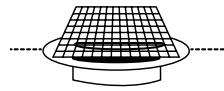


Maximum achievement up to 287.5 m² – SunCarrier 220 | 260 | 300

This system is **very solid, low in maintenance** and has a **concrete foundation with a diameter of 12 m**, which is formlocked to a steel structure with an anti-derailing device.

For all models, the pitch angle of the module **surface is 30° towards the horizontal** and always aligned precisely towards the sun. The SunCarrier 220/260/300 feature **a module surface area of up to 287.5 m²**, which provide an output of **up to 53 kWp**. Any forces impacting on the system are immediately directed into the foundations via the closed box of the steel structure. Thus, even at wind speeds up to 128.9 km/h, the SunCarrier 220/260/300 do not have to change their optimal alignment and therefore continue to work at maximum output when other systems are deflected by the wind.

Available foundations:



Concrete foundation



Up to
53 kWp
capacity

SunCarrier 220:
6 m height, 212 m² module surface,
concrete foundation

Generate up to 20% of your power requirements.

Free yourself from increasing power costs with innovative and fully integrated solutions to generate, store and utilise 100% sustainably generated energy.



Up to 100 kWh storage capacity!



Global presence: GILDEMEISTER energy solutions operates a global service network in cooperation with 75 international GILDEMEISTER sales and service locations.



MORE INFORMATION HERE!

If your mobile phone comes with QR-Code recognition software, you will be directed to www.gildemeister.com.

→ generate

→ **SunCarrier:** The SunCarrier is a **unique tracking system** which continuously aligns the surface of its modules with the current position of the sun via its vertical axis.

→ **WindCarrier:** The new generation of small wind turbines using the Darrieus principle with a rated power of 10 kW **guarantees efficient power generation.**

→ store

→ **CellCube:** A new generation of stable electricity storage devices – the long-life and low-maintenance vanadium-based **redox flow battery** provides **uninterruptible power, supplied for example by solar- or wind-powered systems.** The large, weather-proof battery is extremely low-maintenance and is therefore able to supply clean electricity 24 hours a day.

→ utilise

Intelligent products and technologies for modern energy management:

→ e-mobilitysolutions → telesolutions
→ backupsolutions → off-gridsolutions
→ industrialsolutions → powersolutions

→ Visit us at our **energy solutions Park** in Bielefeld and experience modern energy supply first-hand: Gildemeisterstrasse 60, 33689 Bielefeld, Germany

GILDEMEISTER energy solutions:
Tel.: +49 (0) 931-25064-120, Fax: +49 (0) 931-25 064-102,
energysolutions@gildemeister.com, www.gildemeister.com
a+f GmbH: Carl Zeiss Strasse 4, 97076 Wuerzburg, Germany
cellstrom GmbH: Industriezentrum NOE Sued, Strasse 3, Objekt M36, 2355 Wiener Neudorf, Austria

GILDEMEISTER
energy solutions

The earth follows the sun – so does our system.

SunCarrier 70 | 120 | 160 | 220 | 260 | 300



green energy
Generate 100% renewable energy!



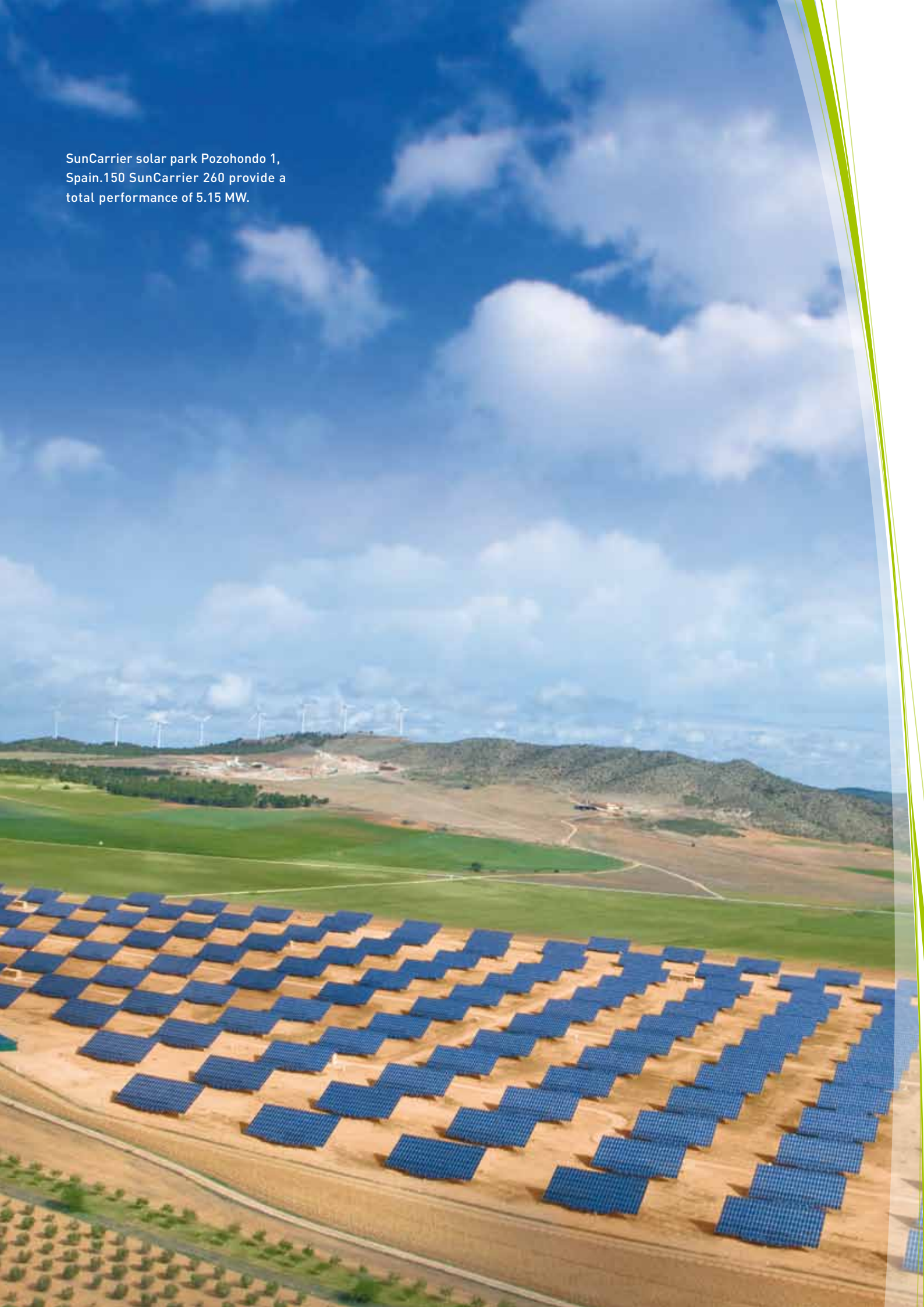
Up to 40% yield increase
Intelligent and environmentally friendly, performance that pays off



6.500 SunCarrier worldwide in operation



SunCarrier solar park Pozohondo 1,
Spain. 150 SunCarrier 260 provide a
total performance of 5.15 MW.



SunCarrier tracking system – unique efficient technology with 40% more yield.

The sun produces approximately 1.08×10^{18} kWh of power annually, which is about 10,000 times the world's primary energy need. With the SunCarrier, the unique tracking system with a 40% yield increase, a significant part of this renewable energy supply can be converted into electricity and put to use.

→ **The worldwide proven SunCarrier tracking system** can achieve energy yield gains of 40% compared to fixed position elevated systems. The intelligent systems continuously adjust, through azimuth rotation, to the radiation angle and position of the sun. **More than 6500 tracker in operation worldwide** are proof of its efficiency and reliability.

With the **SunCarrier series** we offer our clients ready-made project solutions with which maximum energy yields and short amortisation schedules can be achieved.

→ **SunCarrier services:** in addition to the **worldwide development and implementation of ready-made, large-scale projects**, we also offer our customers comprehensive service for operating solar plants. This includes monitoring, maintenance, immediate error correction and restoration as well as full technical and commercial operation management.



SunCarrier services:
On customer request, PV plants can be monitored around the clock by our monitoring centre.



SunCarrier services:
For example cleaning services according to special needs of the park.

SunCarrier – product overview

The SunCarrier product series provides the right solution for every PV application. From the new SunCarrier 70 with a height of only 4 m and a module surface area of up to 84 m² to the SunCarrier 300 with a module surface area of up to 287 m² providing an output of up to 53 kWp. Compared to fixed installations, an additional yield of up to 40% can be generated. The SunCarrier was developed as a robust and low-maintenance solar tracking system that has already proved itself in more than 6500 installed SunCarrier worldwide.



Awarded with the
INDUSTRY AWARD 2008
in the "Energy" category

Up to
14 kWp
capacity

NEW!

Up to
24 kWp
capacity



Compact single systems

→ SunCarrier 70

Compact system with high efficiency and little space requirements.

Installation area: 84,05 m²

Capacity: up to 14,000 Wp

Height: 4 m

Foundation: screw-in or concrete foundation

Compact single systems

→ SunCarrier 120

Can be installed without a problem in countries with construction height limits.

Installation area: 119,58 m²

Capacity: up to 24,000 Wp

Height: 4,3 m

Foundation: screw-in or concrete foundation

Foundation

Any forces impacting on the system are immediately directed into the foundations via the closed box of the steel structure. This eliminates pitching movements very effectively. There is also the possibility to choose between two different variations of foundation, depending on the SunCarrier model and the local ground conditions.



Module surfaces

Every SunCarrier model can be equipped with all common types of modules. Depending on the SunCarrier model, the pitch angle of the module surface is between 30° and 40° towards the horizontal.



Special design (low height)

→ SunCarrier 160

Highest yield through backtracking at low height.

Installation area: 163.2 m²

Capacity: up to 30,000 Wp

Height: 4 m

Foundation: screw-in or concrete foundation

High-performance park systems

→ SunCarrier 220 – 300

Maximum power output on up to 287 m² big tracker system.

Installation area: 212.1 – 287.5 m²

Capacity: bis zu 40,000 – 53,000 Wp

Height: 6 – 7.2 m

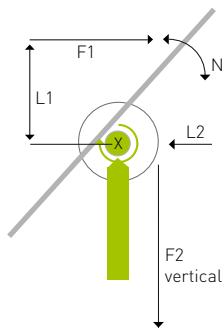
Foundation: concrete foundation

→ Your benefits

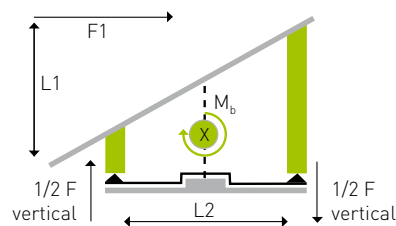
→ 20 years of warranty → Low in maintenance and service life → Very stable construction (wind loads of up to 144 km/h, snow loads of up to 0.8 kN/m²) → Worldwide proven with over 6500 installed SunCarrier → Simple and fast installation

→ Benefits of the SunCarrier in comparison to conventional tracking systems

Any forces impacting on the system are immediately directed into the foundation via the closed box of the steel structure without affecting the moving parts. This eliminates pitching movements very effectively. The SunCarrier therefore continues to work at maximum output when other systems are deflected by the wind.



F = force, L = distance, N = pitching motion, X = fixpoint



$$F \text{ vertical} = M_b / \Delta L_2$$

F = force, L = distance, X = fixpoint, M_b = torque

Many tracking systems seem to be loose or not robust enough. The central mast arm of a long-lasting and stable system must also withstand quickly changing gales, which attack with massive torque. The consequences of insufficiently stable construction include higher levels of materials fatigue and the appearance of a dangerous pitching motion, which can lead to the destruction of the tracking system and the modules.

→ A suitable solution for every application

To achieve the highest possible energy yields, solar plants must adjust their module surface optimally to the current position of the sun. Only this adjustment ensures an optimum angle for capturing sunlight so that maximum yields can then be guaranteed. The angle for capturing sunlight depends on the degree of latitude, the season and the time of day. In operational areas between 25° and 55° north or south latitude, the SunCarrier tracking systems provide the perfect adjustment of the solar modules to the current position of the sun. Compared to fixed south-facing installations, an additional yield of up to 40% can be generated. Because of the angle for capturing sunlight, high yields are thus also possible in the morning and afternoon.

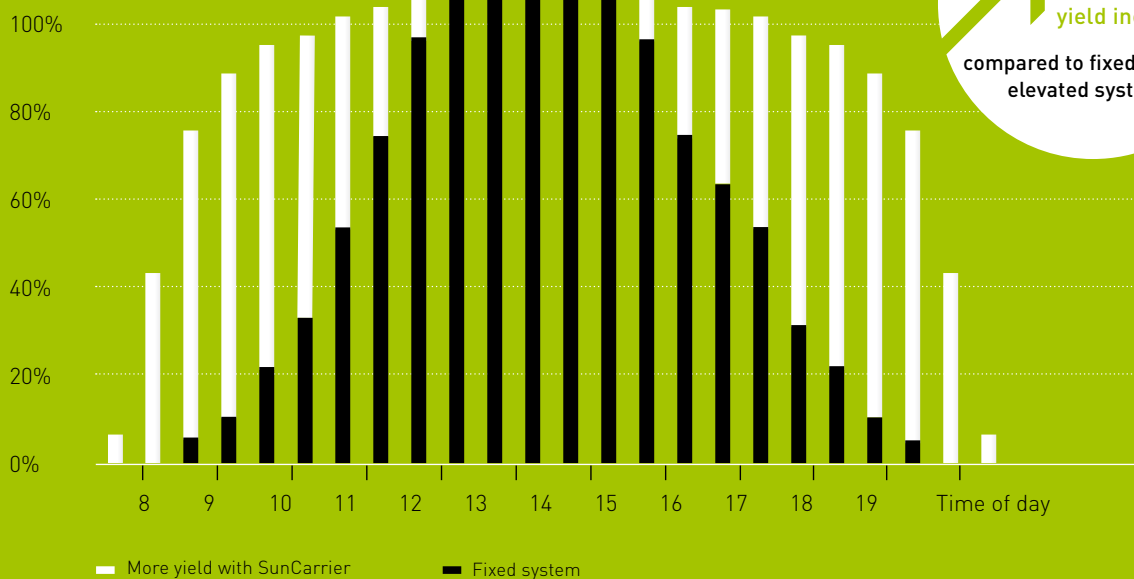
→ Profitable investment

Customers who are interested in the profit-oriented and future-proof generation of solar power, as well as the best possible return on their investment, should decide for the SunCarrier. The continuous alignment of the module surface towards the current position of the sun significantly increases the energy yield of the solar modules, thereby reducing the cost per generated kilowatt-hour. Particularly during the summer months, the SunCarrier guarantees an increased yield in comparison to conventional market solutions. In terms

of economic efficiency, the SunCarrier is significantly superior to other systems for reasons of size, stability, low maintenance, efficiency and intelligent design features. This makes it an enormously profitable and, above all, future-proof investment. Through continuing development of our product line, we supplement and optimise our value proposition for customers with diverse requirements in terms of market, location, technology and investment environment.

→ Daily energy gain

Performance

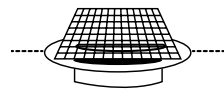


The new, compact tracking system – SunCarrier 70

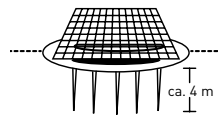
The SunCarrier 70 was especially designed for operating locations with a **small surface area**. With a height of only 4 m and a **module surface area of up to 84 m²** providing an output of up to 14 kWp, the SunCarrier 70 delivers highest efficiency on little space. **Compact measures**, little height, **long lifetime**, as well as a quick installation keep the choice of the operation location very flexible. Ideal for placement on unused commercial land to independently generate energy meeting part or all of your needs.

The SunCarrier 70 requires very **little regarding ground conditions** (approximately 20 kN/m² maximum compression force on concrete foundation). Due to its construction, it is additionally **very stable and long-lasting** (wind loads of up to 144 km/h, snow loads of up to 0.8 kN/m²). The SunCarrier 70 is offered in **two variations**: there is the possibility to choose from **concrete foundation** and a **screw-in foundation with 12 to 16 screws** (depending on local ground conditions).

Available foundations:



Concrete foundation



Screw-in foundation
ca. 4 m



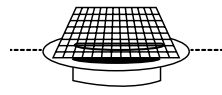
Up to
14 kWp
capacity

SunCarrier 70:
4 m height, 84 m² module surface,
screw-in or concrete foundation

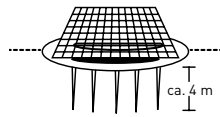
High performance in small dimensions – SunCarrier 120

With a **construction height of only 4.3 m**, the SunCarrier 120 **can be installed without any problem in countries with construction height limits**. Due to its **module surface of approximately 120 m²** the SunCarrier 120 is applicable in a very flexible way. The lower construction height also means less wind load and the resulting development focus on lightweight construction allows the weight of the steel construction to be significantly reduced. There is also the possibility to choose between concrete and screw-in foundation depending on the country-specific requirements and local ground conditions. The module surface of 120 m² is aligned to track the sun at an angle of 30° to the horizontal. Depending on the module used, an **output of up to 24 kWp** can be installed and an increased annual **energy yield of up to 40%** compared to fixed systems can be achieved.

Available foundations:



Concrete foundation



Screw-in foundation

Up to
24 kWp
capacity

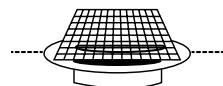
SunCarrier 120:
4.3 m height, 119.58 m² module surface,
screw-in or concrete foundation

Optimised yield through backtracking – SunCarrier 160

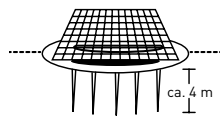
Thanks to its low construction height of just 4 m, the SunCarrier 160 system can also be installed without a problem in countries with construction height limits. Depending on the module type, an **output of up to 30 kWp** can be achieved on a **module surface of around 163 m²**. Due to its innovative geometry, solar modules can be mounted on the SunCarrier 160 at an angle of 40° to the horizontal. Compared to conventional systems, the SunCarrier 160 can generate up to 40% more annual energy yield.

The **integrated backtracking system prevents the modules from mutual self-shading** at a low angle of the sun. Thanks to an accurate tracking of the position of the sun and the provision of time and position using GPS receiver, the system is working with highest accuracy. The system requires only a surface marginally larger than fixed systems. Due to this, SunCarrier generates **maximum output** while using **minimal space and ensures optimal efficiency** utilising the geographical location perfectly..

Available foundations:



Concrete foundation

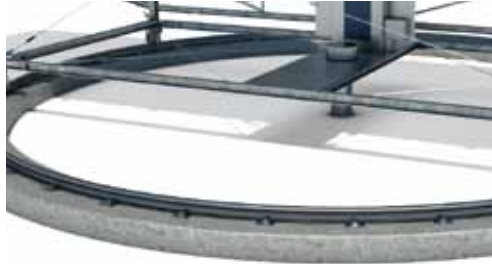


Screw-in foundation

Up to
30 kWp
capacity

SunCarrier 160:
4 m height, 163 m² module surface,
screw-in or concrete foundation

Technical data and qualities – SunCarrier 70 | 120 | 160 | 220 | 260 | 300



Foundation

The forces which bear upon the system are dissipated directly into the foundation [different types of foundations are available].



Rail System with lift-off protector

The centre tube along with the rail system is the pivotal point of the SunCarrier. The lift-off protector ensures that the SunCarrier always remains secure on the track.

Compact single systems

Special construction

SunCarrier model	SunCarrier 70	SunCarrier 120	SunCarrier 160
Rotation axis	Rotational axis azimuth (solar angle of arrival), single-axis tracking system, tracking through vertical axis		
Rotation angle	Maximum 220°	Maximum 220°	Maximum 220°
Panel	All common types and sizes can be used		
Recorded power output*	Up to 14,000 Wp	Up to 24,000 Wp	Up to 30,000 Wp
Pitch angle of module surface	30° to the horizontal	30° to the horizontal	40° to the horizontal
Panel area (width x height)	Maximum 84.05 m ² (12.415 m x 6.77 m)	119.58 m ² (16.16 m x 7.40 m)	163.20 m ² (1.60 m x 17.00 m = 27.20 m ²)
Height above clearance surface	Approximately 4 m	Approximately 4.30 m	Approximately 4 m
Foundation	Concrete foundation (6 m x 6 m) or screw-in foundation	Screw-in foundation or concrete foundation (diameter: 6.20 m)	Screw-in foundation or concrete foundation (diameter: 12.00 m)
Control	Memory Programmable Controller (MPC) (for time, date and location coordinates with astronomic calculation algorithms) backtracking to reduce shade		
Drive**	Multi-stage gearbox, interlocking connection between chain wheel and anchor chain	Electric motor with break function and a three stage planetary gear	
Dead weight (steel structure, galvanised, without modules)	2300 kg	4500 kg	8000 kg
Construction licensing	Structural design check by experts by Bavarian State Testing Authority (LGA)	Compliant with Eurocode 1, subject to technical modifications	Structural design check by experts with a calculated safety factor of at least 1.6 tested by the Bavarian State Testing Authority (LGA), CE certified
Wind load ***	Gust pressure $q_p = 1.00 \text{ kN/m}^2$ (144 km/h), according to Eurocode 1 DIN EN 1991-4:2005	compliant with UNI EN1991-1-1:2005-07, wind zone 4, area category III, 121.3 km/h gale force or gale-force pressure of 0.71 kN/m ²	according to I.F.I wind certificate and UNI EN1991-1-4: 2005, wind zone 4 and category III, 120.5 km/h gale force or gale-force pressure of 0.70 kN/m ²
Area of use	open spaces from 25 to 55 degrees of latitude, northern or southern hemisphere		



Steel structure

The mechanical steel structure is manufactured from stable, maintenance-free galvanised steel.



Modules

The SunCarrier can be equipped with all conventional types of modules, horizontally or vertically, according to customer requirements.



Accurate tracking

The SunCarrier has an astronomic programmable logic control system (PLC), which informs the drive motor to readjust the SunCarrier every ten minutes to the new position of the sun.



Drive

The drive operates with a multi-stage gearbox or an electric motor with break function and a three stage planetary gear.

High-performance park systems

SunCarrier model	SunCarrier 220	SunCarrier 260	SunCarrier 300
Rotational axis	azimuth (solar angle of arrival), single-axis tracking system, tracking through vertical axis		
Rotation angle	Maximum 220°	Maximum 220°	Maximum 220°
Panel	All common types and sizes can be used		
Recorded power output*	Up to 40,000 Wp	Up to 48,000 Wp	Up to 53,000 Wp
Pitch angle of module surface	30° to the horizontal	30° to the horizontal	30° to the horizontal
Panel area (width x height)	212.10 m ² (21.00 m x 10.10 m)	247.52 m ² (22.10 m x 11.20 m), module surface area can be extended up to 5 %	287.50 m ² (23.00 m x 12.50 m)
Height over open ground	Approximately 6 m	Approximately 6.50 m	Approximately 7.20 m
Foundation	Concrete foundation (diameter: 12.00 m)		
Control	Memory Programmable Controller (MPC) (for time, date and location coordinates with astronomic calculation algorithms)		
Drive**	Electric motor with break function and a three stage planetary gear		
Dead weight (steel structure, galvanised, without modul)	10,000 kg	11,300 kg	12,900 kg
Construction licensing	structural design check by experts with a calculated safety factor of at least 1.6 tested by the Bavarian State Testing Authority (LGA), CE certified		
Wind load ***	101.9 km/h, compliant with DIN 1055, Part 4 – 1986	128.9 km/h, compliant with DIN 1055, Part 4 – 2005	128.9 km/h, compliant with DIN 1055, Part 4 – 2005
Area of use	open spaces from 25 to 55 degrees of latitude, northern or southern hemisphere		

* Recorded power output: Watt peak = standard by which the power of solar cells and solar modules is measured, depending on the module type

** Drive: SunCarrier 120 | 160 | 220 | 260: brake motor 0.37 kW, capacity approximately 0.4 kWh/day, SunCarrier 300: brake motor 0.75 kW, Gearing i=1:1,639, Capacity approx. 0.6 kWh/day, interlocking connection between chain wheel and anchor chain

*** Wind load: determination of characteristic loads by the Institut für Industrie-Aerodynamik GmbH (IFI) (Institute for Industrial Aerodynamics) at the Aachen Technical College