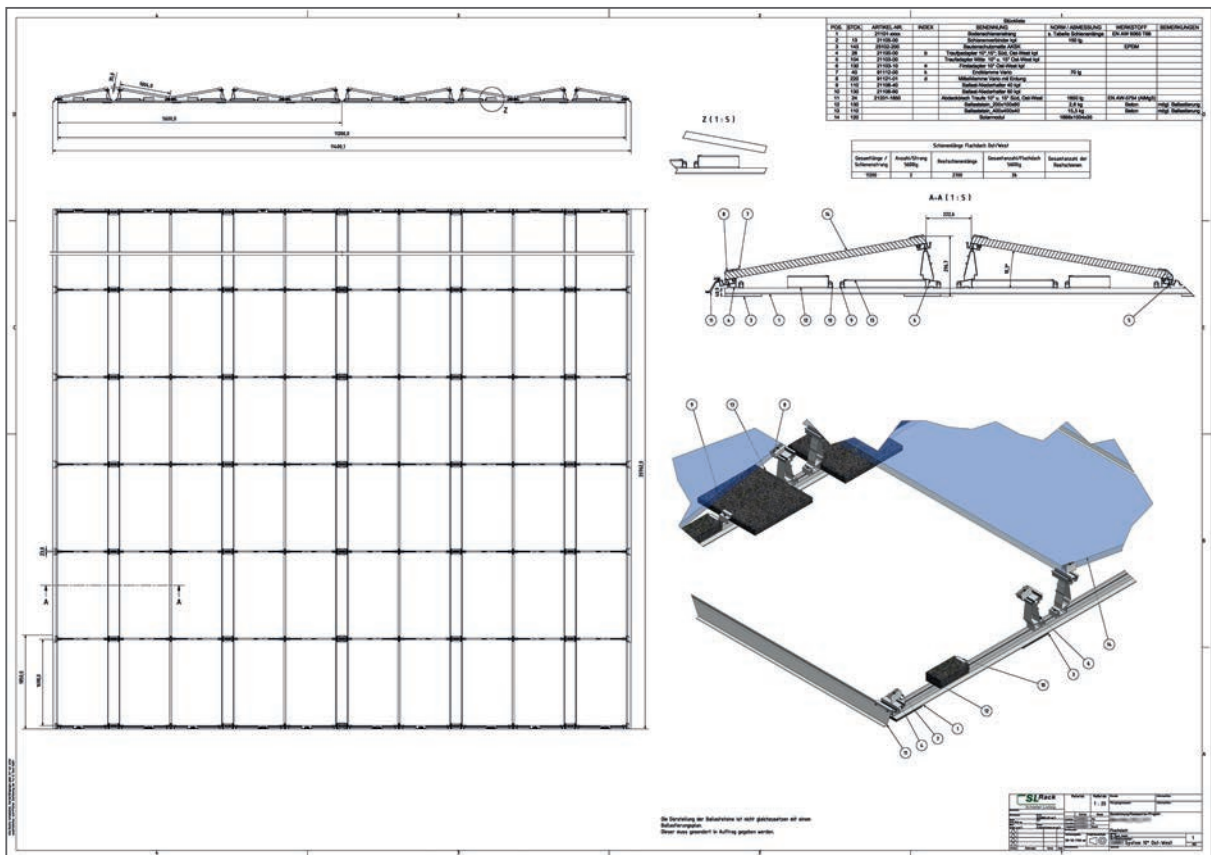
In the case of higher roof pitches, it must be checked in each individual case whether local anchoring or reinforced ballast is required on site. However, this must also be taken into account beforehand in the planning.

6. PLANNING

With the configurator program Solar.Pro.Tool., SL Rack GmbH provides its customers a tool that enables the complete planning of flat and pitched roof systems. Here, customers become a parts list of each system, are able to create an overview drawing and receive output even before ordering and shipping.

Optionally, for an additional charge, customers can receive an overview drawing (see illustration below), customized for the project in question. This shows the components and the corresponding dimensions.

All components are shown in different views. Thus all items can be assigned with quantity and article numbers on the delivery note.



Example: SL Rack Flat roof system FLA E/W

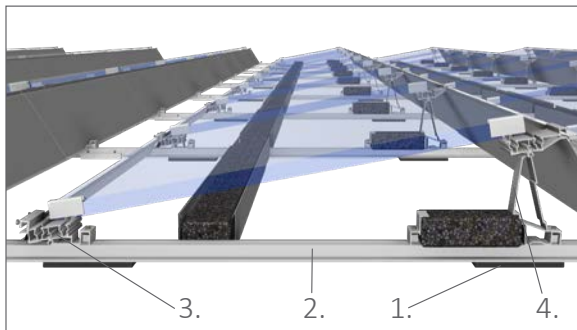
7. SCOPE OF DELIVERY

A flat roof system is assembled on the construction site out of various components. Depending on the design, a module row consists of the following subassemblies in the delivery condition:

Module supporting parts	Connection components	Connection means	Windbreak / ballast
<ul style="list-style-type: none"> ▪ Building protection mat ▪ Bottom rail ▪ FLA holder bottom 10/15° ▪ FLA holder top 10/15° + Wind deflector plate holder 	<ul style="list-style-type: none"> ▪ Module clamps ▪ Rail connectors ▪ Sheet metal clamp 	<ul style="list-style-type: none"> ▪ ISO 14580 screw 	<ul style="list-style-type: none"> ▪ Cover plate Eaves ▪ Back panel metal sheet ▪ Ballast hold down clamp

- Check all parts supplied.
- Report wrong deliveries and/or damaged parts immediately to SL Rack GmbH.

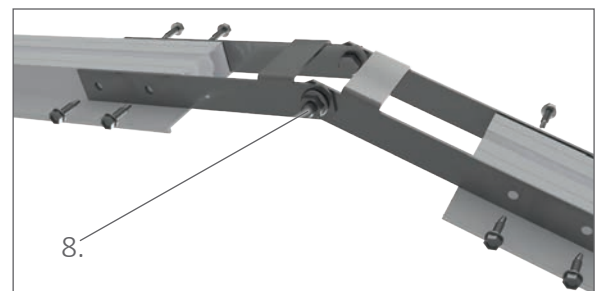
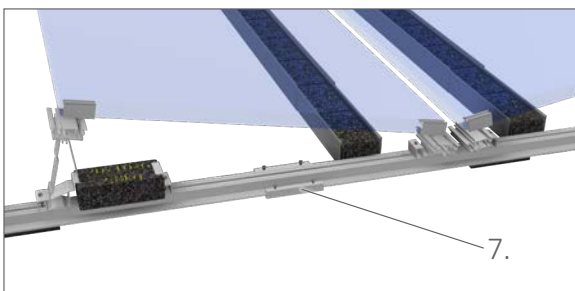
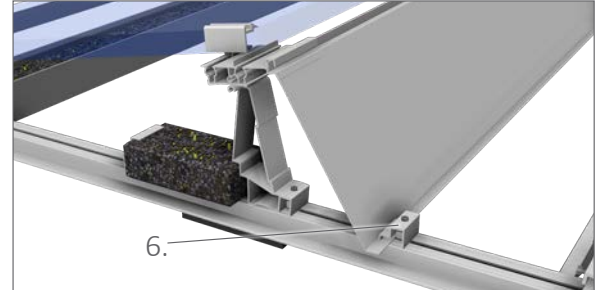
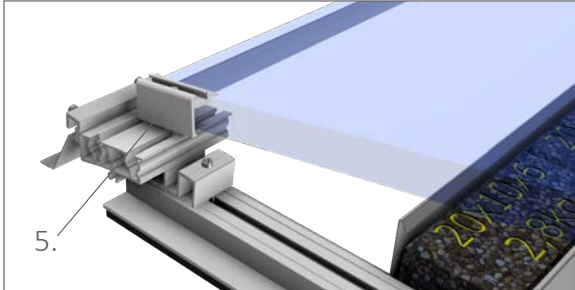
7.1. Module supporting parts



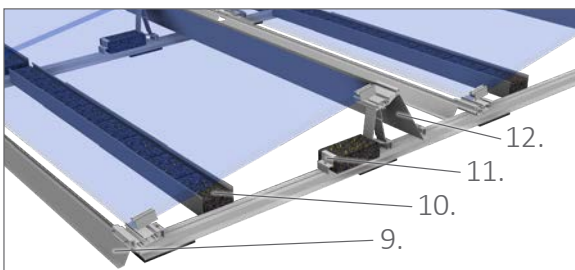
1. Building protection mat
2. Bottom rail
3. FLA holder bottom
4. FLA holder top + Wind deflector plate holder

7. SCOPE OF DELIVERY

7.2. Connection components



7.3. Windbreak / Ballasting



- 5. Module clamp
- 6. Wind deflector plate holder
- 7. Rail connector
- 8. Ridge connector
- 9. Wind deflector plate bottom
- 10. Ballast basket
- 11. Ballast clamp
- 12. Wind deflector plate top

7.4. Connection means

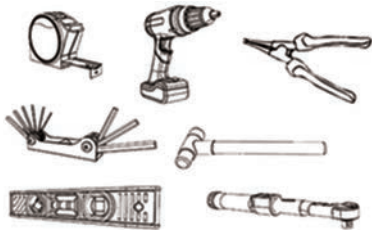


- 13. Screw ISO 14580 (preassembled)

7.5. Assembly instruction

The construction of the flat roof system is carried out on ground rails running vertically to the roof pitch, which in turn are supported on EPDM panels. The solar modules rest on the eave and ridge adapters and are fastened with module clamps. Depending on the system (south or east/west) or the ballasting requirements, the corresponding bulkhead plates are also installed.

8. TOOLS REQUIRED FOR ASSEMBLY



Sketch: Tools

Below is a list of the tools that are normally required for mounting the flat roof system.

8.1. Measuring the bottom rails

- Measuring tape (100 m)
- Mason's cord
- Ballast stones for fixing the mason's cord (approx. 10 pieces)
- Water resistant colored pencil

8.2. Rack mounting

- Schrauberbit 40 TX
- Digital torque wrench (< 4-12 Nm)
- 40 TX bit for torque wrench
- Protractor spirit level
- Measuring tape
- Mason's cord
- Cordless screwdriver

8.3. Module mounting

- Mason's cord
- Measuring tape
- Possibly spacer for distance between modules
- Cordless screwdriver
- Screwdriver bit 40 TX
- Digital torque wrench (< 4-12 Nm)
- 40 TX bit for torque wrench



WARNING

Warning of falling, heavy parts in case of handling errors

- Always wear safety shoes, a safety helmet, safety goggles, protective gloves and a safety vest when unloading parts of the frame components.
- In addition, wear your personal protective equipment as specified in your factory regulations for the respective activity.
- Please observe your work instructions.
- Never step under lifted loads.
- Ensure that no unauthorised persons can enter the danger areas.



Observe applicable documents

Important information, instructions and safety instructions for transport and loading are project-specific and cannot be reproduced in full in this manual.

- Please note the project-specific information on structural analysis and ballasting requirements enclosed in the project report from the Solar.Pro.Tool.
- Check all delivered parts.
- Report incorrect deliveries and/or damaged parts immediately to SL Rack GmbH.

Delivery of the components

The delivery of the parts/components for the flat roof system takes place with

- Truck or with
- Overseas containers 20' or 40'

Prepare arrival of delivery

- Create a firm and drivable surface for the delivery.
- Make sure that all
 - Access roads
 - shunting areas and
 - Unloading areas

can be driven over by trucks and used by forklift trucks and lifting equipment.

Have forklift trucks and lifting equipment ready

- Organise suitable forklifts and lifting equipment for the time of delivery.
- Make the selection of suitable forklift trucks and lifting equipment with the responsible site management.
- Ensure that the components, pallets and long goods can be unloaded properly.
- Organise forklifts and lifting equipment with different fork spacing or with adjustable forks.
- Note that components, pallets and bundles will have the following weights and dimensions:
 - Weights up to 1.500 kg
 - Lengths up to 6 meters
 - Width / projection up to 1,20 meters
 - Height up to 1.00 meter

Have trained personnel on standby

- Ensure that only trained specialist personnel carry out the loading and transport work.
- When selecting personnel, also observe the requirements of the DIS Unloading Directive.



ATTENTION

Store components safely

Components are also delivered in cartons on pallets.

- Only unload the components on solid and stable ground.

This prevents damage even before installation.

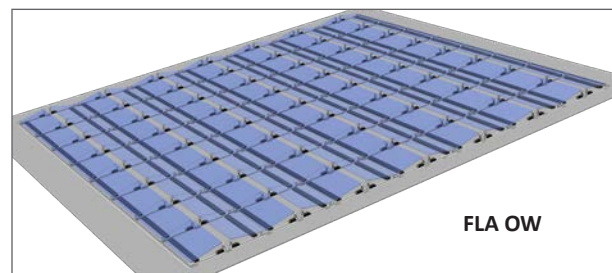
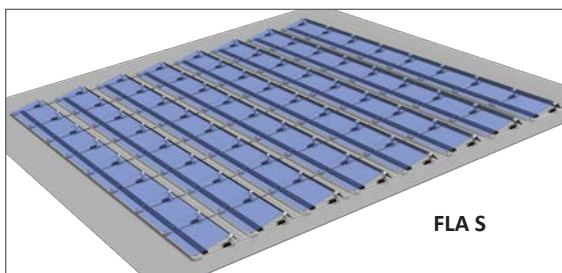
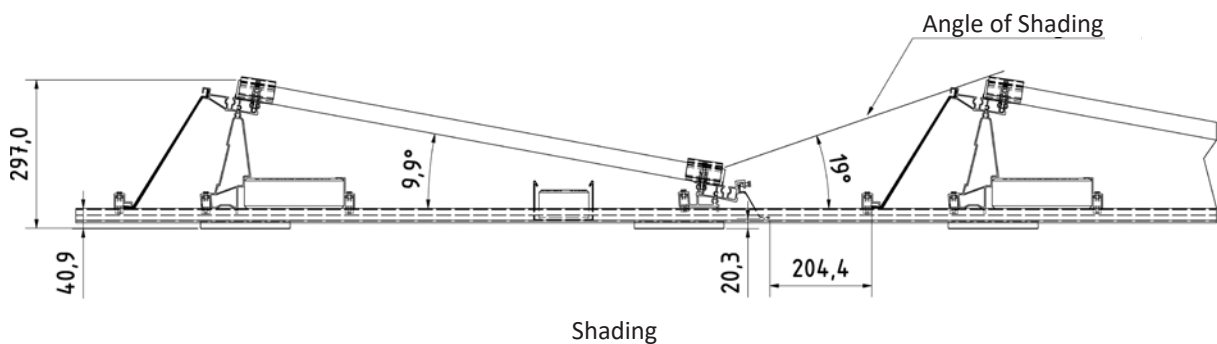
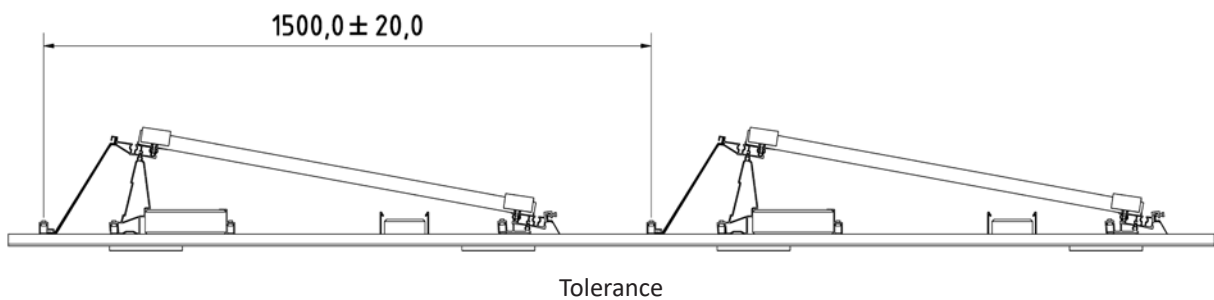
10. PREPARING FOR MOUNTING

10.1. Preparing for mounting

- Work exactly according to your construction plans.
- Mark the positions of the floor rails and align them accordingly.
- Measure both diagonals and adjust them to each other to achieve a right-angled assembly.

10.2. Observe required tolerances

The positions of the solar rows are coordinated with each other in such a way that, for example, shading is reduced to a minimum in the case of south orientation. Therefore, align the individual rows exactly according to the plan in order to prevent possible shading due to different distances between the rows.



BOTTOM RAILS, FLA HOLDER



11.1. Keep single components ready

All individual parts for the following assembly instructions are listed in **chapter 7 „Scope of delivery“**.

- Have the individual parts ready for installation.

11.2. Observe planning requirements

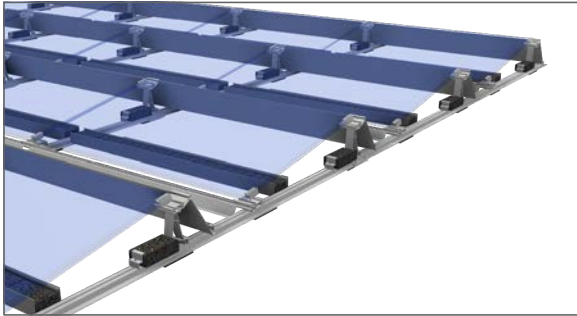
Necessary mounting positions and profile distances depend on the flat roof structure and the planned module arrangement.

- Determine the mounting positions and the required distances of the bottom rails, FLA holders top and bottom.

11. MOUNTING

BOTTOM RAILS, FLA HOLDER

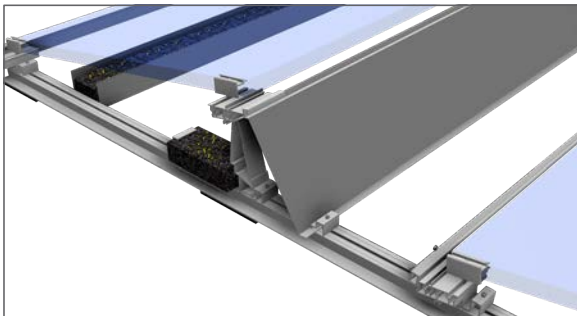
11.3. Previews and illustrations for orientation



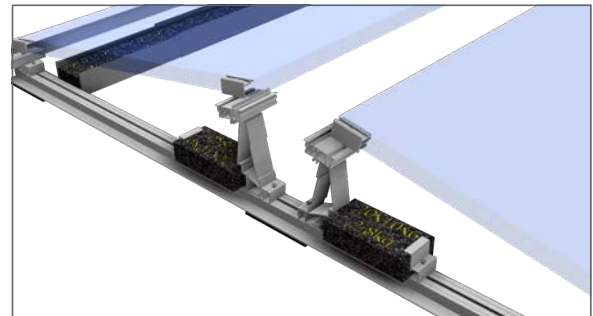
Setup: South orientation



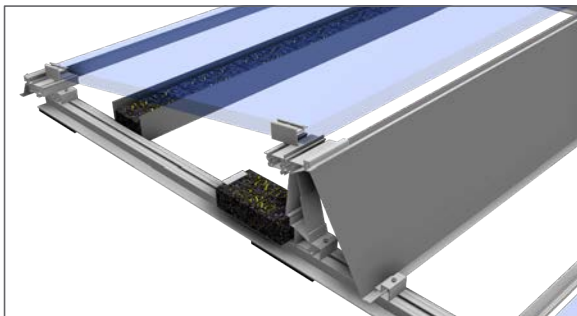
Structure: East/west orientation



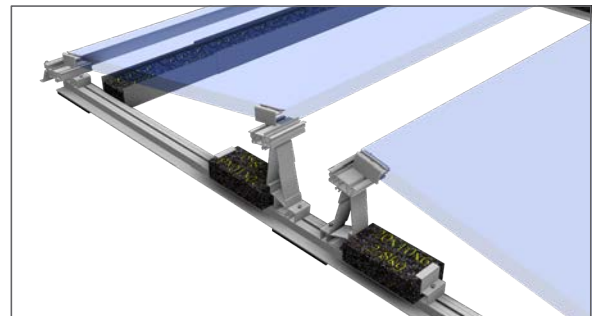
FLA holder top with Wind deflector plate (South)



FLA holder top with modules (East/West)



Ballast arrangement (South)
FLA holder bottom with wind deflector plate bottom



Ballast arrangement (East/West)
FLA Halter unten mit Windschottblech unten

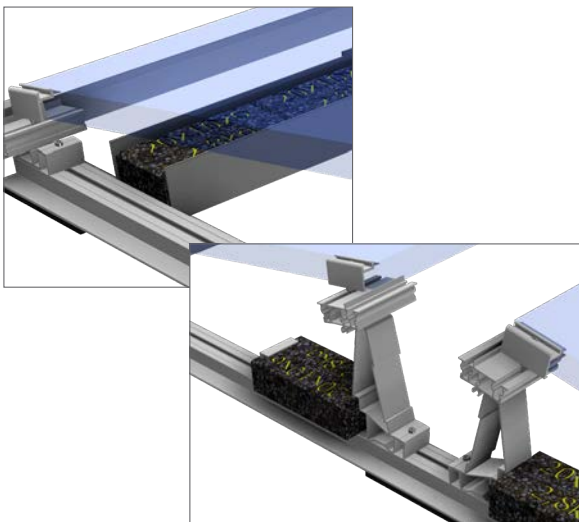
BOTTOM RAILS, FLA HOLDER

11.4. Execution assembly / mounting plan

Glue building protection mats under the bottom rails. Measure the distances between the bottom rails and align these.



1. Keep the single components ready according to the assembly drawing.
2. Connect the components to the bottom rails accurately to size.
3. Place the ballast stones according to the ballasting plan and secure them with the ballast clamps.



The tightening torque for all M6 screws is 6 Nm.

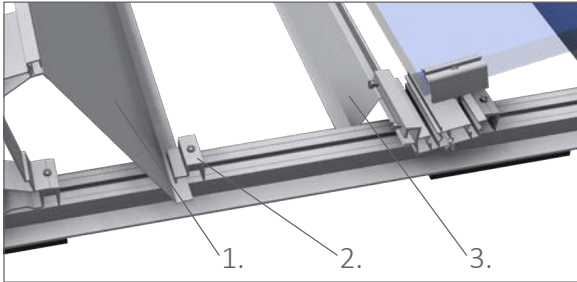
4. Click in the end clamps, place the first module, push it to the end clamp, align the module and screw on the end clamp (tightening torque*: 6 Nm)
5. Click in the middle clamps, place the next module on them and screw them together
6. Close the last module again with end clamps
7. Attach wind deflector plates if necessary



11. MOUNTING

BOTTOM RAILS, FLA HOLDER

11.5. Attach wind deflector plates (on flat roof system FLA S)



1. Wind deflector plate top
2. Wind deflector plate holder
3. Wind deflector plate bottom



 **DANGER**

Danger from electric current

The system works with high voltage.

- **Never** open switch cabinets and terminal boxes of the electrical equipment if you are **not a trained & qualified electrician**.
- Inform your qualified electrician.

12.1. Reasons for the necessary protective grounding

Consistent earthing of all metallic parts that are connected to parts of the electrical system is mandatory in accordance with applicable standards.

This ensures contact safety in the event of faults in electrical equipment.

An earthing connection of the **mounting frames** in the sense of a **protective earthing** is therefore necessary in any case.

However, the module itself must be considered in a more differentiated way. Many common module designs are defined as equipment of protection class II, so that an earthing connection of the module is often not necessary and in some cases not even useful.

Nevertheless, some module manufacturers instruct the installer to ground the module itself by means of a grounding symbol on the module frame and corresponding instructions in the installation manual.

12.2. Include modules in the equipotential bonding

It may be necessary to include the module frames in the equipotential bonding, e.g. for reasons of operational safety, even if the application of the relevant standards may not necessarily require this.

- Please take this into account when planning the system.

For grounding the module frames, suitable components (e.g. grounding and lightning protection clamps) can be optionally ordered from SL Rack GmbH.

In order to protect people and the technical equipment, lightning and/or surge protection is recommended for photovoltaic systems. What needs to be taken into account is stated in supplement G of DIN EN 62305-3.

Please contact your local specialist to find the best solution.





WARNING

Risk of crushing and impact by transport vehicles during unloading

- Secure the unloading area over a large area.
- Personal protective equipment for the unloading personnel must be worn.

Warning of sharp-edged surfaces and free-standing profile ends at head height

- Always wear safety shoes, a safety helmet, safety goggles, protective gloves and a safety vest when carrying out assembly work.

This will help protect you from impact and cutting injuries.

- Make sure that no unauthorized persons can enter the danger areas.



DANGER



Danger from electric voltage

As soon as solar modules are exposed to light, they generate electricity. All cables from the modules are live and cannot be switched off.

The risk of sparking and fatal electric shock is significantly increased, especially in solar systems with a large number of switched modules.

In the event of insulation damage to cable or plug connectors, even the solar frame can be exposed to current.

- Have assembly and installation work carried out exclusively by trained electricians.
- Observe all safety instructions of your module or inverter manufacturer and
- only use insulated, antistatic tools.

13. MOUNTING OF PHOTOVOLTAIC MODULES



Mounting instructions

- Always observe the module manufacturer's installation instructions.
- Request these from the module manufacturer on your own responsibility.

The system manufacturer SL Rack GmbH offers, depending on the module type, different mounting solutions.



SL Rack GmbH

Münchener Straße 1
D-83527 Haag i.OB

Phone: [+49 8072 3767- 0](tel:+49807237670)

Mail: info@sl-rack.com

Web: www.sl-rack.com



DANGER

Danger from electric current

The system works with high voltage.

- **Never** open the control unit or other electrical equipment if you are **not a qualified electrician**.
- Inform your qualified electrician.



WARNING

Warning of sharp-edged surfaces and free-standing profile ends at head height

- Tragen Sie immer Sicherheitsschuhe, einen Schutzhelm, eine Schutzbrille, Schutzhandschuhe und eine Warnweste, wenn Sie Rammarbeiten durchführen.

This will help protect you from impact and cutting injuries.

- Make sure that no unauthorized persons can enter the danger areas.



14.1. Connecting the switch box

- Check whether the prerequisites on site have been met
- Have the switch box of the system connected by a trained electrician.

The maintenance for a flat roof system is divided into a visual and a mechanical check.

15.1. Visual control

Check the position of the flat roof system. Especially after very strong wind, the position of the system should be checked, as- depending on the roof pitch- the system may move, caused by the wind and the downforce of the slope.

Check the position of the ballast stones. Check the position of the ballast stones using the ballast plan.

Check the position of the building protection mats.

Check the modules for damage. This can be caused by birds dropping walnuts on the modules. But also hailstorms or flying parts caused by strong winds can permanently damage the modules.

15.2. Mechanical control

The screw connections on the flat roof frame must be checked with a torque wrench.

A maintenance interval of 12 months must be observed. Thereby 2% of the system must be checked.

The inspection of the screw connections must include all areas of the system. If the inspection of the screw connections reveals that there is an increased proportion (over 10%) of loose screws, the inspection must be increased by a factor of 5. If the quota of loose screws is again above 10%, a comprehensive inspection of the connections must be carried out.

Tighten the screw connections, specifying the torques. If this is not possible, the screws must be replaced. All important screw connections are listed under the point „Checkpoints“ listed.

In accordance with the regulations in DIN 18914, it must be ensured that 50 % of the scheduled pretensioning is present. The check is carried out by setting the torque wrench to 50 % of the tightening torque.

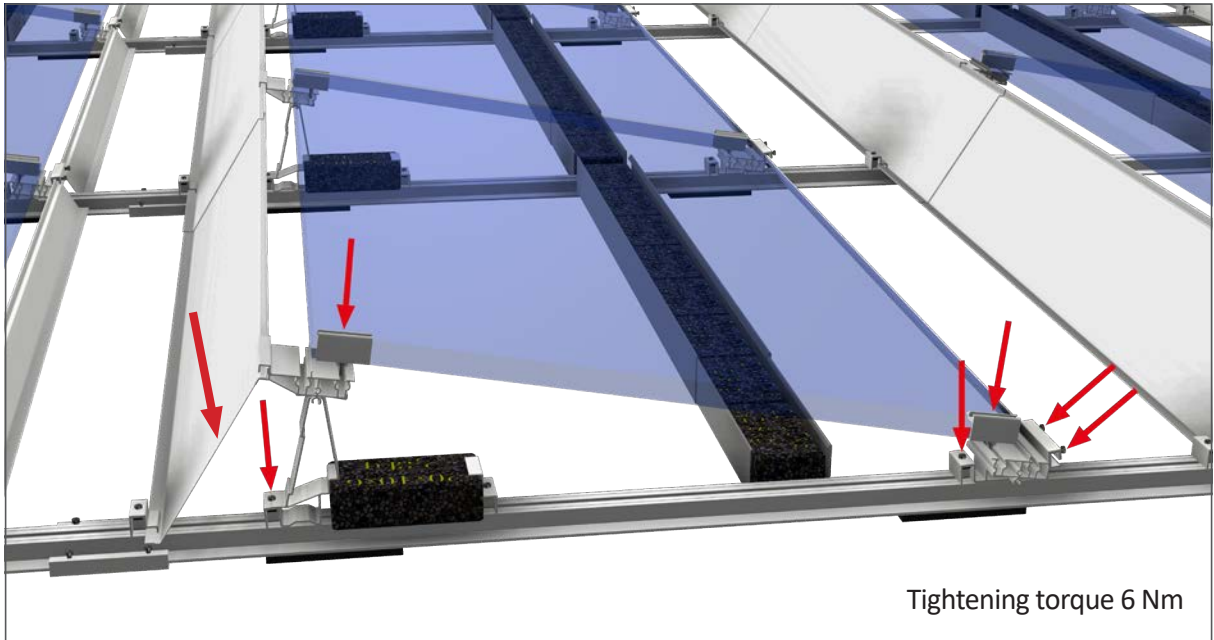
If the screw cannot be loosened with this, the test is successful. Use a torque wrench in accordance with DIN

EN 6789 (indicating torque wrench [measuring wrench] or releasing torque wrench [click or crack wrench]).

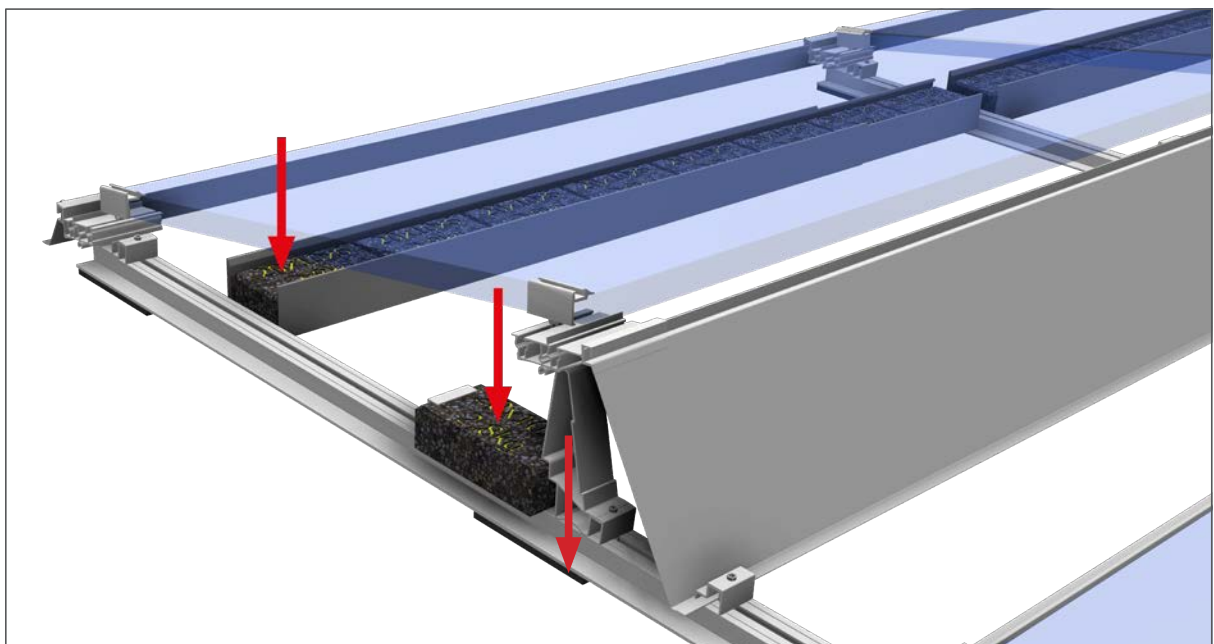
The tightening torque to be observed is based on VDI 2230.

15.2.1. Control points - Module supporting parts

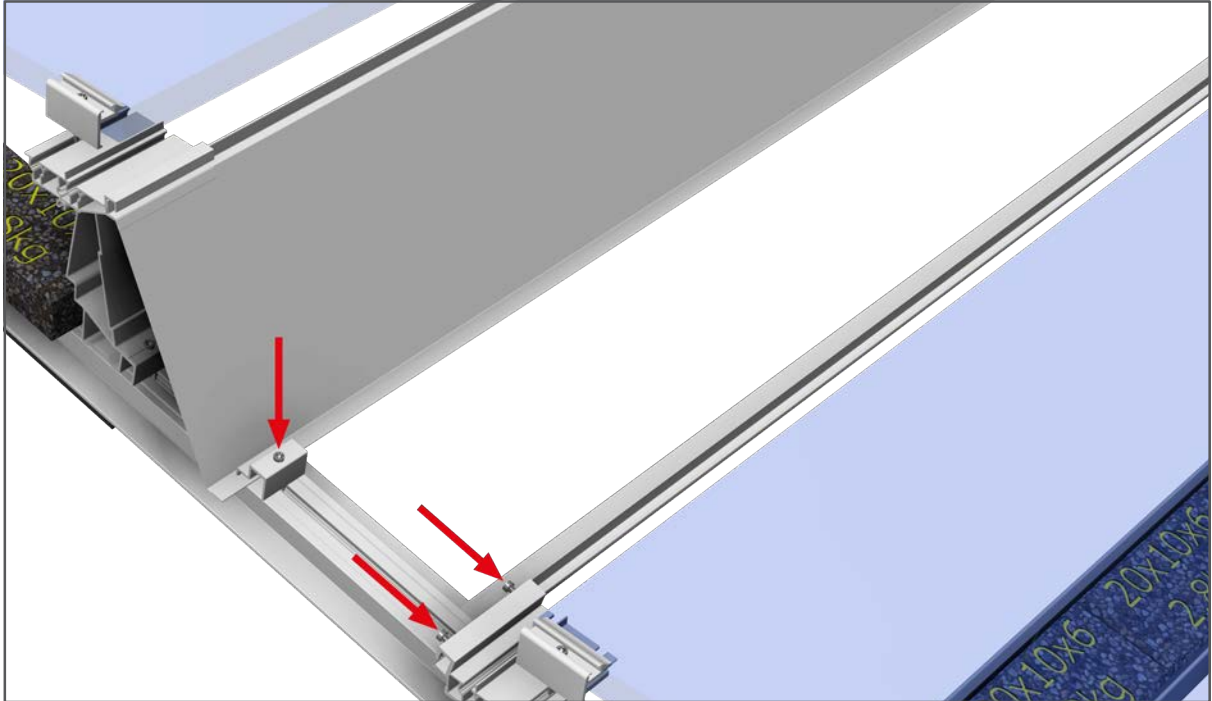
For this purpose the wind deflector plates must be removed. Afterwards, mount the plates again.



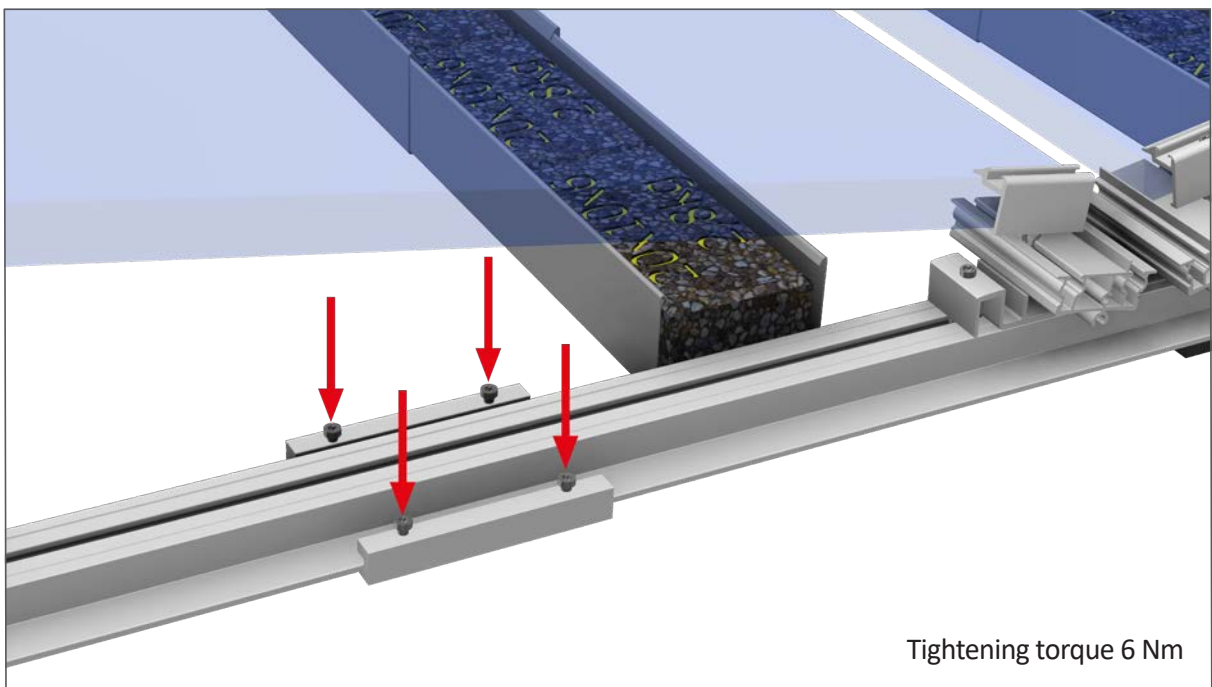
15.2.2. Position and condition control of the building protection plate and of the ballasts



15.2.3. Control points wind deflector plates (for flat roof system FLA S)



15.2.4. Control points bottom rail connectors



TEST PROTOCOL

1. Maintenance on (date): _____

Control point	Test result	Action/comment	Inspector	Signature
Visual control				
Checkpoints module supporting parts				
Position control ballasting				
Control points wind deflector plates				
Control points bottom rail connectors				

2. Maintenance on (date): _____

Control point	Test result	Action/comment	Inspector	Signature
Visual control				
Checkpoints module supporting parts				
Position control ballasting				
Control points wind deflector plates				
Control points bottom rail connectors				

3. Maintenance on (date): _____

Control point	Test result	Action/comment	Inspector	Signature
Visual control				
Checkpoints module supporting parts				
Position control ballasting				
Control points wind deflector plates				
Control points bottom rail connectors				



16.1. Taking out of service

- Switch off the system according to the operating and maintenance instructions.
- In case of doubt, have the proper shutdown confirmed if you do not have the operating and maintenance instructions at hand.
- Have the system disassembled into transportable individual parts by the manufacturer or by a trained specialist.
- Observe all information, notes and instructions in these assembly instructions.
- Make these assembly instructions available to the dismantling personnel.
- Carry out the disassembly work in exactly the reverse order execute.

 **WARNING**



Warning of sharp-edged surfaces and heavy parts

- Always wear safety shoes, a safety helmet, safety goggles, protective gloves and a high-visibility vest when carrying out disassembly work.

This will protect you from impact and cut injuries.

- Make sure that no unauthorized persons can enter the danger areas.
- Never step under lifted loads.





 **DANGER**

Danger from electric current

The system works with high voltage.

- **Never** open the control unit or other electrical equipment if you are **not a qualified electrician**.
- Only disconnect the control box from the on-site supply line if you are qualified and trained to do so.

Disconnecting the switch cabinet

- Have the on site fuses switched off/removed.
- Have the switch box disconnected from the on-site power supply only by a qualified electrician.

Dismantling of modules

The solar modules of the system generate electricity through solar radiation.

If there is a large number of switched solar modules, the risk of sparking between the individual modules increases.

Keep this in mind when dismantling the system.

Safely dispose of individual parts

- Separate the materials
 - Steel
 - Plastics
 - Electronic waste
 - Aluminium
 - Stainless steel
- Dispose of the components according to local regulations or
- return the components to the manufacturer.



Logo: Recycling

Separate electronic waste

- Never throw electronic components in the household waste.
- Dispose of electronic waste only in the designated collection containers of your disposal company.



Logo: Collection container for electronic waste

17. Additional documents (for project planning)

17.1. Bottom rail plan

17.2. Drawings and layouts

NOTES



Lined area for notes, consisting of approximately 30 horizontal lines.

NOTES



A series of horizontal lines for taking notes, spanning the width of the page below the header.



Contact us for
an individual offer:

SL Rack GmbH

Münchener Straße 1
D-83527 Haag i. OB

Phone: [+49 8072 3767-0](tel:+49807237670)

E-Mail: sales@sl-rack.com

Web: www.sl-rack.com

SL Rack

[Website](http://www.sl-rack.com)



SL Rack

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