Our carport systems are designed in such a manner that existing parking lots and roof areas are used as far as possible. No matter if it is an individual carport or a company carport, we have installed fastening systems for solar plants with a total power of 15 GW in 15 years which gained us considerable experience.
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Our company is certified in accordance with:

Many systems also have an official German general technical approval.

Accreditations and certificates can be referenced on the internet at:
http://www.schletter.de/EN/company/qm-certificates.html
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Your competent contact partner
We have long-year experience with car port systems of very different sizes - no matter if you want a carport for 1 vehicle or for hundreds of vehicles, with a power of 2 kW or 6 MW. Almost everything is possible!
Only a few years ago, the feed-in tariff was the most important criterion for the set-up of a solar plant. This has changed with the new German Renewable Energy Act that was passed in the summer of 2014. The current feed-in tariffs are too low to be a real incentive. The utilization of this energy will become more attractive as the power grid is extended, because a solar carport is just perfect to be used as a “solar power station.”

This gives you several benefits. The solar carport reliably protects you from intense solar irradiation, snow, rain and hail. In addition to that, it generates clean power for self-consumption and for the charging of electric vehicles. And if there is surplus solar power, you can feed it into the grid and receive feed-in compensation from the energy supply companies.

Areas of application
- Single homes or apartment buildings
- Industrial companies and trade firms
- Theme parks
- Building supplies stores and supermarkets
- Hotels
- Hospitals
- Community facilities

Everything from one source! "Made in Germany"
Incorporating a photovoltaic plant on the company roof can, therefore, be a convenient way of improving the energy balance of the building. But in many cases, the roof areas are too small and cannot make a relevant contribution to the power supply.

Solar Carports provide an ideal supplement respectively alternative to the generation of solar power on big areas. Our Park@Sol is a logical further development of our Schletter ground-mounted FS solar systems. The FS ground-mounted systems already have been used for numerous large projects all over the world. Our experience is not only specific to the area of individual structural optimization for the diversity of regional snow and wind conditions, but lies particularly in the fastening of all module types.

There can be no doubt that the cost for electric power will keep rising. In contrast to that, the solar carport will provide you with free electric power for many years as soon as it has paid itself off. This will give you planning security. Invest in the future and in an independent power supply with affordable electricity.

A solid carport by Schletter gives you many benefits

- Swift and unproblematic mounting
- Optimum area utilization
- Suitable for all types of modules
- For any desired alignment or module inclination
- Competent advice for your project planning and creation of drawings
- Complete structural analysis free of charge for each individual project
- Complete carport structure made of aluminium or steel
- Durable and corrosion-free
- Customized foundation options
- Complete documentation in the form of system drawings
- Individual customer design, on request in different colors

Optional services

- Purchasing and sale of pre-cast concrete elements with vehicle impact protection
- Anchoring of the pre-cast concrete parts using a special concreting technique
- Mounting of the complete carport system
- Module mounting

Schletter quality label

We manufacture most components ourselves in our plant. Like this, we can avoid shortages and can offer you a product quality that meets the highest standards. We avoid long transport distances as far as we can. What we cannot produce ourselves, we buy on location as far as possible.
Solar carports and electric mobility
These two belong together

With a solar carport, you can charge your solar car regularly with free solar power and drive up to 10,000 per year. Already today, electric cars are a real alternative and politically intended. Thus, there has been a 10 year car tax exemption for electric cars in Germany since 2012.


Electric motors do not create any CO₂ emissions but also have a high degree of efficiency. They reach degrees of efficiency of more than 90 percent, a combustion engine only has a degree of efficiency of about 40 %. An electric car is also very useful as an additional appliance in order to use the fluctuating energy yields of the solar power plant.

Our Park@Sol carport, together with the P-CHANGE charging pillar, form an ideal system combination. The Schletter P-CHANGE-system is a complete line of charging stations for electric vehicles for a wide range of requirements both in the public and the private sector. From simple pillar-shaped charging stations for electric bicycles, scooters and cars to complete parking area systems for supermarket chains, municipal parking decks and parking lots.

The P-CHANGE system can be customized to individual requirements. Each pillar is equipped with the appropriate socket system depending on the specification.
Our offers
From simple to very complex

Unit-assembly system for the right solution

There are several designs to get the best possible and most economical layout on the area that is available. Each plant is individually configured to the customer’s requirements and to the requested basic design, taking the following parameters into account:

- Module type and design
- Plant size
- Soil conditions
- Distances between supports / apportioning of the parking area
- **Optional**: Design adaptations

**Different designs**
- Standardized carport kits for 1 to 10 parking spaces.
- Unit-assembly-system in any desired size
- Steel carport as individual or row carports in any desired size
- Concrete foundation
- Rammed (pile-driven) foundations

**B1** 1-row vehicle arrangement
(max. depth 6.0 m)

**B2** 2-row arrangement of vehicles
(max. depth 13.5 m)

**B3** 2-row arrangement of vehicles
(max. depth 13.5 m)
The foundation
Carports need a robust and stable foundation. Only like this, structural safety, long durability and reliable weather protection are achieved. We can offer you the following options.

Concrete foundation
*The economical solution for small carport plants*
- The foundation is made of cast concrete
- Concrete foundation as impact protection
- Unimpeded door opening
- Central foundation

Micro-pile foundation
*The unrivalled solution for large carport plants*
- Small pre-cast concrete foundations
- Firm anchoring using micro-piles
- Only minimal construction works on the parking lot surface required
- Suitable for almost any type of subsoil
- starting from 300 kW crystalline modules
- starting from 200 kW thin-film thin-film modules

Rammed (pile-driven foundation) foundation
- Concrete ground collar as impact protection
- Height-optimized ground collar for unimpeded opening of doors
- **Optional:** Cast-in-place concrete boarding for collar

R1 1-row vehicle arrangement

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The lower boarding is made of trapezoidal aluminium sheet metal
A trapezoidal aluminium sheet metal is fastened from below to the rafter or the profile. Like this, a tight roof cladding is created. And another two requirements are fulfilled:

According to the German Renewable Energy Act, a building is defined as an independent roofed structure for the protection of people, animals or objects. A solar carport must fulfil this protective function even without modules.

Apart from that, normal glass must not be installed in buildings above persons without accordant protection.
Technical data

Park@Sol

Material
Fastening elements, screws/bolts: Quality steel 1.4301; Profiles: Aluminium MgSi05 /EN AW 6063, EN AW 6005)
Pile-driven foundation posts: Steel, hot-dip galvanized

- High life-expectancy, high residual value, no disposal costs
- Easy plant re-powering due to modular design

Logistical details
- Quick and easy assembly
- Pre-assembled as far as possible.
- Optimized transport to the construction site

Auxiliary equipment
- Cable channels, cable ducts
- Lightning protection system (FSProtect system)
- Components for internal potential equalization
- Clamps for different types of modules
- Fastening systems for large-surface laminate modules (System OptiBond)
- Cast-in-place boarding for concrete ground collars
- Drainage, advertising space and much more!

Guarantee information
We grant you a voluntary guarantee on our systems, as far as specified. Please look up the details on the internet at www.schletter.de/AGB_en.
Delivery and services
• Assistance for your project planning
• Documentation in the form of system drawings
• Production and delivery of the complete carport system
• Optional: Purchasing and sale of pre-cast concrete elements with vehicle impact protection
• Optional: Anchoring of the pre-cast concrete parts using a special concreting technique
• Optional: Mounting of the complete carport system
• Optional: Mount the modules

Structural analysis
• Individual structural analysis based on a geological survey (for assembly designs using driven piles)
• Individual system structural analysis based on regional load values
• Load assumptions according to DIN EN 1990 (Eurocode 0), DIN EN 1991 (Eurocode 1), DIN EN 1993 (Eurocode 3), DIN EN 1999 (Eurocode 9) and further respectively corresponding country-specific technical standards
• Patented profile geometrics with an optimum material utilization
• Structural verification of all structural components based on FEM-calculation
• Optional: Wind load vibration simulation
• Optional: Earthquake simulation

Design
Cost-optimized complete construction due to structural optimization
• For framed and unframed modules
• Minimum sealing of the soil surface

Please note: Depending on the design, the risk of snow masses sliding off the roof must be considered in the planning. Accessory parts to reduce the risk of snow sliding off are available on request. Depending on the alignment, the modules can cast shadows on each other.

Lightning protection, earthing, potential equalization
Enhancement with external lightning protection systems possible
• Components for internal potential equalization
• Potential equalization certified acc. to VDE 0100, part 712

Certifications
Parking lot solutions
A real plus. Many options.

Micro-pile foundation
Economically priced. Steady. Safe.

Our carport systems are designed in such a manner that the area of already existing parking spaces are used in the most efficient way and to provide as much roof area for solar power generation at the same time. Of course, construction on large surface areas requires very heavy foundations. Many parking lots are not able to accommodate such a large volume of foundation material however, due to their size.

CarportMicro
Small pre-cast concrete foundations are used for the CarportMicro foundation system. These concrete foundations provide a sufficient vehicle impact protection and only require minimal modifications of the parking surface. Thus, the parking lot can be used almost without restrictions.

Especially with existing parking lots, micro-piles are a technique that can quickly be implemented, because only minor soil operations are required. The bigger the parking lot, the more price-efficient the use of a drilling machine.

For large carport plants in particular, this combination is both an economically optimized and a visually attractive foundation system with very high level of structural safety on almost any type of subsoil.

1. Drilling of the hole using a cross-cut drill bit
2. The injection of cement mortar creates root piles and increases the structural safety of the foundation
3. Drilling and filling of the second foundation
4. Installation of the impact protection
5. Mounting of the support construction
6. Completion of the supporting structure
Steel Carport

The trends in the field of solar mounting systems are definitely moving towards cost-efficient systems made of steel which may nearly as conveniently be mounted as aluminium systems.

Besides, steel has unique material properties, such as higher load-bearing capacity and is much stronger than aluminium. However, the steel design is three times as heavy. Thanks to its stability and its own weight, the carport is very resistant to snow loads and wind pressure. To meet Schletter’s high quality standard, hot-dip galvanized steel is used for the carport.

With the steel carport, we can offer you a price-worthy option that serves both for the roofing of solar carports and for the generation of solar power. It is available as individual carport or as carport array of unlimited size. This steel carport may be deployed as canopy for existing as well as for newly built parking spaces.

Generally, the steel carport offers the same benefit and all the possibilities like the other carports of this range of products. And it is as versatile as the other carports. But this variant does not dispose of any vehicle impact protection. Height differences in terrain topography here as well are levelled by means of foundation posts.

Those posts (rectangular rails) are either rammed (pile-driven) or cast in concrete. With pile-driving (ramming), it is even possible to mount racks on difficult subsoils.

With the Schletter steel carport, you opt for a robust and cost-efficient solution to protect vehicles against weather and at the same time use free energy from the sun.

The cost-efficient modular carport system
• Swift and unproblematic mounting
• Optimum area utilization
• Suitable for all types of modules
• Customized foundation options

You can watch a video documentation about our micro-foundation and the setting-up of our carports on our home-page at www.schletter.de “Company”.
Schletter carport systems
Modular and customized at the same time

Individual enhancements
Optional accessories

Schletter is known for individual solutions. Of course, this also applies to our carport systems.

Our individual carports are designed according to your requirements, wishes and ideas. Numerous enhancements are already available - simply contact us!

Examples:
• Effective drainage systems
• Cable routing
• Inverter fastenings
• Illumination
• Optimum advertising spaces
• Available in all RAL-colors

Private Park@Sol
This is a standard unit-assembly-system for standard module sizes. This allows an even quicker implementation. Due to their modular design, the carports of our Private Park@Sol with one or two parking spaces are ideal for private parking lots and parking lots of small companies.

Examples:
Carport with 2 parking spaces / for 15 modules
Dimensions: 5.22 m x 5.11 m
Span: 5 m
Power: approx. 3 KW (modules are provided by the customer)

Advantages
• Ideal unit assembly system including mounting instructions
• Generally licence-free for up to 2 parking spaces
• Applicable for most standard module sizes
• Drawings, reinforcement plan and LGA structural standards incl.
• Roof inclination 10 degrees - optimized for custom arrangements

Please take a look at our carport reference plant on our homepage www.schletter.de in the solar mounting system area.
More and more solar carports are used as "solar power stations" in commercial and municipal electric mobility infrastructures. In such cases, aspects like design and corporate identity play an important role.

On request, our in-house industrial design team will work with you to produce a custom look to your carport which reflects your own corporate design and effectively communicates a unified company image to the outside world. Please just contact us!
We use the power of the sun

The best example is our
Schletter company parking lot

A total of 260 parking lots are roofed with our solar carport system Park@Sol. Within only 3 weeks, we were able to enhance our current output gained from the existing roof plant by a further 500 kW, without interrupting our operations.

Not only did we gain experience through the construction of this plant, but we are now able to present all our carport design options first hand when you visit us, including the charging pillars from our original presentation. We cordially invite you to see for yourself!

By the way: On sunny days, our solar roof plant and our solar carports generate even more eco-friendly and carbon-neutral power than our production plant requires.
Solar carports
The benefits - an overview

End customers
• In Germany and several other countries you receive feed-in tariffs like for solar plants on roofs as far as certain requirements are fulfilled.
• Very convenient, no snow in the winter and cool and shady in the summer
• Protection against the rain while loading and unloading vehicles
• Unit-assembly-systems for small solar plants for a quick and simple assembly
• Self-consumption reduces the costs for energy.
• More independence from increasing power prices
• With the “charging station” for electric bicycles/scooters or electric cars
• Structural analysis for each project included

Municipalities and communities
• Creation of an infrastructure to support the mobility of the future
• Eco-friendly and innovative image
• Very convenient for tourist areas
• Value creation in your region
• Electric cars reduce noise and exhaust emissions in inner cities
• Active contribution for the reduction of carbon emissions
• Reduction of power costs
• More independence from increasing power prices

Shopping centers, central markets and supermarket chains
• Parking lots in winter, and cool and shady parking lots in summer
• Protection against the rain while loading and unloading vehicles
• Customers stay longer which creates customer connectivity and gains new customers
• Eco-friendly and innovative image
• Improved energy balance
• Reduction of power costs
• More independence from increasing power prices
• With charging station for electric cars
• A relief for environment and climate

Businesses
• Charging of the electric vehicles of you vehicle fleet
• Eco-friendly and innovative image
• Improved energy balance
• Reduction of power costs
• More independence from increasing power prices
• A relief for environment and climate
Smart charging

SmartPvCharge 2.0
Excellent self-consumption quotas (is being developed)

A high percentage of self-consumption is the key to the future profitability of private and industrial photovoltaic installations. SmartPvCharge provides this technology already today. Self-consumption quotas of more than 80% are possible. This system won Schletter the Intersolar AWARD 2013 in the “Photovoltaics” category. Now, this charging process has been enlarged by a further optimization step - the thermal utilization of surplus PV power. This makes self-consumption quotas of 90% or more possible.

Bike@Sol
Please find detailed information in our Bike@Sol product sheet.

Charge4Bike
Charging and parking space for four e-bikes

Locations equipped with Charge4Bike gain in attractiveness and are visited more often by customers or guests. This cost-efficient e-bike charging system is the perfect addition to bike trails, guest houses, municipalities or to the “shop around the corner”. Further product variants are under development.

» P-CHARGE products
Please find detailed information on the internet at www.p-charge.de

Learn more at www.schletter.eu
In the electric mobility sector
Schletter solar carports
You will find them all over the world

Customer projects

We have installed solar fastening systems for solar plants with a total power of 15 GW - benefit from our experience. Schletter: Your partner for a cost-efficient system dimensioning!

Customer satisfaction is always the best reference, we would like to show you a few projects of our customers worldwide. Minimum mounting time, long durability and high economic efficiency as well as individual and creative design have convinced our customers.

Special construction - HRC PV
Plant size: 3.8 MWp
Customer: Eniromena Power System
Country: Jordan

B1 - Tesla
Plant size: 20 kWp
Customer: Tesla
Country: China

B2 - Naples-Carport
Plant size: 1 MWp
Customer: Schneider Electric
Country: Italy

B1 - Tibet Museum Carport
Plant size: 102.9 kWp
Customer: Beijing Corona Science & Technology Co., Ltd.
Country: China
References
Solar carport systems

B2 - Lausitzring
Plant size: 999.2 kWp
Customer: Yoku
Country: Germany

B2 - CLK
Plant size: 30 kWp
Customer: AWI Solar
Country: Germany

B2 - EVO Offenbach
Plant size: 83 kWp
Customer: Juwi
Country: Germany

B1 - Seeg
Plant size: 37.44 kWp
Customer: Elektro Uhlemayr / BV Seeg
Country: Germany

B2 - Wörrstadt
Plant size: 100 kWp
Customer: Juwi / BV Wörrstadt
Country: Germany

B2 - Naples-Carport
Plant size: 1 MW
Customer: Schneider Electric
Country: Italy

B2 - Maadi
Plant size: 20 kWp
Customer: emeco Egypt
Country: Egypt
**B1 & B2 - Parking deck “am Rebstock”**

- **Plant size:** 700 kWp
- **Customer:** Sunlight Electric, LLC.
- **Country:** Germany

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**B1 - Bergheim**

- **Plant size:** 122.5 kWp
- **Customer:** Sunlight Electric, LLC.
- **Country:** USA

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**B2 - Solar farm Mollnhof**

- **Plant size:** 840 kWp
- **Customer:** Guggemos
- **Country:** Germany

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**B2 - Langgöns**

- **Plant size:** 52.8 kWp
- **Customer:** Gecko Logic / BV Langgöns
- **Country:** Germany

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**B2 - Heiden**

- **Plant size:** 44.4 kWp
- **Customer:** B&W Energy / BV Velen
- **Country:** Germany

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**B2 - Grosseto**

- **Plant size:** 6 MWp
- **Customer:** Phoenix Solar AG
- **Country:** Italy
References
Solar carport systems

B1 & B2 - Special solutions
Plant size: 1 MW
Customer: Phoenix Solar
Country: Germany

B1 & B2 - Sauber Motorsport AG
Plant size: 150 kWp
Customer: SiDiTek
Country: Switzerland

B3 - Sydney Markets Limited
Plant size: 170 kWp
Customer: Autonomous energy
Country: Australia

B2 - Döbeln
Plant size: 33 kWp
Customer: Wagner Solartechnik / BV Döbeln
Country: Germany

B2 - Larotonda
Plant size: 18.72 kWp
Customer: AS Solar / Energia e Sole
Country: Italy

Special constructions - Burger King Waghäusel
Plant size: 52.3 kWp
Customer: Wirsol
Country: Germany

B1 - Chengdu
Plant size: 15 kWp
Customer: Dongfang Hitach
Country: China
B1 & B3 - Sparkasse Bad-Tölz
Plant size: 288.2 kWp
Customer: S-Tech-Energie
Country: Germany

Special constructions - Saerbeck
Plant size: 5 MWp
Customer: F+S-Solar
Country: Germany

B1 - CS Soleos
Plant size: 31.68 kWp
Customer: SOLEOS
Country: United Arab Emirates

B1 - CS Olbernhau
Plant size: 25.34 MWp
Customer: GÄFGEN Elektrogroßhandel GmbH
Country: Germany

B1 - Tesla Nanjing
Plant size: 16.38 kWp
Customer: EPC Hanergy
Country: China

B1 - Dornbirn
Plant size: 4.68 kWp
Customer: SOLATECH
Country: Austria

B1 & B3 - Al-Zahraa Coop CarPark
Plant size: 752 kWp
Customer: Life Energy
Country: Kuwait
Our members of staff are available from Monday to Friday from 7 am to 5 pm to provide comprehensive and competent technical advice for the planning of your solar plant and to answer questions regarding logistics and order processing.