



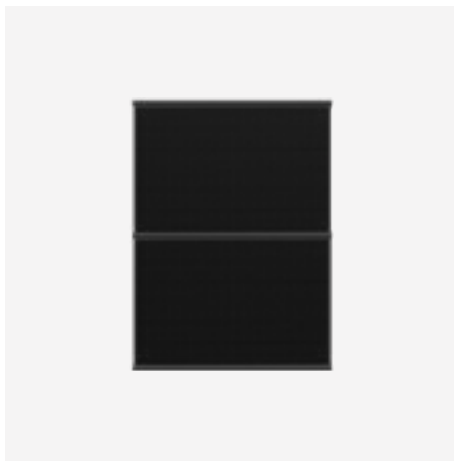
SL RACK

ENERGY WALL

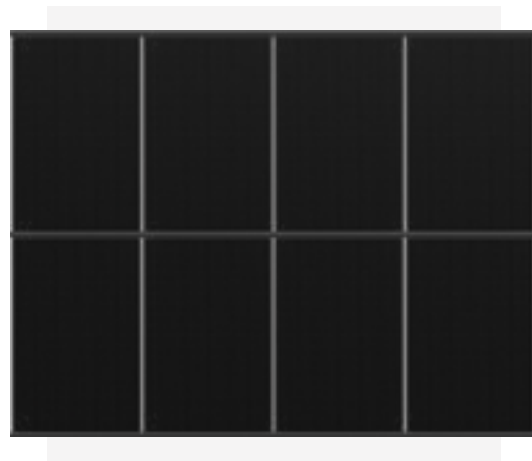
GERMAN INNOVATION

Sample view:

1-fold, landscape



4-fold, portrait



Product	SL Energy Wall
Type	SL Rack Facade System
Manufacturer/address	SL Rack GmbH Münchener Straße 1 D-83527 Haag i. OB Phone.: +49 8072 3767-0 www.sl-rack.com info@sl-rack.com

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For ease of reading, the generic masculine form is used throughout this manual. Unless otherwise stated, personal designations used in this installation and maintenance manual refer to all genders.

1.1 Safety instructions

Before commencing any work, it is important to check the note of delivery to ensure that all required components are available. Please read these installation instructions carefully before starting the installation and take note that all work must only be carried out by qualified and knowledgeable personnel!

It is paramount to follow the module manufacturer's installation instructions. Failure to observe the installation instructions, installation sequence and safety instructions, as well as the use of third-party components, will invalidate the manufacturer's guarantee, warranty and liability. This also applies to the installation instructions of the module manufacturer.

SL Rack GmbH only supplies the components listed in the installation manual. Any additional components or fasteners required for installation must be checked for suitability by the client before installation.

The assembly and installation instructions, as well as the maintenance instructions, exclusively refer to the mechanical metal racking and its components supplied by SL Rack GmbH. Third-party components of the photovoltaic system, such as modules, cables, plug connectors, inverters, or connections to the wall are not covered by these installation and safety instructions. Warranty and liability claims against SL Rack GmbH are excluded for these components.

1.1.1 Manufacturer's responsibilities

According to the German Equipment and Product Safety Act (Geräte- und Produktsicherheitsgesetz – GPSG), the manufacturer is obliged under public law to market only safe equipment. Market surveillance is carried out by the trade supervisory authorities of the federal states. If the equipment does not comply with the regulations when placed on the market, the labour inspectorate is entitled to file a complain.

CE marking is a prerequisite for the initial placing on the market (or putting into service) of products for which CE marking is required according to the following EU directives, namely in all participating countries of the European Economic Area (EEA). The EEA comprises the EU Member States and the EFTA countries with the exception of Switzerland. This means that CE marking is not required when placing products on the market in Switzerland. There are often special conformity markings, but the CE marking in accordance with the EU directives is recognised.

1.2 Occupational safety

The contractor shall ensure that only qualified personnel work on the system

- that has read and understood all relevant instructions and information for the respective activity in the installation manual
- that is familiar with the basic regulations on occupational safety, accident prevention, and environmental protection.
- that has been instructed in the safe handling of the system.
- which is familiar with the symbols and resulting prevention measures.








Danger due to electric current

The system works with high voltage.

- **Never** open electrical cabinets and terminal boxes unless you are a **qualified electrician**.
- **Always** have a **qualified electrician** check that no voltage is present before you start working on or near any part of the electrical equipment.

The system's solar modules generate electricity as soon as they are exposed to sunlight. Even modules that are not connected to a circuit generate voltage. A few percent of full sunlight is enough for the module to reach almost 100% voltage.

The safety symbols utilized in this installation manual are applicable at all times.

	Warning! Failure to observe the instructions may result in personal injury .
	Warning! Failure to follow the instructions may cause damage to the system .
	Hazardous electrical voltage. Potential hazard from high voltage.
	Warning of obstacles and tripping hazards on the ground.
	Warning of risk of fall.
	Warning of cuts
	This symbol precedes instructions and useful information.

1.3 Convention for safety instructions

The SL Energy Wall is designed exclusively for mounting PV modules. Any other use is considered improper. This includes not complying with the instructions given in this installation manual. In such cases, SL Rack GmbH is not liable for any property damage or personal injury that may occur. SL Rack GmbH then also does not assume a warranty for the proper functioning of the installed components.

The system has been designed and built following a risk analysis. The harmonised standards to be complied with and other technical specifications have been carefully selected. The system is thus state of the art and guarantees maximum safety.



However, only by taking all the necessary measures can this safety be achieved in practice. The planning of these measures and the supervision of their implementation are the responsibility of the system operator.

In particular, the operator must ensure that

- the system is only used for its intended purpose
- the system is operated only in perfect working order and, in particular, safety equipment is regularly checked for proper operation
- the necessary personal protective equipment is available and used by the operating, maintenance and repair personnel
- the installation manual is always available at the location where the system is installed, in a complete and legible state, and in good condition
- the system is operated, maintained and repaired only by suitably qualified and authorised personnel
- that this personnel regularly instructed in all applicable health, safety and environmental matters and is familiar with the installation manual and in particular with the safety instructions contained therein
- all safety and warning notices on the system must not be removed and kept legible.



1.4 Additional information

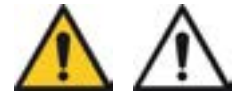
The SL Energy Wall is designed for the installation on nearly any type of facade.

It is compatible with framed modules with a frame height of 28 – 50 mm.

For a portrait installation the module needs to be approved for short-side clamping.

It is not compatible with frameless modules, as the PV modules might be damaged. SL Rack GmbH does not accept any liability for this type of application. This installation manual merely provides suggestions for the attachment of the Energy Wall to building facades. SL Rack GmbH does not assume any liability, as it is the client's responsibility to arrange for the appropriate attachment to the wall. Under certain circumstances, noise may occur after the SL Energy Wall has been installed (e.g. wind noise or creaking). These noises are caused by external influences and do not constitute a defect in the SL Energy Wall.

2. Design



With the Solar.Pro.Tool., SL Rack offers its customers a powerful design tool for the complete design of facade and roof-top systems. This tool can generate a detailed parts list and a drawing for print-out even before ordering and delivery. A project-specific overview drawing can also be obtained for an additional charge. It shows all the required components and the exact dimensions in various views, so that the items incl. item numbers can be clearly assigned to the note of delivery. An assembly without a prior design is not recommended and will result in the loss of guarantee and warranty claims.

The client must provide the following information for a SL Energy Wall design:

- The load-bearing capacity of the exterior wall for the PV system.
- The exterior wall's structure
- The materials for the wall attachment
- Building category
- Snow and wind load zone
- Fire protection regulations, if applicable

3. Components

The following components can be used for the installation of the SL Energy Wall.
It is imperative to adhere to the specified torque values.

3.1 Item no. 36121/36122/36123 – 1790/4575 Facade System Top / Mid / Bottom

Tool: Torx 40

Torque value M6: 10 Nm



FACADE SYSTEM TOP



FACADE SYSTEM MID



FACADE SYSTEM BOTTOM

3.2 Item no. 36105 – 1790/4575 Facade System Cover



3.3 Item no. 31107-00 Facade Fastener

Tool: Torx 40
Torque value M6: 10 Nm



3.4 Item no. 11302-12 Hanger Bolt Adaptor 2.0

Tool: Open-end wrench SW19
Torque value M12: 50 Nm



3.5 Item no. 81100-00 / 86100-00 External Connector 3.0

Tool: Torx 40
Torque value M6: 10 Nm



3.6 Item no. 31106-00 Facade System End Cap



3.7 Item no. 22300-41 Cable Clip



3.8 Item no. 91204-00 Cross Connector 2.0

Tool: Torx 40
Torque value M6: 10 Nm



3.9 Item no. 91520-00 Lightning Protection Clamp bottom

Tool: Open-end wrench SW17
Torque value M10: 25 Nm



3.10 Item no. 11205-03 & 11205-04 Trapez 3 & Trapez 3-60

For facades without ribs



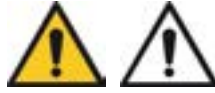
3.11 Item no. 11202-01 & 11202-02 Trapez 5 & Trapez 5-60

For facades with ribs



Please note:

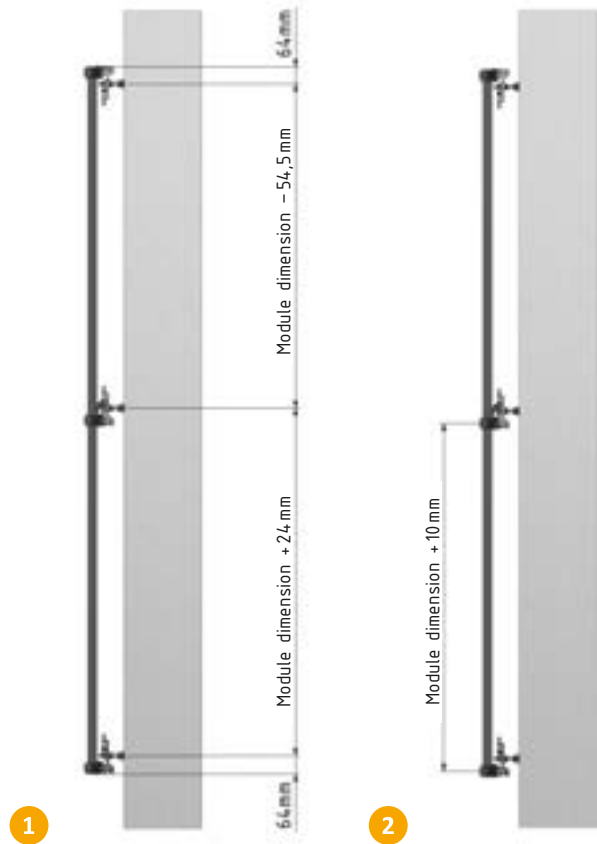
The facade systems are installed from the bottom up.



4.1 Preparation for installation

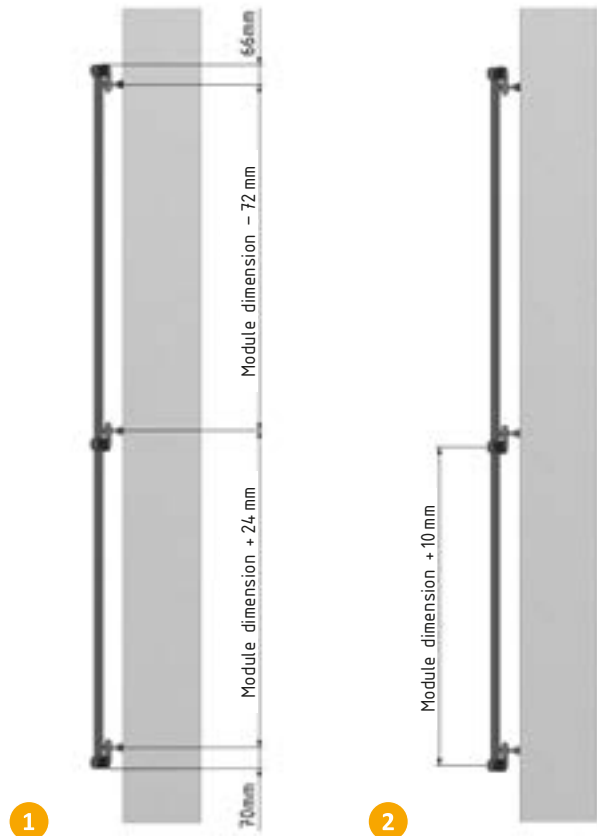
4.1.1 Measurements for installation with Facade Fastener

1. Determine the position of the holes.
2. Set the distance between the rails.



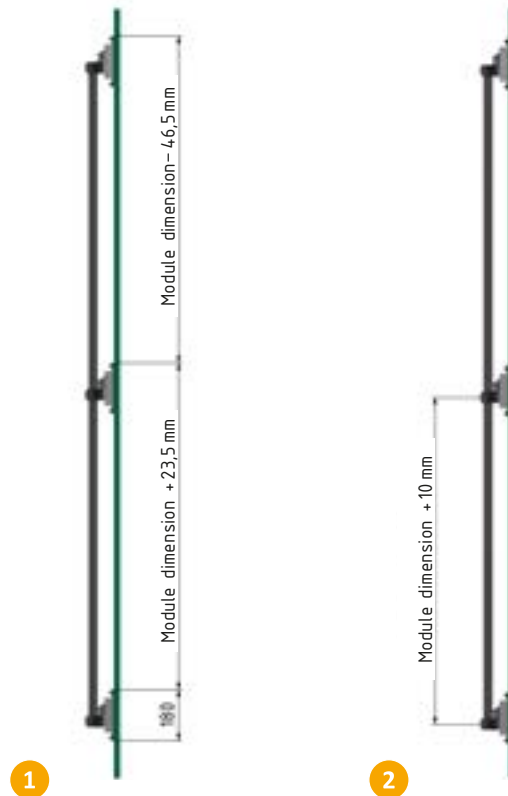
4.1.2 Measurements for installation with Hanger Bolt Adaptor

1. Determine the position of the holes.
2. Set the distance between the rails.



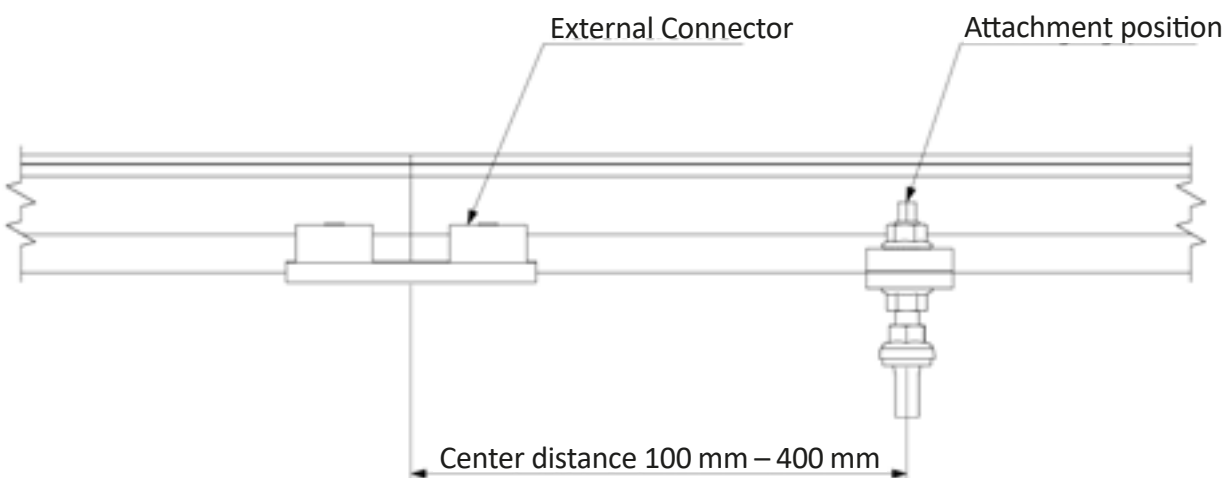
4.1.3 Measurements for installation with Trapez 5

1. Determine the position of the Trapez fasteners.
2. Set the distance between the rails.

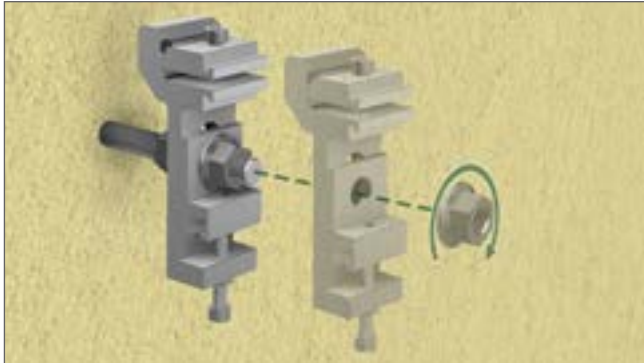


4.1.4 Spacing for installation with External Connector

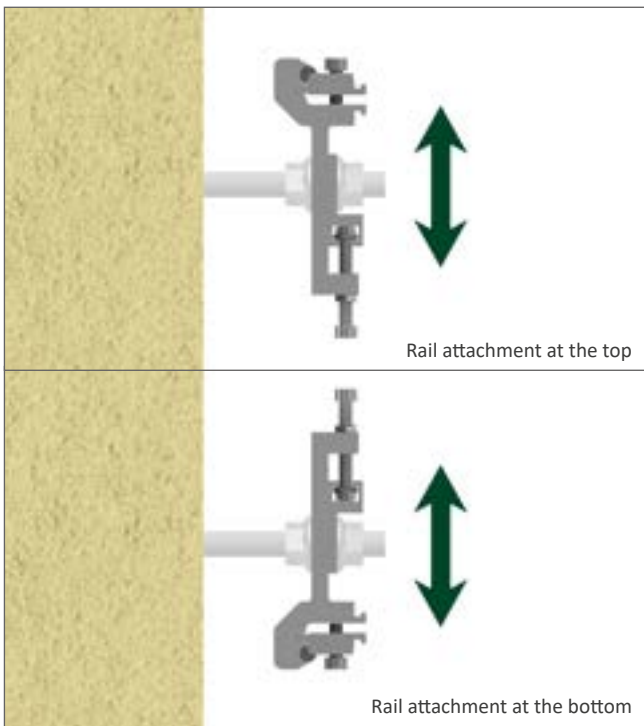
If the spacing between the wall attachment and the External Connector cannot be maintained, an additional wall attachment is required in this area.



4.2 Installation with Facade Fastener



1. Affix the Facade Fastener to the M12 rod of the wall attachment.

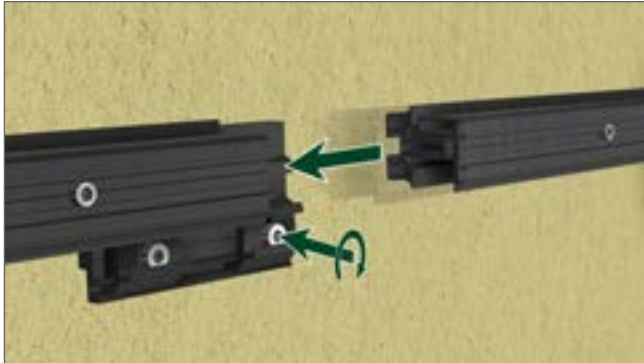


2. Make sure the Facade Fastener is in the correct position. After determining the height and alignment, tighten the nut with a torque of 50 Nm.

- Facade System TOP:
Rail attachment at the top
- Facade System MID:
Rail attachment at the bottom
- Facade System BOTTOM:
Rail attachment at the bottom

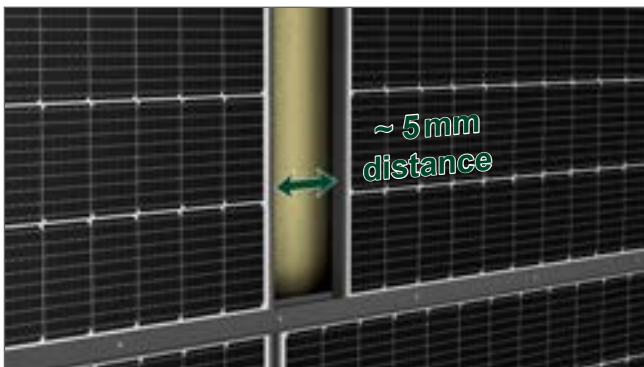


3. Hook the Facade System into the Facade Fastener and tighten the bolt to a torque of 10 Nm.

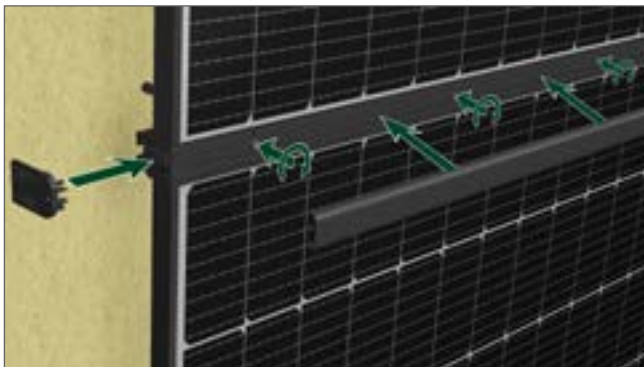


4. To connect the rails, use the External Connector with a tightening torque of 10 Nm.

Please note: A thermal break of 30 mm must be provided between the facade rails every 15 meters.

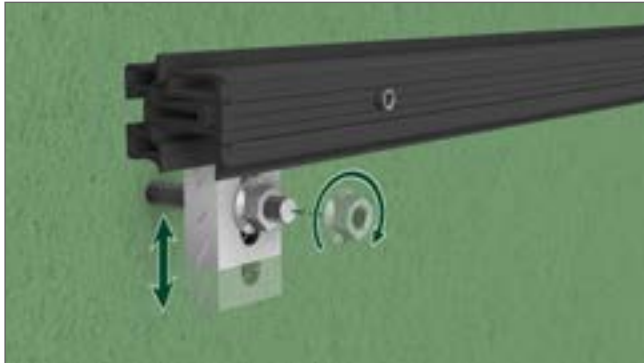


5. Ensure that the modules do not lie against each other.

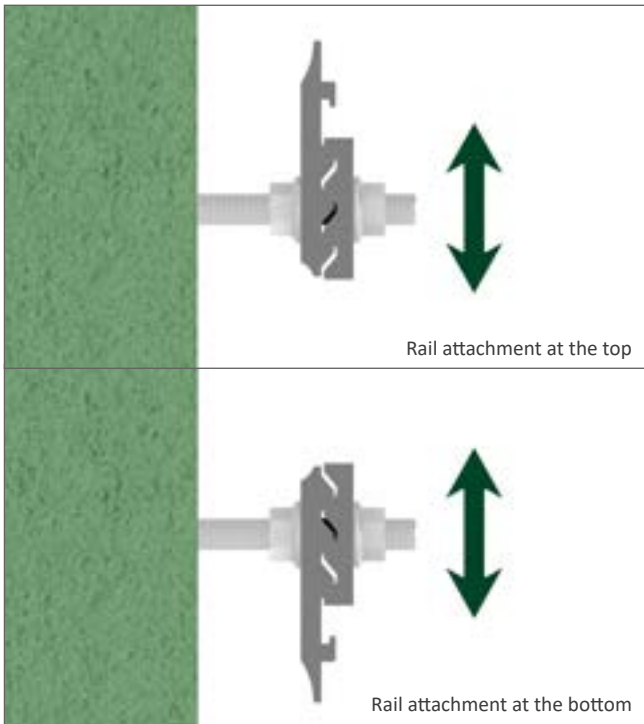


6. Fixate the modules with a tightening torque of 10 Nm. Then install cover and end caps.

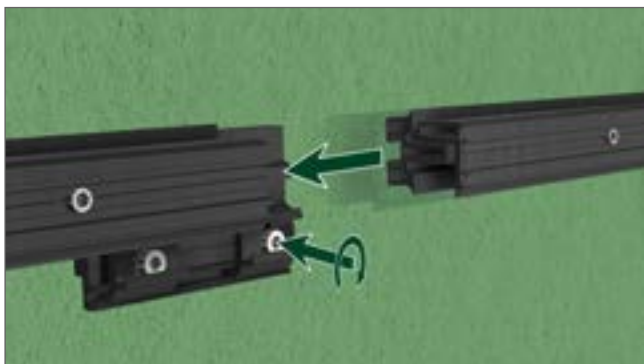
4.3 Installation with Hanger Bolt Adaptor



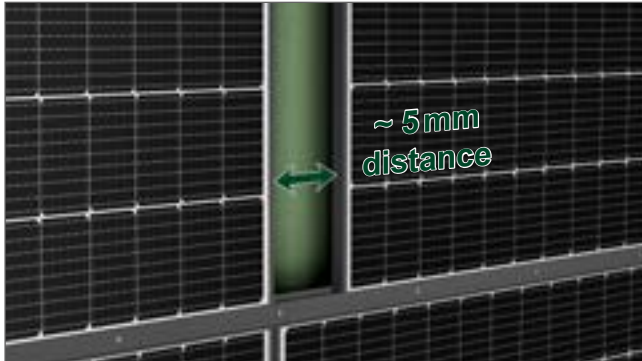
1. Place the Facade System in the groove of the Hanger Bolt Attachment and tighten it with a torque of 50 Nm.



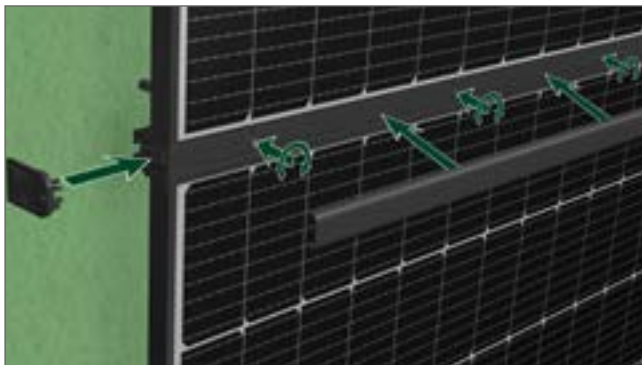
2. Make sure the Hanger Bolt Attachment is in the correct position. After determining the height and alignment, tighten the nut with a torque of 50 Nm.
 - Facade System TOP:
Rail attachment at the top
 - Facade System MID:
Rail attachment at the bottom
 - Facade System BOTTOM:
Rail attachment at the bottom



3. To connect the rails, use the External Connector. (Torque 10 Nm)



4. Ensure that the modules do not lie against each other.



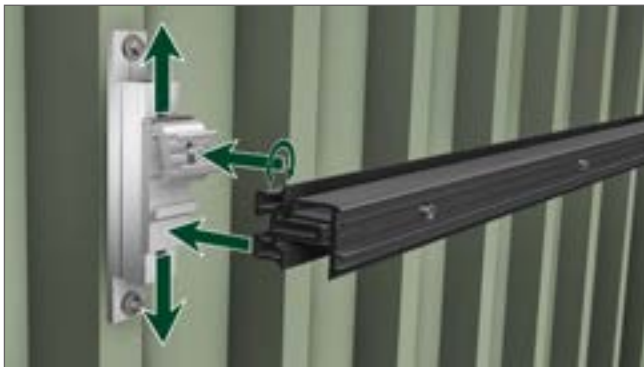
5. Fixate the modules with a tightening torque of 10 Nm. Then install cover and end caps.

4.4 Installation with Trapez 5 & Trapez 5-60

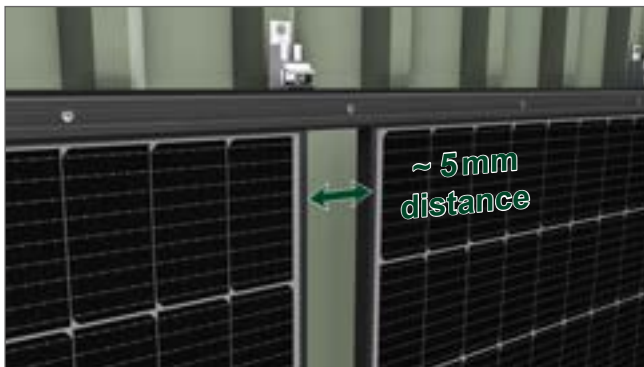


1. Attach Trapez 5 and Trapez 5-60 to the trapezoidal facade with the following tightening torque:

Sheet thickness:	0,5 mm	0,63 mm	0,75 mm	1 mm
Torque:	1 Nm	1 Nm	2 Nm	2 Nm



2. Insert the Cross Connector into the center of Trapez 5. Mount the rail onto the Cross Connector with a tightening torque of 10 Nm.



3. Ensure that the modules do not lie against each other.



4. Fixate the modules with a tightening torque of 10 Nm. Then install cover and end caps.

4.4.1 Installation with Trapez 3 & Trapez 3-60



Note:

Installation with Trapez 3 and Trapez 3-60 is only recommended for rib-free trapezoidal walls.

1. Attach Trapez 3 and Trapez 3-60 to the trapezoidal facade with the following tightening torque:

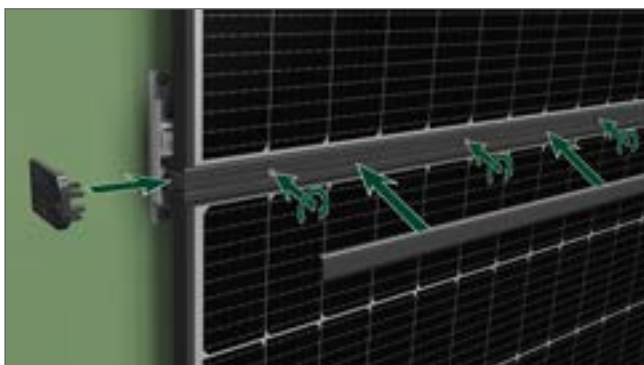
Sheet thickness:	0,5 mm	0,63 mm	0,75 mm	1 mm
Torque:	1 Nm	1 Nm	2 Nm	2 Nm



2. Insert the Cross Connector into the center of Trapez 3. Mount the rail onto the Cross Connector with a tightening torque of 10 Nm.

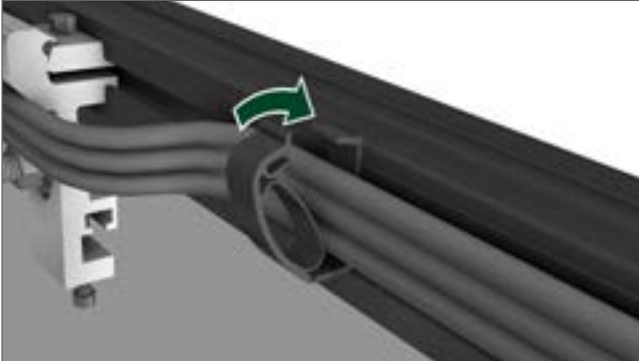


3. Ensure that the modules do not lie against each other.



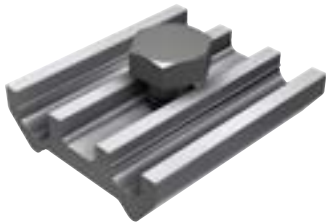
4. Fixate the modules with a tightening torque of 10 Nm. Then install cover and end caps.

4.5 Installation Cable Clip

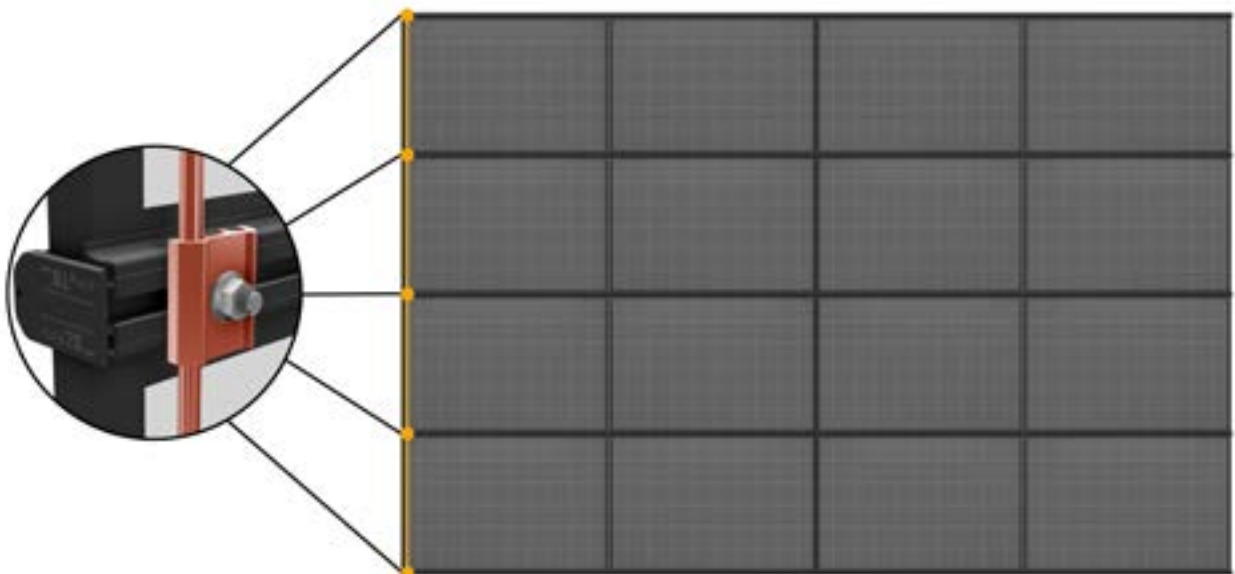


Insert the Cable Clip into the rail channel on the back of the Facade System. Then insert the cables and close the Cable Clip.

4.6 Installation Lightning Protection Clamp bottom



Insert the Lightning Protection Clamp into the rail channel on the back of the Facade System and tighten it with a torque of 25 Nm.

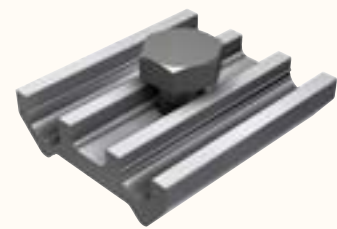


5.1 Grounding and safety guidelines

When designing the system, take into consideration that equipotential bonding is already integrated in the SL Energy Wall. For grounding the module frames you can order suitable components (e.g., lightning protection clamps) from SL Rack GmbH.

To protect people and technical equipment, lightning and/or surge protection is recommended for photovoltaic systems. The details can be found in Supplement G of DIN EN 62305-3. Please contact your local specialist to find the appropriate solution.

Please refer to the Lightning Protection data sheet for information on the connection to the lightning protection system.



Certified to DIN EN 62561

5.2 Mounting



DANGER

Electrical hazards

When solar panels 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 greatly increased, especially in solar installations with a large number of connected modules.

In the event of insulation damage to cables or connectors, even the solar racking can be exposed to electricity.

- Only allow installation and assembly work to be carried out by qualified electricians.
- Observe all safety instructions provided by your module or inverter manufacturer and
- only use insulated, anti-static tools.



6. Mounting solar modules



Installation instructions

- Always follow the module manufacturer's installation instructions.
- In case they are not available, it is your responsibility to obtain these from the module manufacturer.

Depending on the module type, SL Rack GmbH offers various mounting solutions.



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7.1. Decommissioning

- Shut down the system in accordance with the operating and maintenance instructions.
- If you do not have the operating and maintenance instructions at hand, obtain written confirmation that the system has been properly shut down.
- Have the system disassembled into transportable parts by the manufacturer or a trained specialist.
- Observe all information, notes and instructions in this installation manual.
- Make this installation manual available to the dismantling personnel.
- Dismantle the system in exactly the reverse order of assembly.



WARNING



Beware of sharp-edged surfaces and protruding profile ends at head level

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

This will protect you from impact and cuts.

- Ensure that unauthorized persons cannot enter the hazardous areas.
- Do not stand under lifted loads.



DANGER



Electrical hazards

The system uses high voltage.

- **Never** open the control unit or other electrical equipment unless you are a **qualified electrician**.

Disconnecting the switch box

- Have the on-site fuses switched off/removed.
- Only a qualified electrician should disconnect the switch box from the on-site power supply.

Module disassembly

The solar modules in the system generate electricity instantly when exposed to sunlight. If a large number of solar modules are connected, there is an additional risk of sparking between the modules.

Keep this in mind during disassembly.

Safely dispose of components

- Separate
 - steel
 - plastics
 - electrical scrap
 - aluminum
 - stainless steel
 - copper
 - glass
- Dispose of the components in accordance with local regulations or
- return the components to the manufacturer.



Logo: Recycling

Electronic scrap

- Never dispose of electronic scrap in your domestic waste.
- Only dispose of electronic waste in the designated collection containers provided by your waste disposal company.



Logo: Collection bin for electronic scrap

8. Complementary documents (project design)

8.1. Facade rail plan

8.2. Drawings and layouts

8.3. Individual Solar.Pro.Tool. project report including drawings



8.4 Recommendation

The following recommendation is designed to help you check important points prior to the installation of the SL Rack Energy Wall. Any irregularities found before, during or after installation must be documented and rectified immediately.

Check point	Yes	No	Comment
Has the wall's load-bearing capacity been tested? <i>Test drilling by trained personnel.</i>			
Were obstructions considered during system design? <i>Balconies, air grids, and the like must be taken into account.</i>			
Have fire safety regulations been observed? <i>Depending on the building class, a fire protection report may be required.</i>			
Are the distances from fire protection equipment complied with? <i>If there are exhaust vents or SHEVS (smoke and heat exhaust systems) on the facade, these must be taken into account.</i>			
Has the load reserve of the facade been determined? <i>The additional load on the wall through the Energy Wall must be considered.</i>			
Does the facade have an external thermal insulation composite system (ETICS) which has been considered in the system design?			
Is the facade undamaged and clean? <i>In the event of damage or dirt accumulation, renovation and cleaning must be carried out beforehand.</i>			
Are the stipulated distances being maintained? <i>The distances stipulated in the building regulations must be observed.</i>			
Was maintenance access taken into account during system design? <i>Ensure access for maintenance even after the Energy Wall has been installed.</i>			
Has the installation been carried out according to the manual? <i>Installation is not possible without the installation manual.</i>			
Are the installation manual and the data sheet for the module to be used available? <i>Installation is not possible without the applicable data sheet.</i>			



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