



*Professional solar mounting systems*  
*Park@Sol carport systems*





## *The modular carports Park@Sol*

### **New useable surfaces for solar energy**

Our long-term experience as the market leader in the field of fastening technology secures your investment in the future!



The energy balance becomes more and more important for modern companies in times of climatic change and diminishing energy resources. Increasing fuel costs, compulsory environmental certifications or also the mere wish for a positive environmental friendly image are regarded as ever more important especially in case of new company buildings. So especially photovoltaic plants on company roofs are a welcome measure to considerably improve the energy balance of the building. But in many cases, the roof surface areas are too small to make the desired contribution, not to mention the realization of the concept of an energetically self-sufficient building.

Solar-Carports are an ideal completion for solar energy generation on big surfaces. If the remaining legal preconditions are fulfilled, maximum compensation for electricity fed into the grid is possible in Germany.

The Park@Sol system is based on the consequent further development of the Schletter-FS-open area-mounting systems, with which many projects on a scale of several hundred MW in Germany and other European countries as well as in North America have been realized. There are not only special experiences in the field of individual structural optimization for the most different regional snow and wind conditions, but especially also in the fastening of all kinds of module designs.





## *The Park@Sol carport by Schletter*

### *An investment that pays off in several ways!*

#### **Your advantages**

- Swift and unproblematic mounting
- Optimum surface area utilization
- Suitable for all kinds of modules
- For any desired alignment or module inclination
- Customized foundation options
- Competent advice for your project planning and creation of drawings
- Complete structural analysis free of charge for each individual project
- The construction is completely made of aluminum
- Durable and corrosion-free
- Complete documentation in form of system drawings
- Individual customer design, on request in different colors
- **10-year durability warranty\***

#### **Optional services**

- Supply and sale of pre-cast concrete foundations incl. bumping protection
- Anchoring of the pre-cast concrete foundations using a special drilling procedure
- Mounting of the complete system
- Module mounting

#### **The lower boarding is made of trapezoidal aluminum sheet metal**

1. As a tight roof cladding
2. To meet the requirements of the so-called „overhead glazing“

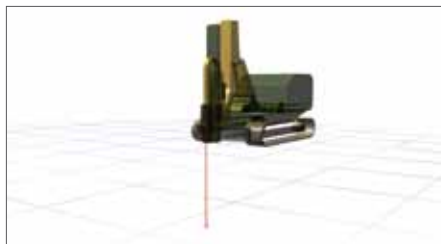




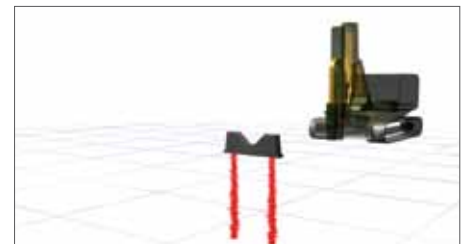
## *Micro-foundation Economic, elegant and safe*

### **CarportMicro**

Our carport systems are optimized in such a manner that the parking lots are utilized in an optimum manner and big roof surface areas can be utilized for energy generation at the same time. Of course, these big surface areas make very heavy foundation weights necessary. As a result of that, big foundation volumes are required which cannot be installed on many parking lots due to their size.



1. Drilling of the hole using drill bit



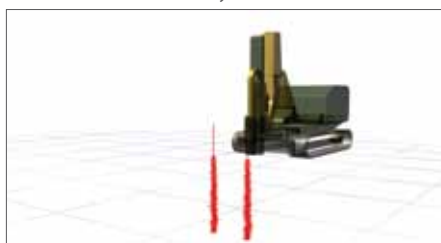
4. Installation of the bumping protection



2. The injection of cement mortar creates root piles that increase the structural safety of the foundation



5. Mounting of the support construction



3. Drilling and filling of the second foundation



6. Completion of the supporting structure





**The unrivalled  
solution for  
big carport  
installations!**

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Injection of cement mortar using the drill bit



Completely installed injection piles



Readily installed and levelled pre-cast foundations



Grouting of the foundations

With the new foundation system carport micro, small pre-cast concrete parts are utilized that provide sufficient bumping protection, only require minimum reconstruction operations on the surface of the parking lot and do not limit the utilization of the parking lots.

Especially for big carport plants, this combination is an economically optimized and at the same time visually attractive foundation system with very high structural safety on almost all kinds of subsoil.

You will find a video documentation about our micro-foundations and the mounting of our carports on our website [www.schletter.eu](http://www.schletter.eu)





## Individual extensions Optional accessories

Our individual carports are designed according to your requirements

Numerous completions are available—just contact us!

Examples:

- Efficient drainage systems
- Cable guidance
- Inverter fastenings
- Illumination
- Optimum advertising spaces
- Available in all RAL-colors



### Private Park@Sol

Complete unit-assembly systems for standard module sizes will complete our successful product series of Park@Sol carports in the future and will also allow for an even quicker project implementation.

Example:

Carport for 2 vehicles / for 15 modules

Dimensions: 5.22m x 5.11m

Spans: 5 m

Power: about 3 KW (the modules have to be provided by the customer)

A more exact list of our complete systems is available for download on our homepage at: [www.schletter.eu](http://www.schletter.eu)

### Design Park@Sol

On request, our in-house industrial design team will develop customized carport designs to enable you to display your corporate design in an efficient and standardized manner.



Several advertising options



Cable guidance resp. cable duct



Illumination



Drainage





## *Solar carports and electric mobility - the unbeatable combination*

### **P-CHARGE**

#### **Charging systems for electric vehicles**

By developing sustainable and economic environmental technology like our charging systems for electric mobility, we take part in the creation of an ecological future.

Our pillar-shaped charging station P-CHARGE and our Park@Sol carports are an ideal system combination.

In close cooperation with potential customers and grid operators, we develop the most different types of charging systems, the accordant control software, grid concepts and billing systems.

#### **P-CHARGE – versatile charging stations for electric vehicles**

- Pillar-shaped charging station in modular design
- Different equipment options and sizes
- Up to 4 charging processes at the same time
- Freely selectable billing systems
- Can be combined with the Park@Sol solar carport

Please find further information on electric mobility on the internet at [www.schletter.de](http://www.schletter.de) or at [www.p-charge.de](http://www.p-charge.de)





## *A modular system for optimum system solutions* **Park@Sol**

### Concrete foundation

- Concrete ground collar as a bumping protection
- Unimpeded door opening
- Central foundation

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



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



**B3** 2-row vehicle arrangement  
(max. depth 13.5 m)



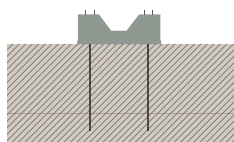
### Cast-in-place concrete

The economic solution for small carport plants



### Micro-foundation

The unrivaled solution for big carport installations



### Pile-driven foundation

- Concrete ground collar as a bumping protection
- Collar height is optimized to allow for unimpeded door opening
- Cast-in-place concrete boarding for concrete ground collar on request

**R1** 1-rowed arrangement of vehicles



**With micro-foundations, the amount of concrete required can be reduced by up to 75%!**





# Park@Sol

## Technical data

### Material

- Fastening elements, bolts: Quality steel 1.4301;  
Profiles: Aluminium MgSi05 /EN AW 6063, EN AW 6005)  
Pile driven foundations: Steel, hot-dip galvanized
- High life-expectancy, high residual value, no disposal costs
  - Simple plant repowering by modular concept

### Logistics

- Quick and simple mounting
- Maximum level of pre-fabrication
- Optimized transport to the construction site

### Accessories

- Cable channels, cable ducts
- Lightning protection system (**FSProtect system**)
- Components for the internal potential equalization
- Clamps for different types of modules
- Fastening systems for big-surface laminated modules (**OptiBond system**) Cast-in-place boardings for concrete ground collars
- Illumination, drainage, advertising spaces and much more!

### Delivery and services

- Assistance for your project planning
- Documentation in the form of system drawings
- Production and delivery of the complete carport system
- **Optional:** Supply and sale of pre-cast concrete foundations incl. bumping protection
- **Optional:** Anchoring of the pre-cast concrete foundations by means of a special drilling procedure
- **Optional:** Mounting of the complete carport system
- **Optional:** Module mounting

### Structural calculation

- Individual structural analysis of the site on the basis of a soil survey (for pile driven design)
- Individual structural analysis of the system on the basis of regional load values
- Load assumptions according to DIN 1055 Part 4 (03/2006), part 5 (06/2005), part 100 (03/2001), Eurocode 1 (06/2002), DIN 4113, DIN 18800, Eurocode 9 and others, resp. the accordant specific national standards
- Patented profile geometries with optimum material utilization
- Verification of all construction components based on FEM-calculation
- **Vibration simulation** of wind loads on request
- **Earth quake simulation**, optional

### Construction

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

### Ligning protection, earthing, potential equalization

- Extension with outward lightning protection systems is possible
- Components for the internal potential equalization
- Potential equalization certified according to VDE 0100, part 712

### Warranty and Certifications



and of course:  
10-year warranty like on all Schletter systems



### Parking deck "am Rebstock"

#### Different rack configurations

Power:	1 kWp
Spans:	5.00 m
Dimensions:	different sizes
Postal code:	60327 Frankfurt
Customer:	Sonneninitiative



## Park@Sol Reference examples



### Döbeln

<b>Rack configuration:</b>	<b>CS 3V 22° B2 26 rows</b>
Power:	33 kWp
Spans:	4.15 m
Dimensions:	13.5 m x 13 m
Postal code:	04720 Döbeln
Customer:	Wagner Solartechnik BV Döbeln

### Larotonda

<b>Rack configuration:</b>	<b>CS 3V 22° B2 26 rows</b>
Power:	18,72 kWp
Spans:	4.30 m
Dimensions:	23 m x 4.8 m
Postal code:	58020 Larotonda
	Italy
Customer:	AS Solar Energia e Sole

### Burger King Waghäusel

<b>Different rack configurations</b>	
Power:	52.3 kWp
Spans:	5.6 m and 4 m
Dimensions:	different Dimensions
Postal code:	68753 Langgöns
Customer:	Wirsol





### Solar park Molnhof

<b>Rack configuration:</b>	<b>CS 8H 20° B2 13 rows</b>
Power:	840 kWp
Spans:	3.30 m
Dimensions:	13.2 m x 13.1 m
Postal code:	94036 Passau
Customer:	Guggemos

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### Langgöns

#### Different rack configurations

Power:	52.8 kWp
Spans:	5.00 - 5.50 m
Dimensions:	different sizes
Postal code:	35428 Langgöns
Customer:	Gecko Logic BV Langgöns

### Heiden

<b>Rack configuration:</b>	<b>CS 5V 15° B2 24 rows</b>
Power:	44.4 kWp
Spans:	5.00 m
Dimensions:	20 m x 8 m
Postal code:	46359 Heiden
Company:	B&W Energy BV Heiden

### Grosseto

<b>Rack configuration:</b>	<b>CS 5H 20° B2 10 rows</b>
Power:	6.45 kWp
Spans:	5.00 m
Dimensions:	10 m x 5.10 m
Postal code:	58100 Grosseto
	Italy



## *Park@Sol*

### *Reference examples*

#### Lausitzring

Different rack configurations

Power: 999.21 kWp  
 Spans: 5.40 m  
 Dimensions: different sizes  
 Postal code: Lausitzring  
 Customer: Yoku



#### CLK

Rack configuration: CS 20H 8°B2 10 rows  
 Power: 30 kW  
 Spans: 5.40 m  
 Dimensions: 12.1 m x 12.80 m  
 Postal code: 97359 Schwarzach  
 Customer: AWI Solar



#### EVO Offenbach

Different rack configurations  
 Power: 83 kW  
 Spans: 5.00 m  
 Dimensions: different sizes  
 Postal code: 63067 Langgöns  
 Customer: Juwi



#### Wörrstadt

Rack configuration: CS 20H 8°B2 35 rows  
 Power: 100 kWp  
 Spans: 5.00 m  
 Dimensions: 42 m x 13 m  
 Postal code: 55286 Wörrstadt  
 Customer: Juwi  
 BV Wörrstadt





### Bergheim

**Rack configuration:** CS 7H 10°  
(negative) B1 18 rows

**Power:** 122,5 kWp

**Spans:** 5.00 m

**Dimensions:** 29 m x 6 m

**Postal code:** 50126 Bergheim

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### Seeg

**Rack configuration:** CS 8H 15° B2 13 rows

**Power:** 37.44 kWp

**Spans:** 3.46 m

**Dimensions:** 41 m x 7 m

**Postal code:** 87637 Seeg

**Customer:** Elektro Uhlemayr  
BV Seeg

### Clemens Vögelsbüsch

**Rack configuration:** CS 5V 20° B2 26 rows

**Power:** 28.6 kW

**Spans:** 5.00 m and 3.50 m

**Dimensions:** 29.50 m x 8.40 m

**Postal code:** 66687 Wadern

**Customer:** Wocasa/Clemens  
Vögelsbüsch

**Rack configuration:** CS 11H 20° B2 28 rows

**Power:** 69.3 kWp

**Spans:** 8.5 m

**Dimensions:** 46.5 m x 10.9 m



#### Our parking lot

#### Different rack configurations

Power:	500 kWp
Spans:	5.60 m
Dimensions:	different sizes
Postal code:	83527 Kirchdorf
Company:	Schletter GmbH

## Our company parking lot *Park@Sol*

### We want to pass on our experience

On our company parking lot, we have roofed a total of 260 parking spaces with our new solar carport system.

Within an construction time of only 3 weeks, we were able to install another 500 kW in addition to the PV-plant on our roof without interrupting our operations.

This did not only gain us further experience, we are now also able to present you all carport designs including our pillar-shaped charging stations when you visit us.

We cordially invite you!

By the way, we already produce about 70% of the energy required by our production facilities by means of our solar roof plants and our solar carports – environmentally friendly and without carbon dioxide emissions.





# Solar carports

## An overview of your advantages

### End customer:

- In Germany and certain other countries, the same compensation for electricity fed into the grid like for PV-installations on roofs is possible, if all the legal conditions are fulfilled  
The guidelines for the compensation for electricity fed into the grid are the same like the ones for PV-plants on roofs
- Maximum convenience due snow-free to parking spaces in winter, and cool, shady parking spaces in summer
- Protected loading and unloading of vehicles in case of rain
- Optimum unit-assembly system for small installation
- Charging station and source of energy for electric bicycles, scooters and cars
- Structural analysis for each project included

### Municipalities and communities:

- Creation of an infrastructure for the mobility of the future
- Attractive and innovative image
- Value creation in your region
- Attractive for tourism
- Relief of inner cities from noise and exhaust emissions
- Better air quality
- Job creation due to electric mobility
- Active contribution to the reduction of CO<sub>2</sub> emissions and support of the European goal of a reduction by 20% until 2020

Set a good example!

### Shopping centers, central markets, Supermarket chains:

- Ideal customer-connectivity due to snow-free parking spaces in winter, and cool, shady parking spaces in summer
- Protected loading and unloading of vehicles in case of rain
- Customers stay longer
- Attractive and innovative image
- A relief for environment and climate
- Existing parking spaces can be used in an optimum and economic manner
- Very good yields due to the compensation at the roof PV-plant rate (in Germany)

Your customers will be delighted!

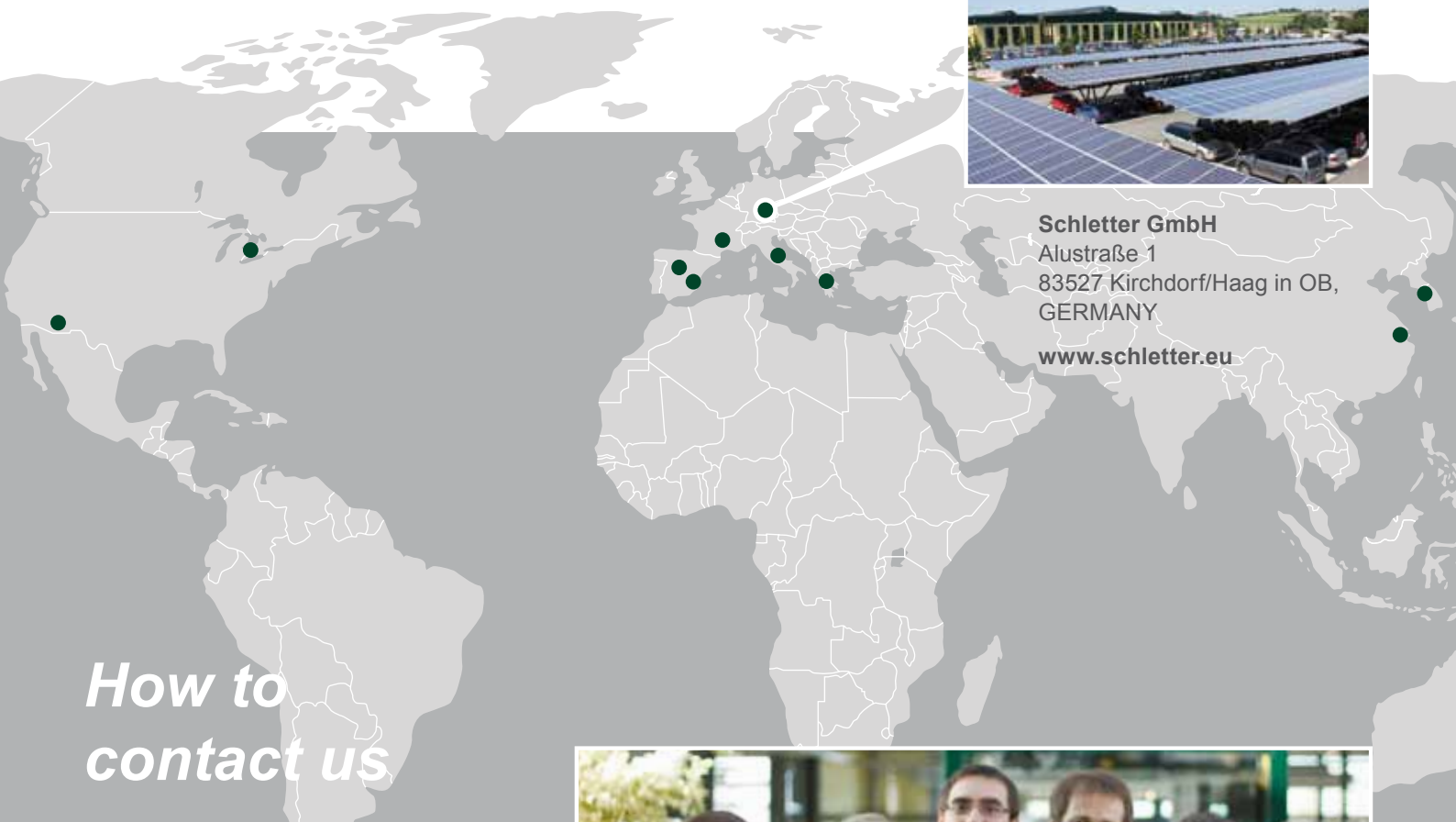
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## E-mobility

### Vision for the future



But our efforts for the generation of renewable energy do not stop here. Also in the future, we will offer you comprehensive solutions, individual implementations and innovative ideas to create an ecological future.



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*How to  
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For a comprehensive and competent consulting in the planning of your plant and for questions concerning logistics and order processing, our members of staff are available from Monday to Friday from 7 am to 5 pm.