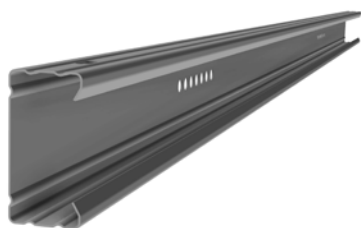


PURLIN SYSTEMS



SL Rack

Schletter Ludwig



Visit our
website:
www.sl-rack.com

Find us on



GERMAN INNOVATION

Innovative Product Development



„Our racking systems have been developed since 1996 and are continuously optimized. Pre-assembled components that are quick and easy to install, prompt order processing, a reliable product supply and cost-effectiveness are our focus.

All our components follow a convenient top-down installation approach, ensuring a smooth and time-saving workflow. SL Rack systems are installer-friendly, intuitive and standardized, while still providing the flexibility to adapt to each respective project site.“

Sincerely,

Ludwig Schletter

SL Rack in numbers:



26..... Years of experience

30..... GW installed worldwide

200..... Employees are happy to help!

EU..... Almost exclusively manufactured in Germany and Europe



Visit our
website:
www.sl-rack.com



Check out our
YouTube-channel:
[Installation videos »](#)

*Our warranty conditions apply. They are available at www.sl-rack.com

The numerous advantages of the SL Rack Purlin Systems

- » Easiest and fastest systems to assemble
- » Static and economic optimization through various profile heights
- » Module orientation in portrait or landscape
- » Fewer piles due to large spans
- » Only one tool required for clamping (Torx 40), ease of installation
- » Installer-friendly bottom clamping
- » Choice of corrosion protection
- » Short delivery times
- » High adaptability to terrain contours and conditions
- » Design according to local and international building codes
- » Detailed installation manual and videos
- » Quick and easy consultation and design- even for challenging terrain and difficult ground conditions





System Overview

Dual-Post System

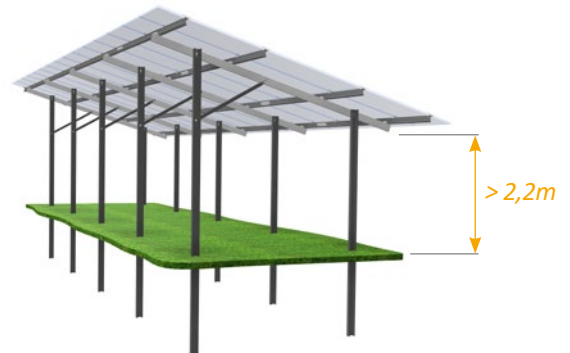
Available as 2V, 3V, 4V



Agrivoltaic System

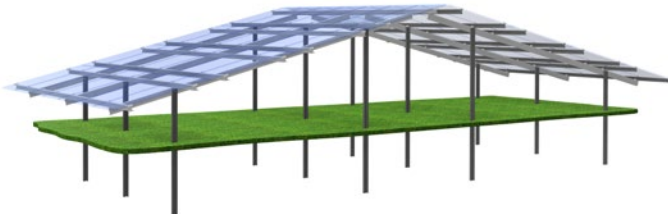
Available as 2V, 3V, 4V

Especially high ground clearance



East-West-System

Available as 4V maximum



Single-Post System

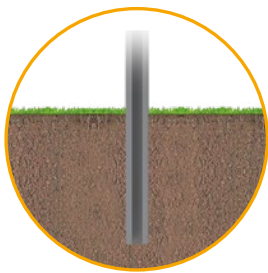
Available as 1V, 2V rafters



Types of Foundation

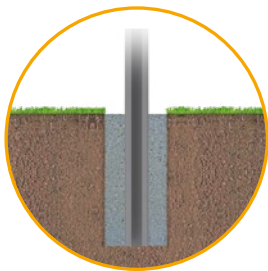
Normally, racking is installed on driven piles. The piles are driven into the ground with the help of a hydraulic pile driver. To ensure the stability of the system, the embedment depth is determined individually for each site on the basis of a geological report.

In regions where the soil is not suitable for piledriving (e.g. rocky subsoil and/or aggressive soils), the piles can also be anchored securely in the ground with concrete. For this purpose, holes are pre-drilled in the ground and the piles are set in concrete. However, it is also possible to install concrete foundations above ground. In this case, the piles are connected to the concrete foundations via so-called foundation brackets. This method is intended for soils in which pile driving or drilling is not possible. Additional special solutions are offered through various helical pile foundations.



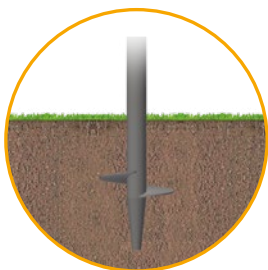
Pile-Driven Foundation

Piles are driven into the ground with the help of a hydraulic pile driver. Based on a geotechnical report the embedment depth can be calculated in advance. Extremely boggy, sandy or stony soils as well as very steep slopes can make pile-driven foundations difficult.



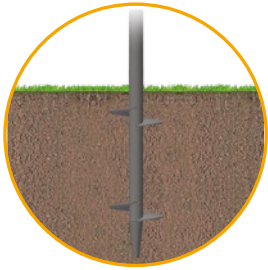
Cast-In-Place Foundation

If numerous obstructions in the soil require pre-drilling, the hole can be filled with concrete, either dry or at a consistency that matches the maximum moisture content of the earth. Another option is to fill the hole with a concrete-gravel mix. Then the pile can be installed using conventional methods.



Helical Pile Foundation | Custom Solution

In case of extremely boggy, stony or sandy soils, helical piles can be used as an alternative. Helical piles allow a more shallow embedment depths, which can be particularly useful on landfills.



Double-Helical Pile Foundation | Custom Solution

For a more stable design or for better support in extremely boggy, stony or sandy soils, double helical piles can be used as an alternative foundation method.



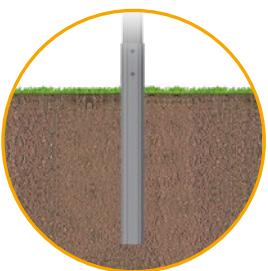
Compacted Special Grain Foundation

If backfilling with concrete has not been approved due to special official regulations or environmental conditions, or if a cost-effective alternative is needed, a sand-gravel mixture (grading curve 0-8) can be used for backfilling. After the backfill has been compacted, the pile can be driven into the ground using conventional methods.



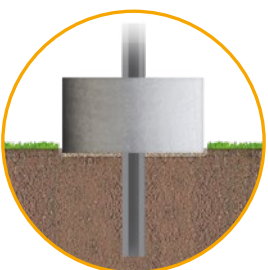
Concrete Foundation (Strip Foundation)

If it is not possible to ram piles into the ground or use helical piles, concrete foundations can be used as an alternative. Depending on the situation, pre-cast concrete blocks can be placed on the leveled surface or the concrete foundation can be cast at site. The SL Rack ground mount system is then attached to the concrete foundation.



Pile-Driven Foundation made of Special Plastic Material

Highly corrosive soils have special material requirements. The pile-driven foundation made of special plastic is UV-resistant and ensures a high durability due to the special plastic used for production. This component is particularly suitable for bogs and the likes. Use this advantage for your project.



Combined Ballasted/Pile-Driven Foundation

In case of problematic soil conditions- such as pile-driving obstacles, very aggressive soils, general prohibition to use concrete below the surface or in case of landfills, where only a shallow embedment depth is permitted- pile-driving up to a depth of 40 cm in combination with concrete ballast in the appropriate dimensions can be chosen as an alternative. While SL Rack will perform the calculations, the foundation itself has to be provided by the customer.



Geology and Statics

Not only do we offer verifiable structural calculations for your ground mount system, but we can also determine the required embedment depth of the piles. In addition, we provide you with a professional assessment of atmospheric corrosion and an informative analysis with detailed information on soil aggressiveness. These will help you decide on the most suitable foundation solution.

Our team is happy to provide further information on the topics of geology and statics. Please contact us.

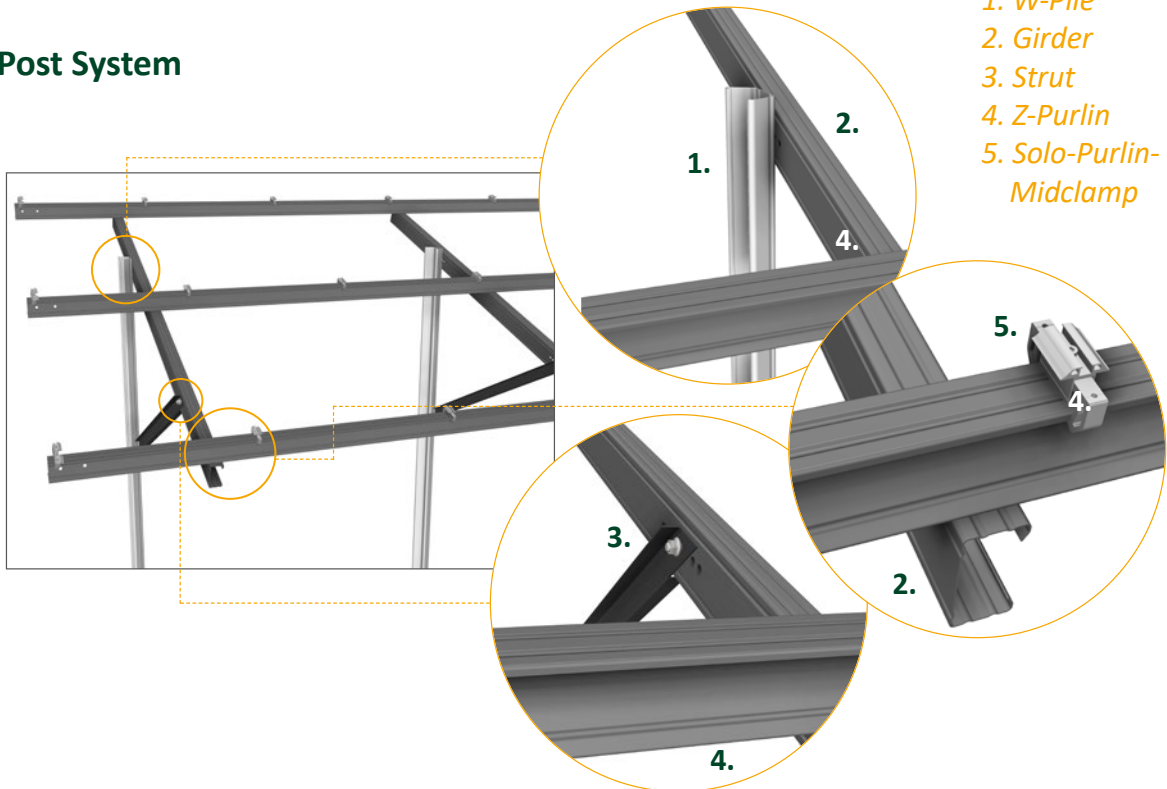


geologie@sl-rack.de

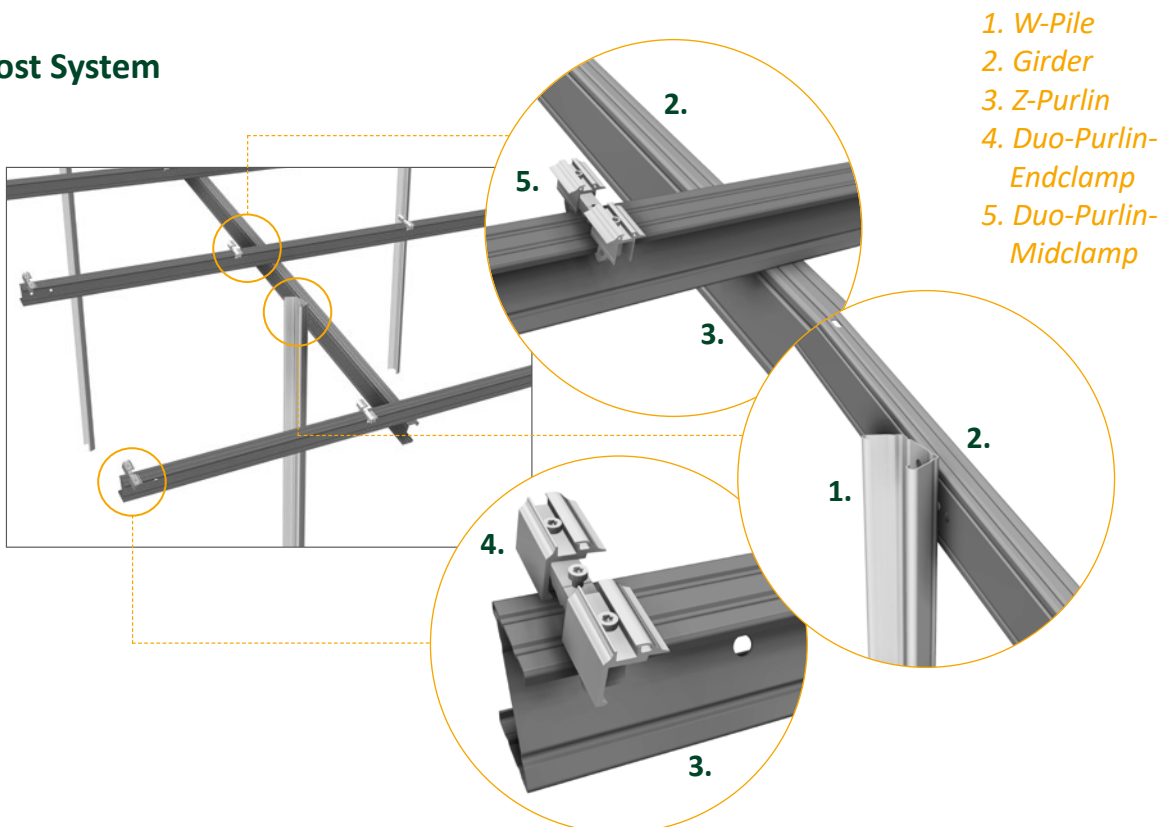


Module Bearing Parts

Single-Post System



Dual-Post System



Appropriate corrosion protection





Steel is a versatile building material, but it corrodes in the atmosphere, in water and in soil. Corrosion processes (also due to insufficient or poor surface preparation) cause considerable economic damage. Costs incurred as a result can be prevented with suitable corrosion protection. Suitable surface finishes delay the formation of rust enormously. Aggressive air pollutants, high humidity (> 80 % RH) or condensation, precipitation and salt water are thus kept away in the most efficient way. Therefore, steel surfaces should be covered with suitable protective coatings of zinc, zinc-magnesium or organic coatings, if necessary in several layers and in sufficient thickness, depending on the respective ambient conditions and the corrosion loads they are exposed to.

EN ISO 1461 Hot-Dip Galvanization

The standard for piece galvanizing is DIN EN ISO 1461: „Zinc coatings applied to steel by hot-dip galvanizing (piece galvanizing)- requirements and testing.“

- » This standard has also worldwide significance
- » Defines the tests required for hot-dip galvanizing of manufactured components in a discontinuous process
- » Standard specifies requirements for zinc coatings and establishes procedures to demonstrate compliance of hot-dip galvanizing with this standard
- » Defines services to be performed by the hot-dip galvanizing provider, but does not automatically apply to subsequent partial services
- » Defines the repair of defects (ungalvanized areas)
- » Definiert die Ausbesserung bei Fehlstellen (unverzinkte Stellen)

Corrosion Protection Design of SL Rack Steel Racking

Parts		Corrosivity Categories			
		C2	C3	C4	C5
Purlins		≥ Z 600 ≥ ZM 430	≥ Z 600 ≥ ZM 430	≥ ZM 430	ZM 620
Girders		≥ Z 600 ≥ ZM 430	≥ Z 600 ≥ ZM 430	≥ ZM 430	
Piles		≥ ZM 430			
		Piece-galvanized according to DIN EN ISO 1461			
W-Piles		ZM 430			
Bolts		Stainless Steel			
Aluminium Parts		EN AW 6063 T66			

The values in the table above for the galvanizing thicknesses/methods, depending on the corrosivity category, are based on DIN 55928-8 („Corrosion protection of steel structures by coatings and overlays; Part 8: Corrosion protection of load-bearing thin-walled components“) and are at least at the level of the standard.

The information is a non-binding recommendation of SL Rack GmbH and is subject to a case-by-case examination within the scope of project design.

Kontaktkorrosion

Eine Gefahr der Kontaktkorrosion zwischen zwei Metallen beim SL Rack Freifächensystem ist gering und gilt als unproblematisch. Sollte eine Anlage in Küsten- bzw. Salzwassernähe errichtet werden, können Schutzmaßnahmen geprüft und eingeleitet werden. Zur Veranschaulichung: Je nach Metallpaarung (Aluminium – Zink – feuerverzinkter Stahl, zum Beispiel Z-Pfette – Sparren und/oder Modulrahmen) herrscht eine unterschiedlich starke Differenz des elektrischen Potentials vor. Je größer der Unterschied dieses Potentials, desto höher ist die Korrosivität.

Metal Pairing	Atmosphere			Water	
	City	Industry	Ocean	Fresh Water	Salt Water
Aluminum - Zinc	0	0 - 1	0 - 1	1	1 - 2
Aluminum - Hot-Dip Galvanized Steel	0	0 - 1	0 - 1	1	1 - 2

Legend:

0 = no significant corrosion of the metal pairing

1 = slightly increased corrosion, but no protective measures recommended

2 = increased corrosion, insulating protective measures recommended

3 = severe contact corrosion, avoid metal pairing

Corrosion Categories according to DIN EN ISO 12944-2 (with Exposure)

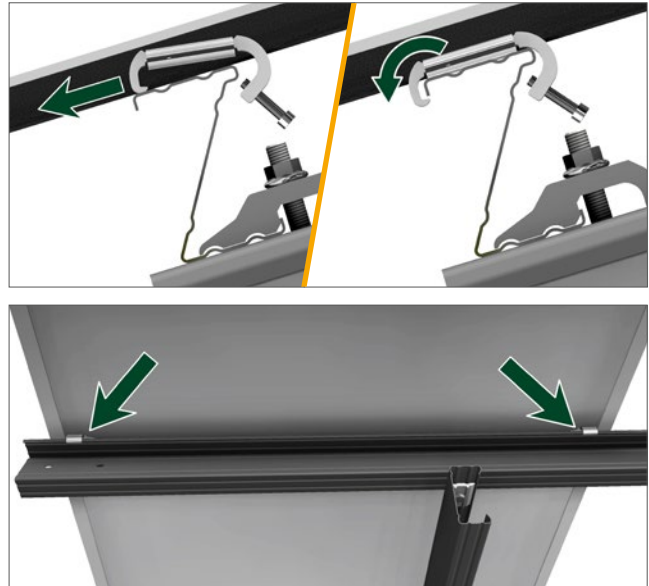
Corrosiveness categories Corrosion stresses	Corrosivity	Examples of typical surroundings	Thickness reduction after 1st year of installation	
			Carbon steel	Zinc
C1 Insignificant	Very low Slightly aggressive Interior	Only heated indoor spaces, insulated buildings ($\leq 60\%$ r. h.)	$\leq 1,3 \mu\text{m}$	$\leq 0,1 \mu\text{m}$
C2 Low	Low Moderately aggressive Exterior/interior	Unheated buildings, low-polluted atmosphere, dry climate. Mainly rural areas.	$>1,3 - 25 \mu\text{m}$	$>0,1 - 0,7 \mu\text{m}$
C3 Moderate	Moderate Little aggressive Exterior/interior	Rooms with high humidity and low air pollution. Urban and industrial atmosphere with moderate SO_2 pollution or temperate climate.	$>25 - 50 \mu\text{m}$	$>0,7 - 2,1 \mu\text{m}$
C4 Strong	High Moderately aggressive Exterior/interior	Swimming pools. Industrial atmosphere and coastal atmosphere with moderate salt load.	$>50 - 80 \mu\text{m}$	$>2,1 - 4,2 \mu\text{m}$
C5 Very strong	Very high Aggressive Exterior/interior	Environments with almost constant condensation and heavy air contamination. Industrial atmosphere with high relative humidity and aggressive atmosphere.	$>80 - 200 \mu\text{m}$	$>4,2 - 8,4 \mu\text{m}$

Clamping Variations of the SL Rack Ground Mount System

Bottom Clamping

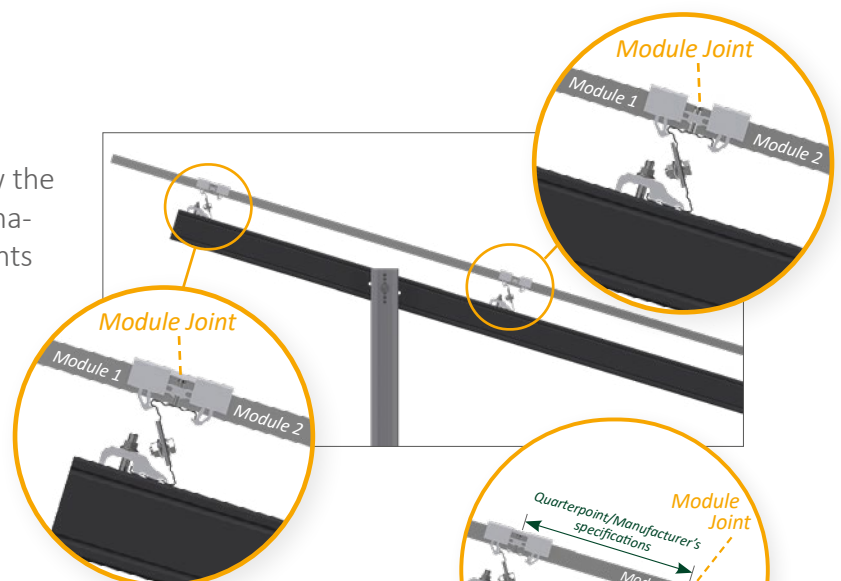
This pre-assembled clamp enables a simple, safe and quick installation of solar modules on ground mount systems by sliding it onto the Z-purlin from below and fixating it with Torx 40.

The distance between the modules is only 5 mm, which optimises the use of space. It is suitable for vertical and horizontal module mounting and supports potential equalisation with an integrated grounding pin. This allows for custom module spacing.



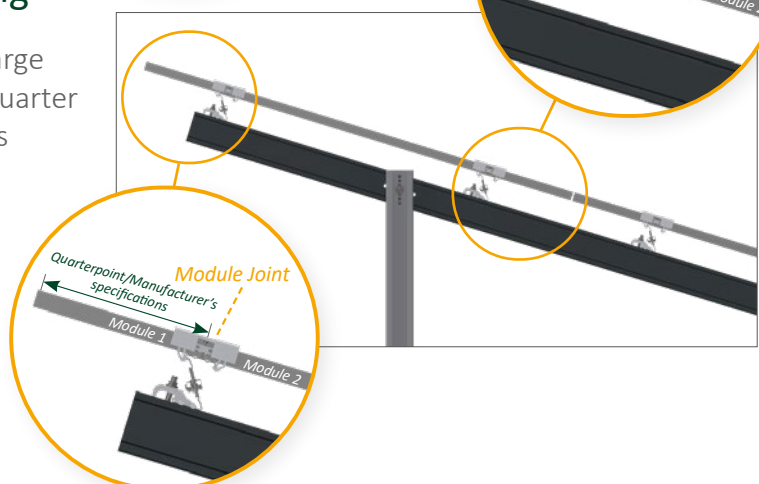
Combined Clamping

With this type of clamping, you need to follow the clamping positions according to the module manufacturer's specifications. Four clamping points per module ensure optimum clamping.



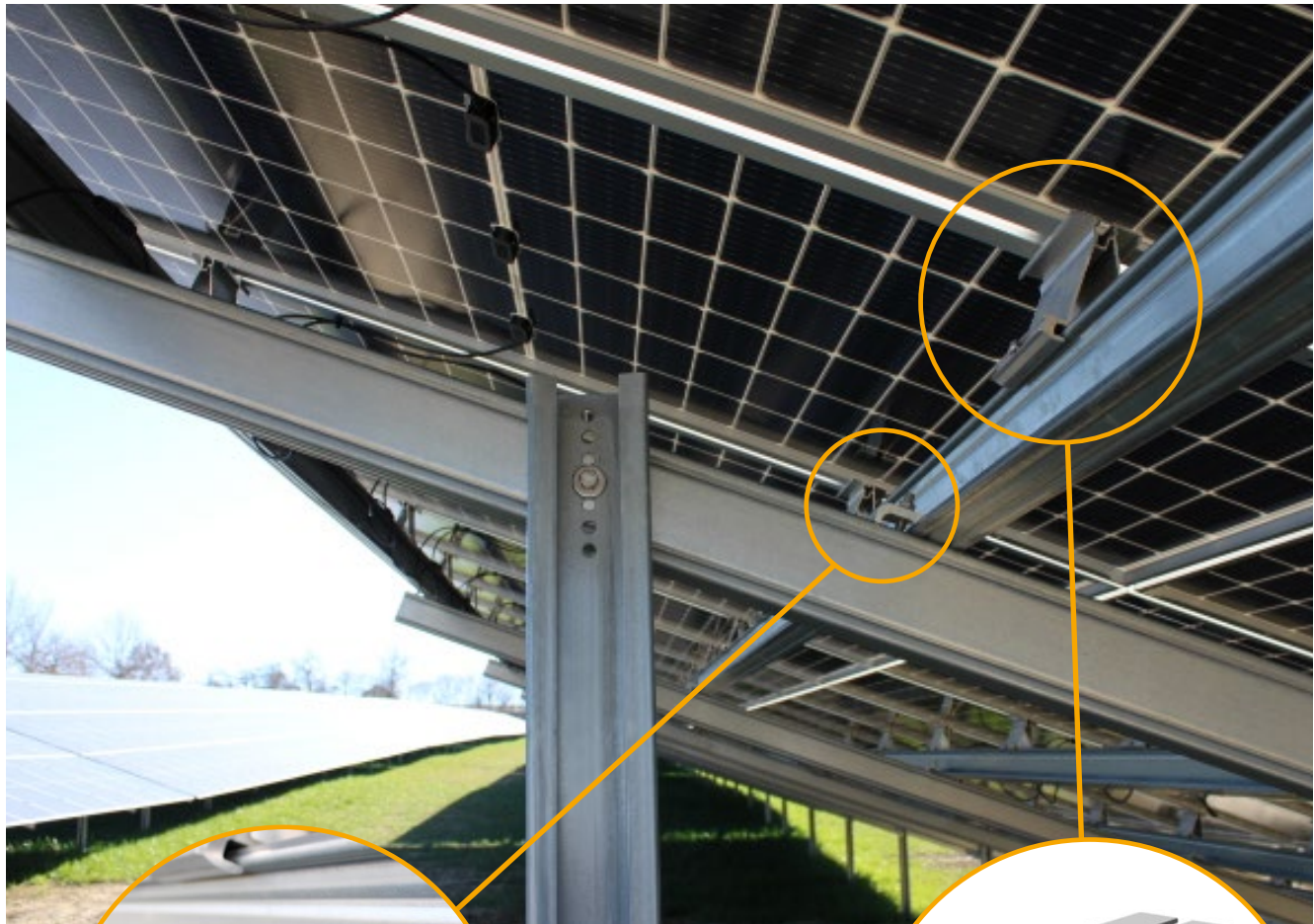
Quarter-Point/Long-Side Clamping

This type of clamping is recommended for large modules. The modules are clamped at the quarter point range, according to the manufacturer's specification. With quarter-point/long-side clamping, the system requires two additional purlins, which leads to better resistance to higher snow and wind loads.



Proven Designs Optimized - also for ground mount systems!

Our innovative Z purlin clamp makes it possible to connect girders and Z purlins with just one person.
No drilling required, full flexibility at site.



*Steel purlin clamp
with cap*

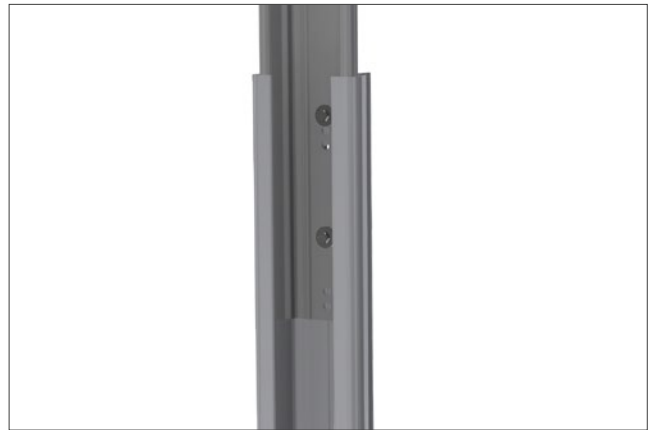


***Module
holder for
bifacial modules**
ensures minimal
backside shading.
Only one tool required:
Torx 40*

Few components - huge time-savings

Only a few steps are necessary to assemble our ground mount system, consisting of very few components, especially small parts. This makes the SL Rack ground mount system one of the easiest-to-assemble systems on the market. This saves a lot of time and effort.

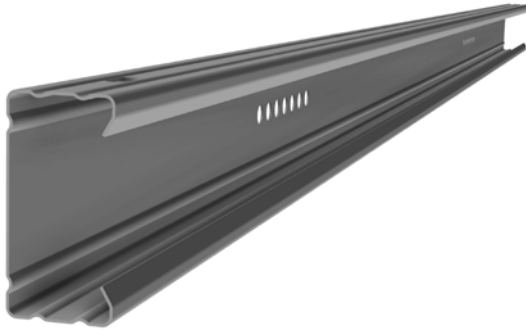
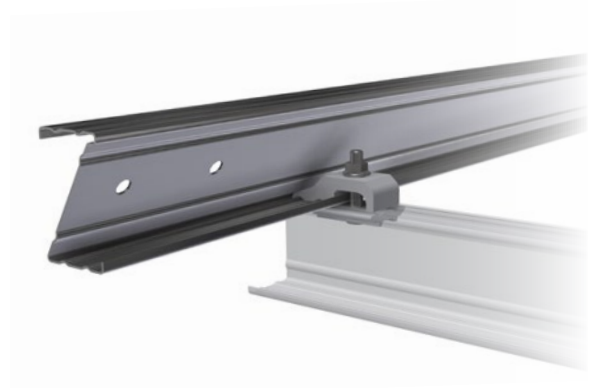
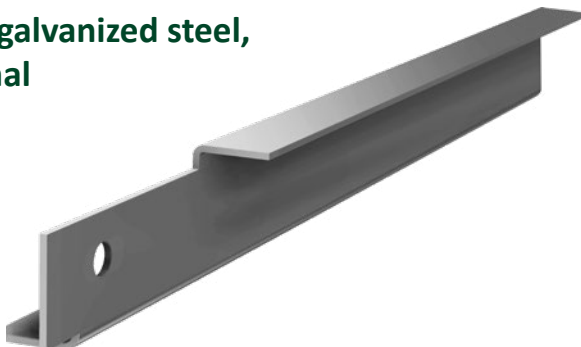
W-pile made of special plastic



Connection with W-pile

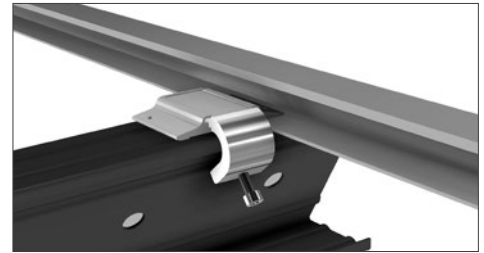
W-pile



Girder, galvanized steel**Z-Purlin, galvanized steel****Z-Purlin Clamp, aluminum (stainless steel bolt)****Strut, galvanized steel, optional**

Strut, connecting girder and pile

Bottom Clamp



Clamp connecting solar panel to Z-purlin

Purlin Clamps



Solo-purlin mid clamp



*Solo-purlin mid clamp
with grounding*



Duo-purlin mid clamp



*Duo-purlin mid clamp
with grounding*

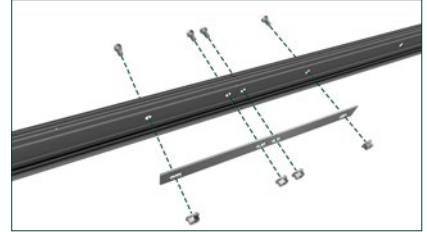


*Duo-purlin end clamp
30-40 mm*



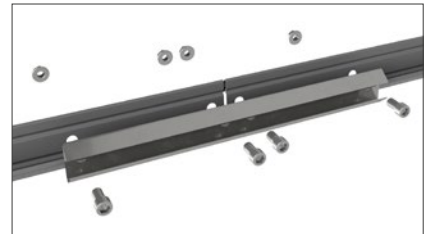
*Duo-purlin end clamp
41-50 mm*

Purlin Connector SPFV 80/100/130 - 630 mm galvanized steel



Connection of 2 steel purlins

Steel Purlin Connector SPFV 80 - 600 mm galvanized steel



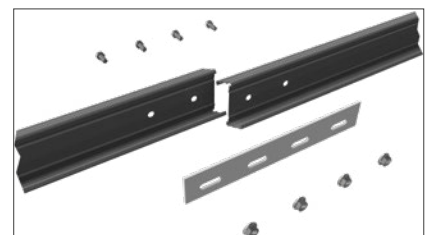
Connection of two steel purlins with
hexagon socket head screws

Steel Purlin Connector SPFV 100/130/170 - 600 mm galvanized steel

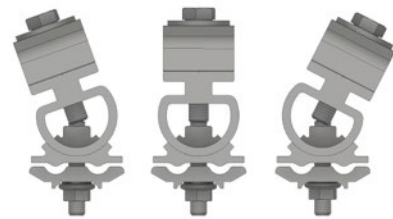
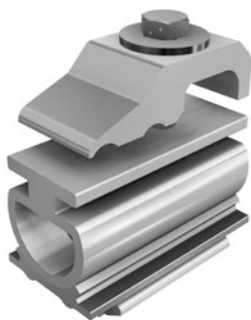


Connection of two steel purlins with
hexagon screws

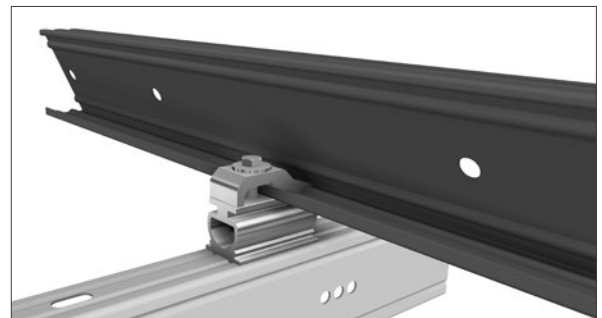
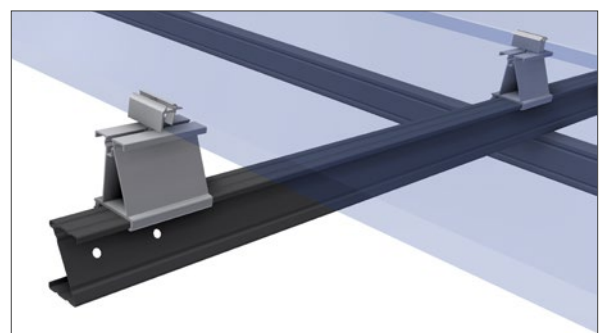
Z-Purlin Connector galvanized steel



Connection of 2 steel purlins

Cap for Z-Purlin Clamp for cable protection, plastic**Z-Purlin-Girder-Joint, aluminum**

Tension-free installation for challenging terrain with slopes

**Module Holder for bifacial modules**

[illegible]



SL Rack
[Website](#)



SL Rack
[YouTube](#)



SL Rack
[Online ordering system](#)



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